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► **To cite this version:**

| Isabelle Roy, Elena Soare. Event-related Nominalizations. 2012. hal-00723654v1

HAL Id: hal-00723654

<https://hal.science/hal-00723654v1>

Preprint submitted on 12 Aug 2012 (v1), last revised 16 Dec 2013 (v2)

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Event related nominalizations

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Abstract

The literature on nominalizations often distinguishes classes of derived (deverbal) nominals with an event related interpretation, commonly analyzed as inherited from the semantics of the underlying verbal/aspectual structure. However, the classes of nouns that have been called ‘eventive’ exhibit sometimes contrastive properties. Dealing here with 3 such classes of derived nominals, i.e., Complex Event nominals (CENs), Simple Event nominals (SENs) and ‘eventive’ *-er* nominals, we propose a system that distinguishes between a ‘strong’ grammatical event and a ‘weak’ semantic event to account for the properties of event inheriting nominals.

1 Introduction

As it has been widely claimed in the literature, deverbal nominals fall into two categories, depending on whether they retain the event from their verbal base or not. The original observation is due to Chomsky (1970); see also Lees (1960), Marantz (1997), Borer (2003). For English *-ation* and *-ing* nominals (e.g., *destruction*, *examination*; *forming*, *examining*) and for zero-derived nominals (*form*, *exam*), this has led to distinguishing two classes of nominals : complex-event vs. result nominals (CENs/RNs – Grimshaw (1990)) or Argument-Supporting nominals (AS-Ns, cf. (1)) vs. Referential nominals (R-Ns, cf. (2)– Borer (1999)):

- (1)
 - a. the destruction of the city by the enemy
 - b. the examination of the students by the teacher
 - c. their building new quarters
- (2)
 - a. a complete destruction
 - b. a difficult exam
 - c. an impressive building

The nominals in (1) have an event interpretation (hence Grimshaw (1990)’s label of CENs). The eventive interpretation has been noted to correlate with various syntactic properties, as, for instance, the presence of temporal/aspectual modifiers.

- (3) a. They destroyed the city for two hours / in two hours.
 b. the destruction *(of the city) for two hours / in two hours

The pattern in (3).b also has another important property, which is the obligatory realization of the arguments of the verbal base (hence the term Argument Structure nominals); cf., Borer (1999, 2003)). This property is compulsory when the event structure is activated in presence of event-related modification (see Grimshaw (1990), Borer (1999, 2003), Alexiadou (2001), among others).

The correlation between the event interpretation and obligatory realization of argument structure has been one important point since Grimshaw (1990). The fact that both go hand in hand has been claimed in the literature to show that both are realized grammatically and that eventivity and arguments are inherited from the verbal and/or aspectual structure present with AS-Ns and lacking with R-Ns (the latter derived from bare roots) – cf. Borer (2003); Alexiadou (2001); Van Hout and Roeper (1998). The syntactic approaches to word formation represented by these scholars take eventivity in AS-Ns to be correlated with the projection of syntactic-functional layers detectable through argument structure projection and aspectual modifiers. The source of the eventive interpretation is the presence of a verbal base upon which AS-Ns are built. Nominalizations may thus inherit verbal properties, when (and only when) they involve a verbal / aspectual structure.

However, the term ‘event’ (or ‘eventive’) nominals is often the subject of some misunderstanding, or at least suffers from variable definitions depending on whether it is taken in the syntactic tradition where eventivity is correlated with particular structural properties, or from a (lexical-)semantic point of view where a much larger class of nominals would be considered as eventive. For instance, Grimshaw (1990)’s SENs fall into this class. Such nouns (e.g., *film*, *meeting*, etc.) are ‘semantically’ associated to an event interpretation but do not exhibit the common event related properties of AS-Ns described above. SENs cannot take typical verbal / temporal modifiers otherwise found with AS-Ns:

- (4) a. They met / filmed for two hours.
 b. the meeting / the film (*for two hours)

However, they do have an event interpretation which, it has been claimed in the literature, cf., Haas et al. (2008), can be tested in the context of the *took place* predicate, taking both AS-Ns and SENs subjects but rejecting R-Ns:

- (5) a. The destruction took place at noon. (AS-Ns)
 b. The movie / meeting took place at noon. (SENs)
 c. *The table took place at noon. (R-Ns)

Another problematic group of nominalizations is also often associated with an event interpretation, namely *-er* nominals. *-Er* nominals already differ from AS-Ns in that they denote individuals (e.g., *driver*, *teacher*, *scuba-diver*). However, recent works by Alexiadou and Schäfer (2010) and Roy and Soare (2012) have shown that

some of them at least are interpreted in association with an actual eventuality. Independently of the typology one accepts (whether retaining three groups: episodic / dispositional / instruments Roy and Soare (2012) or just two groups based on the episodic / dispositional contrast alone Alexiadou and Schäfer (2010), there is a common agreement that some *-er* nominals at least relate to particular events, arguably inherited from their verbal base again.

- (6) a. a saver of lives (has saved lives)
b. a life-saver (hasn't necessarily saved lives)

However, as SENs, 'eventive' *-er* nominals do not take event modifiers otherwise possible with AS-Ns:

- (7) a. He drove the truck for two *hours*.
b. the driver of the truck (*for two hours)

Evidently, while there is a strong sense in which both AS-Ns and episodic *-er* nominals refer to events or are related to an event interpretation, they do not do so in the same way; as the diagnostics for eventivity clearly indicate. This is why in the present-day literature on nominalizations there is no consensual view on the definition of eventive nominals and their variable properties.

The aim of this paper is to gain some understanding into the semantic relationship derived nominals entertain with their verbal base, and to provide a principled analysis of AS-Ns, SENs and *-er* nominals that accounts for the different flavors in which the interpretation of a deverbal nominal is said to be event related.

Section 2 deals with 'event' nominals i.e., AS-Ns and SENs, providing a summary of the literature that will serve as a starting base for our discussion. Section 3 turns to a detailed discussion of the properties of *-er* nominals, which manifest event properties in a different way from event denoting nominals. We first show that these nominals are event-related in a 'strong'/grammatical sense, and that a unified structural account is warranted, for event-denoting and for *-er* AS-Ns as well. We finally propose in section 4 a compositional semantic analysis of *-er* nominals that captures the differences between them and event-denoting AS-Ns, providing a better understanding of simple event nominals, and of the way in which nominals in general can be eventive.

2 Event nominals

2.1 AS-nominals

The literature on deverbal nominalizations starting with Lees (1960); Chomsky (1970); Grimshaw (1990) pays special attention to the problem of their ambiguity. Taking, as an illustration, *-ation* nominals (e.g., *examination*, *destruction*, *manifestation*), they may either denote an event - or an entity (i.e., object/individual), which may but must not, be the result of an event. As stated above, this is com-

monly expressed in the literature under the form of the CENs / RNs distinction (initially proposed by Grimshaw (1990)), and is implemented broadly in terms of a structural ambiguity, as we will see below.

An overview of the properties distinguishing CENs from RNs is given in table 1. Given the observed correlation between argument Structure and eventive interpretation, in recent works on nominalizations (cf Borer (1999, 2003); Alexiadou (2001, 2010a,b); Kornfilt and Whitman (2011). among others) the distinction has been restated in terms of Argument Supporting (or AS)-nominals and Referential (or R)-nominals (terminology from Borer (1999, 2003)). The properties in the left column, including obligatory realization of the arguments and modification with aspectual modifiers, are generally seen as a hallmark for eventivity inside nominals. The properties are exemplified in (8) (for AS-Ns) and (9) (for R-Ns).

Table 1: properties of AS- nominals and R-nominals

AS-Ns	R-Ns
(i) event reading	no event reading
(ii) obligatory arguments	arguments not obligatory
(iii) compatible with aspectual modifiers like <i>in three hours</i>	not compatible with aspectual modifiers
(iv) <i>constant, frequent</i> with the singular	<i>constant, frequent</i> possible only with the plural
(v) <i>by</i> -phrase is an argument	<i>by</i> -phrase is not an argument

- (8) AS-nominals
- a. the destruction of the city by the enemy
 - b. the destruction *(of the city) *(by the enemy) in three hours
 - c. the frequent destruction of the city by the enemy
- (9) R-nominals
- a. the form; the exam
 - b. the exam by the teachers
 - c. the frequent exam*(s)

One important property of AS-Ns is argument structure. As illustrated above, in the presence of event-related modifiers like *frequent*, *constant*, *in/for*-PPs, argument structure is obligatorily realized; this is not the case with entity referring, non eventive deverbal nominals. (cf. (8)-b vs. (9)-a, for instance). Thus, nominals like *examination*, *destruction*, which are eventive, obligatorily realize argument structure with event-related modifiers like *in x time*, *frequent*; cf. (10) and (11).a. R-Ns, on the other hand, are non-eventive and correlatively lack argument structure; cf. (10) and (11).a. They can combine with predicates like *be long*, *be on the table*. An unambiguously R-N like *exam* always denotes an entity and never has eventive

properties, nor arguments, cf., (10).c.

- (10) a. the examination of the patients in one day/ *was on the table.
- b. the examination *in one day / was long / was on the table.
- c. the exam *in one day / *of the papers / was long / was on the table.
- (11) a. the destruction of the city in five hours/ *was complete
- b. *the destruction in five hours/ was complete
- c. the frequent destruction *(of the city)

The correlation between argument structure and event interpretation is commonly taken to mean that the ambiguity between eventive vs. non eventive deverbal nominals is reflected in their respective syntactic properties. This result paved the way to more recent syntactic approaches of word formation in which eventive deverbal nominals have been claimed to rely on a verb-like structure, contrary to the non eventive ones often seen as mere derivations on roots – cf., Marantz (1997); Borer (1999, 2003); Alexiadou (2001).

There are different views on the AS-N / R-N ambiguity. Some take the ambiguity as being stored in lexical entries. For others, however, the ambiguity corresponds to a structural difference in the form of the nominalization. The last turn is taken by scholars like Marantz (1997); Borer (1999); Alexiadou (2001), among others, which endorse a syntactic approach to word formation. Building on Grimshaw's criteria, it has been argued in this tradition that AS-Ns are derived on the basis of a full structure including verbal / aspectual layers, while R-Ns are simple, root-derived nominals.

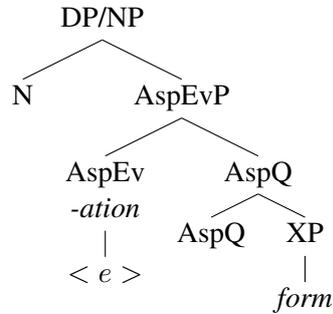
Syntactic approaches to deverbal nominals formation therefore consensually assume that the correlation between the eventive interpretation and the obligatory argument structure must be implemented by assigning different structural representations to the two classes of nominals. The eventive reading, in this view, is brought in by a full-fledged verbal/aspectual structure inherited from the underlying verbal (hence eventive) structure. Non-eventive nominals, in turn, are built directly from a root, and present no verbal layers, which captures the lack of both eventive readings and arguments.

The projection of argument structure inside deverbal nominals is also to be taken as a property of verbal layers included in their structure. These different layers have received different labels throughout the literature, from "Event Phrase" Van Hout and Roeper (1998), to different flavors of AspP as in Borer (1999, 2003, 2005b); Alexiadou et al. (2010).

Different executions have been proposed. Borer (1999, 2003, 2005b), for instance, implements the correlation between event structure and argument structure by proposing that arguments are introduced by functional heads, one of which is also responsible for introducing the event variable. In this paper, we will by and large adopt Borer's framework; but see Alexiadou (2001); Van Hout and Roeper (1998) among others. for alternative implementations. In the structure of AS-Ns in (12) below, AspEv thus introduces the external argument and AspQ the inter-

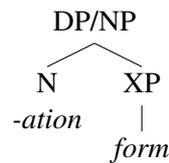
nal one, which is likewise severed from the root. AspEv is also responsible for introducing the event variable e .

(12) AS-nominals:



R-nominals in (13), in turn, are built directly from a root.

(13) R-nominals:



Recent work on AS-Ns denoting processes have, thus, reached the conclusion that eventivity in these nominals is structurally built-in, and that the projection of argument structure is also a consequence of their functional structure. What is being dealt with in this view is actually a structural ambiguity. The syntactic approaches to deverbal nominals formation share the idea that eventivity is encoded in the grammar. Therefore, we will refer to these cases as cases of “grammatical eventivity”, in which the presence of the event is structure-related and results from the presence of dedicated verbal functional projections in the structure of the nominal, identifiable by aspectual and manner modification. This structurally built-up eventivity could be called ‘strong/grammatical’ eventivity.

2.2 Simple Event nominals

In her original typology of deverbal nominals, Grimshaw (1990) distinguished not two, but three classes of (deverbal) nominals. Besides CENs and RNs, (here replaced by AS-Ns vs. R-Ns, following Borer (1999)), her taxonomy includes a third class of so-called Simple Event Nominals (SENs). Nominals in the SENs class also denote events as they can combine with predicates like *take place* and *last x time* that take an event as a subject (cf. Haas et al. (2008)). According to this test, they pattern with AS-Ns rather than R-Ns, leading many researchers to claim that they belong to the class of ‘event’ nominals:

(14) a. The concert/ the movie/ the game took place at nine. (SENs)

- b. The concert / the movie/ the game lasted three hours.
- (15) a. The examination of the papers by the committee took place today at 5pm. (AS-Ns)
- b. The examination of the papers by the committee lasted three hours.
- (16) a. The paper/ table #lasted three hours. (R-Ns)
- b. The paper/ table *took place yesterday.

However, while the class represented by *concert, movie, game* in (14) above, shares with AS-Ns the property of being eventive (in a way to be defined later), they clearly do not necessarily project argument structure. Incidentally, it turns out that, as opposed to AS-Ns (and R-Ns for that matter) SENs may but must not necessarily be derived from a verbal base (e.g. *movie, concert, game* vs. *meeting*). SENs are thus eventive by the semantic tests above, but not in the way AS-Ns are; i.e., presumably not in the strong/grammatical sense defined in the previous section. Crucially, from a syntactic point of view, and especially concerning the compatibility with PP-modifiers and aspectual modifiers, SENs pattern with R-Ns, and not with AS-Ns.

- (17) a. The president met with the Prime Minister for three hours.
- b. the meeting of the president with the Prime Minister for three hours (AS-Ns)
- (18) a. *the meeting for three hours (SENs)
- b. *the concert, the movie for three hours
- (19) *the paper/table for three hours (R-Ns)

Other properties such as pluralization (20) (and note that SENs allow *frequent* modification in the plural only; compare with (iv) table 1; more on this in section 5), quantification (21) (see also Snyder (1998))¹ and properties of individuation (e.g., the possibility to appear in weak/existential contexts (22)) distinguish SENs from AS-Ns. In view of these apparently contradictory properties, SENs have therefore always been rather problematic and left aside in many recent accounts.

- (20) a. the (frequent) concerts, the (frequent) movies
- b. *the frequent destructions of the city by the enemy
- (21) a. many concerts; three movies
- b. *several/three elections of John by the department
- (22) a. There is a movie starting at 5.
- b. *There is a destruction of the city by the enemy starting at 5.

¹Recent works on pluralization have shown that AS-Ns may sometimes accept plurals and quantification when the nominals denote a bounded event; Borer (2005b); Alexiadou et al. (2010). What is important here is that no such requirement is made for SENs.

If we follow a structural approach, as discussed earlier, and if we assume that both the projection of argument structure and the event interpretation depends on the presence of a verbal structure, SENs do not involve a ‘grammatical event’, structurally built up in the nominal, in Borer’s or Alexiadou’s sense. We must conclude that there is another source of eventivity inside nominals which is not structure-related. Nominals can refer to events in the absence of verbal bases and therefore of any verbal layers. We will name this kind of eventivity which is not inherited from a base predicate a weak/conceptual eventivity.

Semantically, SENs are eventive but in a ‘weak’ way; i.e., the event they denote might in actuality be an (abstract) object/individual entity. This is to say that SENs refer to entities rather than events *per se*. It just happens that the object they refer to is conceptually an event. This explains why both SENs and AS-Ns allow *frequent*-modification, but SENs in the plural only. (More on this in section 5). We take the (obligatory) plural as a hallmark of an individual-type denotation. We may say that the event in this case is ‘individuated’. There is then no contradiction between being eventive and being referential/individual-denoting: SENs denote events as individuals/abstract objects.

Hence, SENs share properties with R-Ns that are associated with reference to objects (including abstract ones), and differ from R-Ns by appearing with predicates like *took place*, which seek for an event denoting subject. However, this is only the result of their denoting different kinds of objects.

The diagnostics for eventivity have to be carefully distinguished: *frequent* (in the singular) and *in/for*-PP modification, as well as argument structure, indicate strong/grammatical eventivity. The ‘*take-place*’ type of predicates that are allowed to combine with the nominal indicate weak/conceptual eventivity.

This distinction is clearly supported by the fact that ‘conceptual-eventive’ predicates are available with SENs on a par with eventive AS-Ns. It is granted that all the nominals denoting an event (AS-Ns and SENs) are eventive; but only the strong/grammatical eventivity follows from the presence of a grammatical event in the structure, as reflected in the presence of argument structure and confirmed by PP-modifiers available only with the class of AS-Ns (cf. (17)b and also certain temporal modifiers like *that day*, *yesterday* as subject to cross-linguistic variation).

Nevertheless, for SENs one has to better understand how the weak/conceptual eventive meaning is exactly obtained in syntactic-semantic terms, as compared to the strong/grammatical eventivity. We will return to this question in section 5 below.

3 Further issue: naming participants in the eventuality

3.1 Eventive *-er* nominals

-Er derived nominals (often called ‘Agent’ nominals) present a further difficulty to an already complex notion of eventivity inside nominals. On the one hand, they fall on the side of SENs because they denote entities (individuals) rather than events;

but on the other they have a strong/grammatical eventivity that can be linked to an AS-Ns structure.

Nominals denoting participants in an eventuality have been characterized in the literature as being sensitive to a distinction between eventive and non-eventive (Rappaport Hovav and Levin (1992), Van Hout and Roeper (1998), among others). Hence, there are certain parallels to be drawn between strong eventive process nominals and (a sub-class of) participant nominals. *-Er* nominals commonly exhibit an interpretive difference in terms of: (i) eventive nominals like *the saver of lives*, *the mower of the lawn*, and (ii) non-eventive nominals like *the life-saver*; *the lawn-mower*. Only in the first case has the participant denoted by the nominal to be involved in an actual event. By opposition, instrument *-er* nominals never involve a participation in an event. Following Rappaport Hovav and Levin (1992), this interpretive split matches the syntactic split reflected in the realization vs. non-realization of arguments; indeed, eventive *-er* nominals, much like process AS-Ns, can take arguments:

- (23) a. the defenders *(of human rights)
 b. a devourer of fresh fruit / *a (good) devourer
 c. she devours fresh fruit / *she devours

Inheritance of argument structure draws therefore, for Rappaport Hovav and Levin (1992), a crucial distinction between eventive and non-eventive *-er* nominals. This is corroborated by *frequent*-type modification, which, as stated above, is another hallmark of ‘eventive’ structure in AS-Ns.

- (24) a. constant defenders *(of the government’s policies)
 b. frequent consumer *(of tobacco)
 c. this machine is our only frequent transmitter *(to headquarters)

Considering these similarities, a unified account for eventive *-er* nominals and process AS-Ns appears as the default hypothesis. In actuality, the situation is more complex, however, because of dispositional nominals like *lawn-mower*; *live-saver*; *teacher*. According to Alexiadou and Schäfer (2010), dispositional *-er* nominals have event-related properties and share the same syntactic structure as episodic *-er* nominals. Both are eventive and involve verb-like internal structure, i.e., Aspect and Voice heads (in a standard Distributed Morphology approach), but they differ in terms of aspectual specifications. Episodic and dispositional meanings are, in this approach, two flavors of an aspectual head.

- (25) Dispositional *-er* nominals
 a. fire-fighter, live-saver, baker, teacher (educated but not necessarily experienced)
 b. $[_{nP} -er [_{AspP_{DISPO}} [_{VoiceP} < x > [_{vP} < e > [_{RootP}]]]]]]$
- (26) Episodic *-er* nominals

- a. saver of lives, fighter of the fire (necessarily experienced in action)
- b. [_{NP} -er [_{AspP}_{EPISO} [_{VoiceP} < x > [_{vP} < e > [_{RootP}]]]]]

Note that in this account, dispositional nominals and inanimate instruments are grouped in the same class. However, some differences concerning complement structure and modification are not fully explored.

Here, we take as a starting point that a split between eventive / non-eventive in *-er* nominals is warranted. Following Roy and Soare (2012) episodic / dispositional *-er* nominals are both eventive, as opposed to instruments and other R-nominals. This three-way typology of *-er* nominals, built on French data, is supported by subtle differences in the kind of adjectival modification such nominals allow. Two kinds of event-related modifiers may appear in these nominals. First, *frequent/constant* modifiers only combine with episodic-eventive *-er* nominals, which always project (specific) argument structure; these are impossible with dispositional-eventive *-er* nominals. Second, *big/happy/old* modifiers, also event-related according to Larson (1998), combine with both episodic and dispositional, but not with instrument *-er* nominals. This is summarized in the following pairs of examples:

(27) Episodic nominals

- a. un consommateur fréquent de plusieurs drogues douces/ de LSD
a consumer frequent of several drugs soft of LSD
'a frequent user of several soft drugs/ of LSD'
- b. un heureux/ gros consommateur de plusieurs drogues douces/ de LSD
a happy big user of several drugs soft of LSD
LSD
'a happy/big user of several soft drugs/ of LSD'

(28) Dispositional nominals

- a. *un vendeur fréquent de voitures/ *les consommateurs fréquents de drogue
a seller frequent of cars the consumers frequent of drug
- b. un petit vendeur de voitures/ les gros consommateurs de drogue
a small dealer of cars the big consumers of drugs
'a small car-dealer/ the big drug consumers'

(29) Instruments²

- a. *un broyeur fréquent
a grinder frequent

²As specified in Roy and Soare (2012), the (b) example is ungrammatical under the right, i.e., event related, interpretation and in argumental position. Predicative uses generally seem to render the eventive reading accessible; compare *I bought a big grinder* (#a tiny machine that grinds much) vs. *This is a big grinder* (ok: a tiny machine that grinds much)

- ‘a frequent grinder’
- b. *un gros broyeur
 - a big grinder
 - ‘a big grinder’

This typology shows that, in view of a structural analysis of *-er* nominals supported by the correlation between eventive interpretation and argument structure³, some *-er* nominals behave like R-Ns, while other don't. Therefore, they would represent another instantiation of a structural ambiguity than the one manifested by event-denoting nominals in section above. Indeed, episodic nominals, that both allow *frequent/ constant* and *big/happy* modifiers, clearly project obligatory (and specific) argument structure. At the opposite side, instrument nominals, that allow neither of them, never project argument structure of any type. In between, eventive-dispositional nominals project non-specific arguments and only allow *big/happy* modifiers.

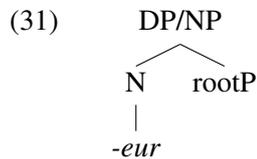
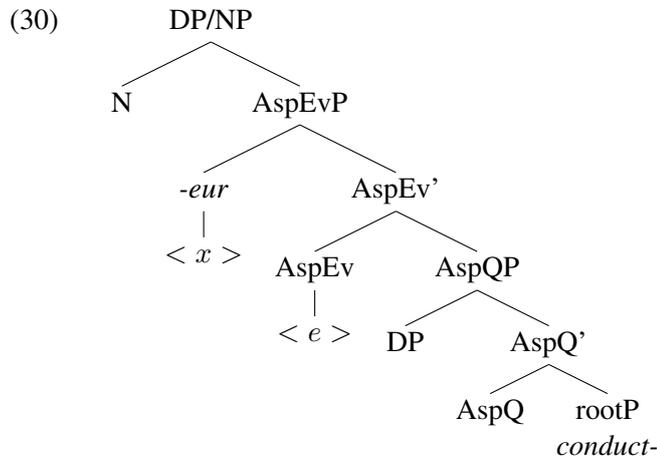
As a consequence, Roy and Soare (2012) propose that a structurally built-in / grammatical event must be assumed in the first two classes of *-er* nominals, which must share the structure of AS-Ns in (12). Instrument nominals pattern with root-derived nominals with which they would share the structure (13). Accordingly, they have the following structure, respectively:

³We are particularly concerned with the source of the eventive reading inside nominals in this article and will leave aside issues related more particularly to argument structure, even though we acknowledge that both are closely related. On that matter it has been reported in the literature that *-er* nominals prevent systematically from projecting arguments: e.g., *the teller of stories *to the children*.

This can be taken as an argument against the projection of a verbal structure inside derived *-er* nominals. In actuality, the facts are more complicated. In French, for instance, oblique arguments may be realized, and particularly when the arguments are specific, i.e., with episodic *-er* nominals (i). Inheritance of oblique arguments is far from systematic, however, (ii) and needs to be better understood .

- (i)
 - a. le conteur de cette histoire aux enfants
the teller of that story to.the children(specific)
 - b. le relecteur de l'article pour le journal
the reviewer of the.article for the journal
- (ii) *le lecteur de l'article pour le journal
the reader of the.article for the journal

A complete investigation of argument structure inheritance is not in the scope of this paper.



In what follows, we will build on this result. However, if episodic *-er* nominals are a form of AS-Ns, involving a case of strong/grammatical event, some differences between event-denoting (AS-Ns) and participant-denoting (*-er*) eventive nominals need to be addressed.

3.2 Some unexplained differences

The situation is further complex, since as it has already been observed in the literature, important differences exist between event-denoting AS-Ns and eventive *-er* nominals. One such notable difference is the fact that eventive *-er* nominals never allow for aspectual (PP) modifications typically found with AS-nominals :

- (32)
- a. le domptage/ la vente des chiens pendant des années
the taming the sale of.the dogs for many years
 - b. l'invitation de toutes les personnes importantes/ le mariage
the.invitation of all the persons important the marriage
des trois couples en cinq minutes
of.the three couples in five minutes

- (33)
- a. *le dompteur/ vendeur des chiens pendant des années
the tamer seller of.the dogs for many years
 - b. *l'invité/ marié en cinq minutes
the.guest (lit. invited) groom (lit. married) in five minutes

This contrast was originally noted for Greek by Alexiadou et al. (2000):

- (34) a. *i damastes ton fotonion mesa se/ gia enan eona
 the tamers the-GEN photons within for a century
 b. *o katharistis tu ktiriu epi ena mina telika apolithike
 the cleaner the-GEN building for a month finally got.fired

The contrast above has generally been taken as an indication of a diminished verbal character for *-er* nominals, even in their eventive meaning. Alexiadou et al. (2000) suggested that an explanation would rely on the fact that these nominals lack an Asp(ectual) projection, which would rule out adverbial modification across the board – and manner modification can only be spelled out as an adjective. This in turn, as also suggested by Alexiadou (2001), relates to the semantics of *-er* nominals, which denote individuals; while process nominals denote events. The difference is, thus, expected to the extent that aspect is relevant for processes and not for individuals. However, a precise implementation of the difference has never been proposed.

This type of evidence has also been taken to indicate that a unifying treatment of process and participant deverbal nominals is not possible to begin with Baker and Vinokurova (2009), on the basis of similar facts, cf. (35), argue for separating process and agentive deverbal nominals, assigning a ‘purely nominal’ status to *-er* nominals, which, according to them, are deprived of any internal verbal structure (even in languages in which they are able to assign Accusative case to their object, like Sakha).

- (35) a. finding the wallet quickly
 b. *the finder of the wallet quickly

Such a view, however, is problematic on the basis of the incompatibility of many AS-Ns with adverbs: *the destruction of the city by the enemy (*quickly)*; and also fails to capture the set of properties that *-er* nominals and process AS-Ns have in common, as well as the differences between eventive and instrumental *-er* nominals.

Here, we do not endorse Baker and Vinokurova (2009)’s view, and we argue that a unifying syntactic analysis of eventive deverbal nominals is nevertheless possible, once we establish clearly the possible sources for eventivity inside nominals. We actually agree with Baker and Vinokurova (2009) and Alexiadou (2001) on the fact that R-nominals and *-er* nominals have the same type of denotation (namely, they denote individuals, hence objects rather than events), but we will follow Roy and Soare (2012) in assuming that eventive *-er* nominals have to be assigned a syntactic analysis with complex structure and verbal layers akin AS-Ns. The properties of eventive *-er* nominals are the combined result, as we shall argue below, of their involving both a grammatical/structurally built-in event and an individual variable. We will address this issue in detail below.

4 On eventivity within (derived) nominals

4.1 Event vs. individual variable

One important difference between eventive *-er* nominals and process AS-Ns relates to their denotations. The former denote individuals while the latter denote events properly speaking. We suggest that the difference may be associated to the nominal suffixes themselves, *-er* vs. *-ation, ing, etc.*, one picking out an individual and the others picking out events.

Considering AS-Ns first, and adopting the analysis put forth in Borer (1999, 2003), the nominalizing morpheme *-ation* realizes the aspectual head AspEv, responsible for introducing the event variable (noted *e*). By assumption, *-ation* rises to N in order to check its nominal features. We will accept that the consequence of this movement is that it brings along the event variable *e* originally introduced in AspEv. Consequently, the highest variable inside the NP complex is *e* and the nominal formation denotes thus an event. This leads, we claim, to the complex event interpretation.

- (36) AS-nominals (e.g., *-ation*)
 $[NP [N \text{-ation} \langle e \rangle] [_{AspEvP} DP [_{AspEv} \text{-ation} [_{AspQP} DP [_{rootP}]]]]]$

Turning now to *-er* nominals, the situation is rather different. Adopting the analysis of *-eur* nominals proposed by Roy and Soare (2012) (and by extension of *-er* nominals in English), we accept that eventive *-er* nominals (whether episodic or dispositional) involve a nominalizing suffix *-er* that realizes the external argument and rises to N to check its nominal features. We assume that the movement of *-er* is necessary because of its affixal nature.

As earlier, the eventive interpretation comes from the presence of an event variable introduced by AspEv. However, *-er* nominals differ crucially from process AS-Ns in that it is not the event variable *e* that is raised to the N position here but rather the individual variable *x*. Consequently, *-er* nominals denote an individual, since the highest variable inside the NP complex is an individual *x*. This leads to the participant/agent interpretation as often characterized.

- (37) Eventive *-er* (French; English)
 $[NP [N \text{-er} \langle x \rangle] [_{AspEvP} \text{-er} [_{AspEv} e [_{AspQP} DP [_{rootP}]]]]]$

Importantly, the source of the eventive interpretation *-er* nominals is the presence of the low (or unraised) event variable introduced in AspEv. Other *-er* nominals are non-eventive, i.e. principally instruments (see Roy and Soare (2012)), and do not involve an event variable at all:

- (38) $[NP [N] [_{rootP}]]$

The important point here is that both process AS-Ns and eventive *-er* nominals involve an event variable, and hence share an eventive interpretation; but they are not

the same type of nominals, the former relating to events and the latter to individuals. The source of the event is the same in both cases. The only difference resides in the type of variable that is raised to the N position.

We claim in the rest of this section that this difference alone plays a crucial role in explaining the compatibility / incompatibility of the two sorts of eventive nominals (event denoting vs. individuals) with event-related modifiers such as temporal adverbials. The relevant data have been presented above and will be now discussed.

4.2 Locality of Predicate Modification

Temporal and aspectual event modifiers are structurally adjuncts. We assume that they combine with the nominal they modify via the rule of *Predicate Modification* (PM) stated in (Heim and Kratzer, 1998, 65).

(39) *Predicate Modification*

If α is a branching node, $\{\beta, \gamma\}$ is the set of α 's daughters, and $\llbracket \beta \rrbracket$ and $\llbracket \gamma \rrbracket$ are both in $D_{\langle e, t \rangle}$, then
 $\llbracket \alpha \rrbracket = \lambda x \in D_e . \llbracket \beta \rrbracket(x) = \llbracket \gamma \rrbracket(x) = 1$.

PM predicts that the intersective reading of an adjunct modifier and the nominal is only possible at the level where they merge. PM is a conjunction operation. Importantly, however, PM is only applicable when the two constituents β and γ are of the same semantic type. In their original proposal, both the β and γ elements are of type $\langle e, t \rangle$ (for *predicates*). Here we are extending the system to include a type difference between *predicates of events*, type $\langle v, t \rangle$ and *predicates of individuals*, type $\langle e, t \rangle$. True to the basic principle, PM is only possible between two expressions of the same $\langle v, t \rangle$ or $\langle e, t \rangle$ type.⁴

Predicate Modification amounts to ‘intersective modification’ (i.e., Conjunctive composition) and captures the intersective reading of predicate modifiers:

(40) $\llbracket \text{city in Texas} \rrbracket$
 $\lambda x \in D_e . \llbracket \text{city} \rrbracket(x) = \llbracket \text{in Texas} \rrbracket(x) = 1$
 $\lambda x \in D_e . x \text{ is a city and } x \text{ is in Texas}$

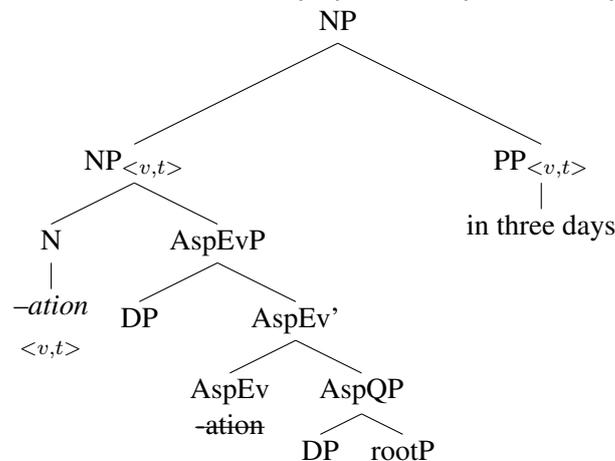
If modifiers are adjoined at the low position of the event, i.e. AspEv, PM should be applicable in both eventive *-er* nominals and AS-nominals and both classes of nominals should be equally compatible with the relevant temporal/aspectual PPs. The event modifying PPs are possible with AS-nominals but not with *-er* nominals. This suggests that the nominal type plays a role in allowing PM, and consequently that PM takes place at a level where the distinction is expressed. Concretely, it

⁴For expository purposes, we wrote e for event and x for individual in the previous sub-section. Following the type semantics conventions, we will hereafter write e for individual (entity), $\langle e, t \rangle$ for predicate of individuals and $\langle v, t \rangle$ for predicates of events (v standing for *situations*).

means, we propose, that adjunction takes place at the NP level, i.e. “after” nominalization rather than before nominalization.

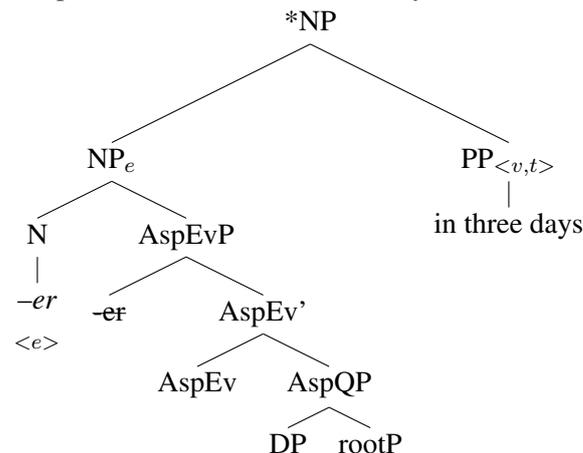
The ban on aspectual / temporal PPs can be explained solely on the basis of the type difference between eventive nominals that denote individuals and events. The basic intuition is that *driver* is not compatible with *for two hours* modifiers simply because it refers to an individual and not an event. With process AS-Ns, the type of the PP modifier matches the type of the nominal and the rule of compositionality can be applied:

- (41) a. the destruction of the city by the enemy in three days
 b.



For eventive *-er*, however, there is a type mismatch between the event modifying PP and the nominal that prevents PM from deriving the compositional meaning of the nominal complex:

- (42) a. *the painter of the room in three days
 b.



By definition, PM is a local compositional rule. Temporal/aspectual PPs can only be interpreted intersectively with respect to the predicate they immediately modify.

Since temporal/aspectual PPs can only be interpreted intersectively with respect to the event (and only the event) they are directly combined with, structurally, it must correspond to the event introduced by the functional projection they are directly adjoined to. Hence, modifiers adjoined at the NP level are interpreted intersectively with the high event. This is only possible with AS-nominals, temporal/aspectual PPs are intersective with the noun:

- (43) a. la destruction de la ville par l'ennemi en 3 jours
 the destruction of the city by the.enemy in 3 days
 b. $\exists e$, destruction(e) & Theme(e,the city) & Agent(e, the enemy) & In(e,3 days)

As already discussed, this is excluded with eventive *-er* nominals because of type mismatch. This situation has, however, one important consequence for event nominals and for the understanding of how eventive *-er* nominals and AS-nominals, even though both involve an event at the low level, differ in their respective interpretation. Eventive *-er* nominals have an event variable, but such variable remains in the low position where it is introduced, i.e. AspEv. This event is available for modification by temporal/aspectual modifiers via PM. In that case, however, very clear predictions are made in terms of the interpretation: the temporal/aspectual PPs can only be interpreted intersectively with respect to the low event, and not at the NP level. In other terms PPs are intersective with the embedded event and not with the (complex) NP.

Cases of event modifiers inside the NP are possible with *-er* nominals in French and have been noted in the literature (cf., in particular Kerleroux (2007)). They behave in a systematic way: they are intersective with respect to the inner event, but non-intersective (and that may include a large range of interpretations; e.g., subsecutive; event related interpretation, and so on) with respect to the N itself. Consider the following example:

- (44) les pêcheurs sous la glace (=subset of fishers)
 the fishers under the ice
 'under-ice fishers' (due to Kerleroux (2007))

It has been noted that the nominal can under no circumstances describe individuals that are fishing and are located under the ice. In our terms, this is expected as *-er* nominals denote individuals (type *e*), and hence block PM because of the type mismatch with the event modifying locative PP (type $\langle v, t \rangle$). However, the important point is that the locative PP *is* interpreted intersectively with respect to the fishing (and not the fisher(s)). The fishing must take place under the ice; while no location is specified for the fishers.

Further examples below:

- (45) a. le commentateur du matin
 the commentator of.the morning

- ‘the morning commentator’
- b. les plongeurs dans la Méditerranée
the divers in the Mediterranean Sea
- c. les surfeurs sur internet
the surfers on the.internet

Accordingly, going back to the original examples, (46) is not possible because (i) type mismatch prevents PM from applying at the NP level and (ii) the subjective reading does not provide an acceptable sub-class of N-*er*: *lion tamers for years* is not a typical sub-class of lion tamers, *a blood donor in five minutes* is not a typical sub-class of blood donors, and so on.

- (46)
- a. le dompteur des lions (*pendant des années)
the tamer of.the lions for many years
 - b. le donneur de sang (*en cinq minutes)
the giver of blood in five minutes
‘the blood donor (*in five minutes)’

Aspectual or temporal properties may sometimes form acceptable sub-classes, as in (47). The interpretation is again intersective at the NP level only:

- (47)
- a. les sprinters en moins de 9 secondes
the runners in less than 9 seconds
 - b. les bricoleurs/coureurs du dimanche
the tinker/runners of.the sunday
‘the sunday tinkers/runners’

We note that temporal/aspectual and spatial modifiers are systematically introduced by a preposition; which means that for modifiers that are not already PPs at the sentential level, they must be introduced by the preposition *de* (to be distinguished from the genitive *de*); cf. (47)-b, contrasting with its verbal counterpart (e.g., *bricoler le dimanche* (lit. tinker the sunday) ‘tinker with things on sundays’). We take this as an indication that adjunction takes place at the NP-level, as in other cases of nominal adjunction in French: e.g., *la maison est à Paris* ‘the house is in Paris’ / *la maison *à /de Paris* (lit. the house *in/of Paris) ‘the Paris house’.

In conclusion, nominalization forms a local domain where the meaning is computed first and then further modifiers are possible, provided that they are of the right semantic type for PM to apply. Adjunction at the AspPEv level is possible but is interpreted as intersective with respect to the event only (through PM); adjunction is, in this case, not visible/accessible for the individual.

Importantly, eventive *-er* nominals have been diagnosed as such (i.e. eventive), and contrast with R-nominals (including instruments), because they do accept some event related modifiers. Low event variable renders some event modification pos-

sible (cf. *frequent*-type; *big*-type modifiers).⁵ As already hinted at in earlier sections, *frequent/happy*-type modifiers are diagnostics for the low event variable; whereas *for x time / in x time* are diagnostics for the high event variable. The low event corresponds to the weak/conceptual event (and co-occurs with a high individual variable); while the high event corresponds to the strong/grammatical event in ASNs.

Our results confirm what has been claimed so far in the literature since Grimshaw (1990); Van Hout and Roeper (1998); Borer (1999), namely that aspectual modifiers signal the presence of an underlying aspectual/verbal structure (introducing an event variable and hence an eventive interpretation). However, a detailed study of these modifiers shows that this is true only for AS-Ns because they have a high event variable. Eventive *-eur* nominals, which are more complex in the sense that they involve two distinct variables: an individual *x* (high, at n level) and an event *e* (low, in AspEv), can be reconciled with the rest of event related nominals.

5 Extension to simple event nominals (SENs)

This view of events inside nominals, forced by semantic compositionality, allows us to gain some understanding of the Simple Event Nominals (SENs) (Grimshaw (1990)) traditionally left aside as problematic cases. Recall that SENs are interpreted as related to an event (e.g., *film, meeting, concert*), yet they do not pass any of the tests for AS-Ns. In particular, they cannot take PP adjuncts modifiers of the type *in x time/for x time*, which is evidence that they do not belong to the class of event nominals. Recall that PP-adjuncts are a test for the ‘grammatical’ event (i.e., high event variable):

- (48) a. On a construit la cathédrale en 100 ans
 one has built the cathedral in 100 years
 b. La construction de la cathédrale en 100 ans. (AS-N)
 the building of the cathedral in 100 years
- (49) a. Les membres du projet se sont réunis pendant 3 heures.
 the members of.the project refl have met for 3 hours
 b. *La/une réunion des membres du projet pendant 3 heures
 the/a meeting of.the members of.the project for 3 hours
 (SEN)

Since SENs lack a grammatical event, they cannot be syntactically derived from a verbal/aspectual structure and we assume that they are simply formed from a root (whether they are morphologically complex as in the case of *meeting* or not, as in

⁵We are not exploring here the reasons why these modifiers are often realized as adjectives rather than PPs. Pending further investigation, we postulate that it has to do with (independent) rules of complex N formation. cf. also relational adjectives.

concert, film). Accordingly, they pattern structurally with eventive *-er* nominals rather than AS-Ns.

- (50) SENs
 [NP [N< *x* >] [rootP]]

The source of the eventive interpretation for SENs is, as already mentioned, the fact that they denote an individual entity *x* that happens to be conceptually an event. Recall that the conceptual event, as opposed to the grammatical event, is diagnosed in the context of predicates that require an event subject such as *take place*; cf., Haas et al. (2008). Similarly to AS-Ns, SENs can be the subject of *take place*, whereas no other nominals, including eventive *-er* nominals otherwise can. *Take place* requires a ‘conceptual’ event as a subject. This event may also be grammaticalized as in the case of AS-Ns (i.e., high event variable in N) or not, and this is the case with SENs. SENs are individual denoting nominals; it just happens that the individual *x* is conceptually an event (but grammatically it is not).

- (51) a. The destruction of the city/ examination of the students took place at noon.
 b. The film/ meeting took place at noon.
- (52) a. #The driver/tamer of the lions takes/took place at noon.
 b. #The table/form took place at noon.

This means that the strong/grammatical event can only be contributed by verbal structure (as in the case of AS-Ns) and must, therefore, be inherited from a verb. Nominals, in the absence of a verbal base, can only denote entities. Conceptually, however, such an entity may or may not be an event.

Finally, turning back to *frequent* modification, recall that SENs contrast from both AS-Ns and eventive *-er* nominals in allowing such modification in the plural only, while other derived nominals allow it in the singular. This contrast is explained if we assume that *frequent* can quantify over ‘events’, whereas the grammatical event or the conceptual event, indistinctively. However, in both cases, the interpretation differs. When *frequent* quantifies over the grammatical event, it is adjoined low, at an AspP level, following the rule of PM. Semantically, *frequent* pluralizes the event. Whereas when *frequent* modifies the (conceptual) event it is adjoined higher, at the NP level, and therefore pluralizes the individual objects; leading to a plural morphological marking on the noun.

6 Conclusion

A close examination of the differences between participant nominals and so-called CENs with respect to the availability of aspectual *in/for* modifiers, never addressed in detail in the literature, allows distinguishing between ‘conceptual eventivity’ (also present in SENs) and ‘grammatical eventivity’. The type of variable that

characterizes the noun's denotation at the NP level (individual vs. event) proves in this sense crucial. The strong event can only be inherited from a verb; while Ns in general, and in the absence of verbal structure, only denote entities (which may or may not be conceptually events).

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