

Instrumental -er Nominals Revisited

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1. Background

1.1 Certain generalizations concerning -er nominals

The literature on English -er nominals has established that these can be divided into two major subclasses (see Rappaport Hovav & Levin 1992, Fabb 1984, Keyser & Roeper 1984, van Hout & Roeper 1998 to mention a few), the relevant semantic property being whether they refer to an actual event or not. Hence -er nominals vary with respect to the [\pm event] specification.

As has been also widely discussed in the literature, [+event] -er nominals are not necessarily agentive; more concretely, they simply correspond to the external argument of the base verb irrespective of the thematic role that this verb assigns to its external argument (agent, causer, holder, experiencer, instrument; the 'external argument generalization'). Some examples (from Rappaport Hovav & Levin 1992) are given below:

- | | | |
|--------|--|---------------|
| (1) a. | ... is a great defuser of pent-up emotions | (causer) |
| b. | ... a holder of a Visa or Master card | (holder) |
| c. | ...as a dazzled admirer of Washington | (experiencer) |
| d. | A protein that is a potent inducer of new blood vessel growth | (instrument) |

[-event] -er nominals denote typically instrumental -er nominals as in (2) or occupational nouns, i.e. agentive -er nominals as in (3). Both types have in common that they denote entities which are *designated* for some specific job or function but which do not have to be actually been involved in such a job or function (the [-event] property).

- (2) a. a grinder → machine intended for grinding things
 b. the destroyer → something intended for the purposes of destroying, a warship
- (3) lifesaver, fire-fighter, teacher → a person educated for a specific job

The [\pm event] division has been argued to correlate with the availability of complement structure (CS). This is stated clearly in Rappaport Hovav & Levin (1992), and we refer to it as correlation A here:

Correlation A: An -er nominal has a complement structure iff it has an eventive interpretation.

The examples in (4) and (5) illustrated this. In (4), the presence of the internal argument leads necessarily to an interpretation according to which the referent of the -er nominal must have been involved in a saving event or a murdering event. In the b-examples, which lack CS, this involvement is not necessary.

- (4) a savor of lives → *can only refer to a person that has saved a life*

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- (5) lifesaver → *has not necessarily saved lives*

Several syntactic and semantic contexts distinguish between the two types of *-er* nominals; for example, modification by adjectives such as *frequent* implies an actual event and is only possible with *-er* nominals which have complement structure.

- (6) a. the constant defender of the government's policies
b. frequent consumer of tobacco

- (7) *This machine continues to be our only frequent transmitter

As indicated above, for Rappaport Hovav & Levin, the instrumental *-ers* lack eventive readings and hence complement structure (CS). These authors establish a second correlation, which we refer to as correlation B here:

Correlation B: An instrumental reading is possible only for the nominals derived from verbs for which the expression of an instrumental performing a 'subject' role is available.

That is, the external argument generalization holds for [-event] instrumental *-er* nominals, too.² To illustrate this, compare the instrument in (8) with those in (9). They differ in that the instrument in (8a) can occur as the subject of a corresponding sentence (8b) while this is not possible for the instrument in (9a) (see 9b).

- (8) a. Mary opened the can with the new gadget
b. The new gadget opened the can

- (9) a. Bill ate the food with a fork
b. *The fork ate the meat

Instruments of the former type are called *intermediary instrument*, instruments of the latter type are called *facilitating or enabling instruments*. These two types of instruments differ in that only the former can be understood to perform the action expressed by the verb (to some extent) independently, a property that qualifies them as subjects of these verbs (Kamp & Rossdeutscher 1994, Alexiadou & Schäfer 2006 and the references there). Crucially, corresponding instrumental *-er* nominals are only possible for verbs that combine with intermediary instruments.

- (10) a. opener (agent or instrument)
b. eater (agent but **not instrument**)

How can these two correlations be derived? In syntactic approaches to nominalization (e.g. Borer 1993, Alexiadou 2001, van Hout & Roeper 1998 to mention a few), the second correlation is actually

² As has been observed in the literature, not all *-er* nominalizations obey this generalization. The examples in (i) seem to denote the theme, i.e. the internal argument of an underlying verb.

- (i) a. baker (a baked potato)
b. broiler (a broiled chicken)
c. scratcher (a lottery ticket that is scratched)
d. bestseller (something that sells well)

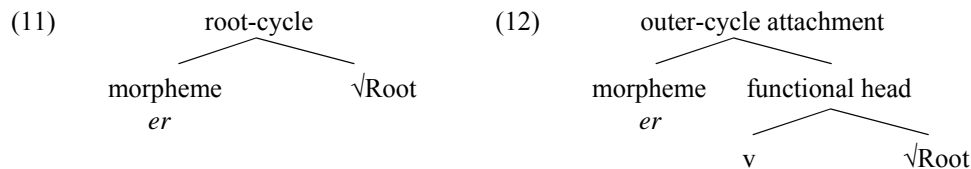
Nominals such as in (i) have an interpretation that is close to the interpretation that the base verb receives in the middle construction. This has even lead to the assumption that it is an epiphenomenon (cf. Ryder 1999). Here we do not discuss such cases (see Alexiadou & Schäfer forthcoming). In a DM based approach we could suggest that all *-er* nominals are derived with the same derivational morpheme *-er*, but they differ in that only those which follow the external argument generalization are derived from verbs, all others being derived directly from roots. Here, we concentrate on clearly deverbal *-er* nominals which obey the external argument generalization.

not discussed. The first correlation is typically captured by the assumption that in (1a-d) a verbalizing head signalling event structure is present which is also responsible for the licensing of CS; in (2)-(3) this verbalizing head is missing and complement structure is, in turn, not licensed.

1.2 Our contribution

In this paper, we argue that both types of *-er* nominals largely have the same structure. We present a finer-grained classification of these nominals which makes use of structural decomposition, as put forth in syntactic approaches to nominalization (see e.g. Marantz 2001, Alexiadou 2001, Borer 1993, to appear, van Hout & Roeper 1998 among others). Importantly, we show that the \pm event classification is misleading. We argue that both types of *-er* nominals involve an eventive *v*-layer. The presence of this *v*-layer is necessary but not sufficient for the licensing of CS. If even *-er* nominals without CS involve a *v*-layer, then, obviously, the term “[*-event*] *-er* nominal” is a misnomer for them. Instead, we argue that the interpretational differences between the two types of *-er* nominals result from different aspectual operators binding the event introduced by *v*, namely a dispositional vs. an episodic aspect. If this is correct, it forces us to dissociate the presence of layers introducing events from the licensing of complement structure (see Alexiadou 2007, Harley 2007 for the same conclusion for *-ation* nominalizations). We hypothesize that the different aspectual operators are causally related to the presence vs. absence of CS.

Concretely, we develop our proposal within the distributed morphology (DM) framework. The basic ingredients of this framework can be stated as follows (see Arad 2005, Marantz 2001): Language has atomic, non-decomposable and category-neutral elements, which we refer to as roots. Roots combine with features, the functional vocabulary, and build larger elements. On this view, words are not primitives. The primitives of word formation are the roots and the functional vocabulary they combine with. Word categories are determined by category defining functional heads. Derivational endings are part of this functional vocabulary. Some words are built out of roots, others are built out of other words. This means that there are two cycles for word-formation (Marantz 2001), and distinct properties are associated with each one of them:



Merger with root implies:

1. negotiated (apparently idiosyncratic) meaning of root in context of morpheme
2. apparent semi-productivity (better with some roots than others)
3. meaning of construction cannot be an operation on “argument structure” but must depend on root semantics independent of argument structure (see Barker (1998) among others, on this distinction)
4. corollary of the above: cannot involve the “external argument” of the verb

Merger above a category-determining morpheme implies:

1. compositional meaning predicted from meaning of stem
2. apparent complete productivity
3. meaning of structure can involve apparent operation on argument-structure
4. can involve the external argument of a verb

Adopting the above distinction, we discuss the following properties of *-er* nominalizations: a) the presence vs. absence of morphology related to verbal layers; b) the presence vs. absence of event related semantic effects and c) the productivity and idiosyncrasy of the formation.

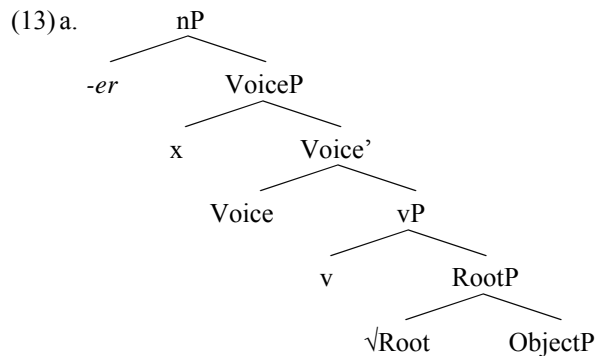
Concerning the first property, in many syntactic approaches to nominalization the presence of a verbalizing head signals the presence of event-structure which, in turn, is taken to be responsible for the

presence of complement structure. In other words, a deverbal nominal inherits the complement structure of its verbal source, as a VP is included in the structure of the nominal (e.g. Borer 1993, Alexiadou 2001, though the perspectives vary; cf. Grimshaw 1990). We show that this does not hold; while complement structure builds on event structure, the presence of event structure does not necessarily imply the presence of complement structure.

2. Fine-graining *-er* nominals

2.1 [+event] *-ers*

We argue that the structure involved in the formation of [+event] *-er* nominals (agents, holders, experiencers, ...) is as in (13).³



Although this is the standard analysis of these types of *-er* nominals within syntactic frameworks, let us shortly motivate the different layers.

The n-layer is the nominalizer. It is the head that introduces the R-argument and in this particular case is spelt out as *-er*. R has been argued by Williams (1981) to be responsible for the referential reading of the noun. Since all *-er* nouns are referential we claim that R is introduced in n, irrespectively of the [\pm event] classification. Grimshaw (1990) states that R is identified with an argument of the base verb. Which argument is identified with R is a function of the affix that is added, so the affix must specify which argument it binds. For instance, the affix *-ee* binds a Patient argument, while the *-er* binds the external argument:

- (14)a. detain (y (x)) detainee (R=x) such that y detains x
 b. teach (x (y)) teacher (R= x) such that x teaches y

We build on the so called Voice Hypothesis (Kratzer 1996) according to which the external argument is not introduced by the verb itself, but by a semi-functional Voice-projection on top of vP. As mentioned above, the individual denoted by the *-er* nominal is, in its productive use, the one that is the external argument of the event entailed by it (see van Hout & Roeper 1998). We propose therefore that in these kinds of *-er* nominals the referential argument <R> binds a variable <x> located in Spec, Voice; this derives the ‘external argument generalization’ and ensures the correct theta role for the *-er* nominal.

Concerning the presence of vP, three arguments can be made. First, morphology offers us some clues suggesting that a verbalizing head is present with such *-er* nominals. In English, many verbs are derived from some non-verbal source (the left column in (15) which involves category-neutral Roots in our terminology, but this assumption is not crucial here) by the addition of verbalizing morphology such as *-ize*, *-ate* or *-ify*. Under the perspective of DM, these verbalizing affixes are the spell out of a v-head as their presence is clearly related to the verbal/eventive nature of the verbs in the middle column in (15). Harley (2007) discusses in detail that affixes like *-ify*, *-ate* and *-ize* are specific verbalizing

³ We assume that the different theta roles of external argument denoting *-ers* are the result of different ‘flavours of Voice’ (see Alexiadou & Schäfer 2006).

morphology. As is shown in the right column of (15), *-er* attaches to these affixes that have verbalized the bare root; this suggests that the verbalizing head is still present.

(15)	<u>ROOT</u>	<u>Root + v</u>	<u>Nominal</u>
	√COLON	colon-ize	coloniz- <i>er</i>
	√MOBIL	mobil-ize	mobiliz- <i>er</i>
	√DICT	dict-ate	dictat-or
	√HTML	html-ify	htmlifi- <i>er</i>
	√SATIS	satis-fy	satisfi- <i>er</i>

A second, semantic, argument comes from modification by adjectives such as *beautiful* or *good*. Such adjectives are ambiguous, having both intersective and non-intersective interpretations.

- (16) a beautiful dancer
 a. x is beautiful and x is a dancer
 b. x dances beautifully

Under the first reading, these adjectives modify the <R> argument of the nouns, on the second reading, they modify the event associated with the verb that underlies the *-er* nominals. The fact that this second reading is available suggests that the nominal contains an event variable (cf. Larson 1998). Since the root itself does not introduce this event variable, it must be introduced by the v-head.

Third, the argument why they can't be root-nominalizations comes from the observation that such formations are absolutely productive and non-idiosyncratic. As mentioned above, while the root cycle is relevant for idiosyncratic meaning composition (e.g. html-ize "put something in the html-format"), the *-er* nominal is transparently derived on top of the root cycle.

2.2 [-event] -ers

In Rappaport Hovav & Levin's account, instrument *-er* nominals are quite different from subject *-er* nominals. They are non-eventive and they lack argument/complement structure. We would like to propose that instrument *-ers* also have the structure in (13) by making use of the same reasoning.

As mentioned in the introduction, Rappaport Hovav & Levin (1992) pointed out that the instrumental reading is possible only for those nominals that are derived from verbs in which the expression of an instrumental performing a 'subject' like role is available. Only when the instrument functions as an intermediary as opposed to facilitating instrument can the corresponding *-er* be formed (cf. (8-10)). This observation (see also Kamp & Rossdeutscher (1994), Alexiadou & Schäfer 2006) coupled with the Voice hypothesis suggests that Voice is present.

Further, instruments seem to contain a vP as they also contain verbalizing morphology. Corresponding to the agent nominals in (15), we find examples which have a preferred instrument interpretation (although an agent interpretation is still possible).

(17)	<u>ROOT</u>	<u>Root + v</u>	<u>Nominal</u>
	√VISUAL	visual-ize	visualiz- <i>er</i>
	√VENTIL	ventil-ate	ventilat-or
	√CALCUL	calcul-ate	calculat-or
	√HUMID	humid-ify	humidifi- <i>er</i>
	√AMPLE	ampli-fy	amplifi- <i>er</i>

The question that arises is whether we can find the counterpart of event modification with instrumental nominals. We would expect that a *-er* instrumental nominal would behave similarly to the 'beautiful dancer' example above, if it contains a v (eventive) layer. This seems to be borne out.

- (18) a. fast elevator b. fast calculator

Here, a certain degree of complications emerges, however. First, the move of introducing events in NPs encounters problems with nouns that are not strictly deverbal but can easily be associated with typical events and adjectives can modify such events. The nouns in (19) serve as an example. It does not make sense to assume that 'king' or 'horse' involve an eventive v-layer; nevertheless, adjectives can modify events prototypically related to these nouns, e.g. the event of ruling, or running/jumping. This means that adjectives can have access to events which are only associated, not syntactically manifested.

- (19) a. John is a just king b. Olga is a fast horse

Second, even nouns clearly lacking an event variable can be modified by event adjectives. In this case, the adjectives are taken to scope outside the NP:

- (20) I drank a quick cup of coffee = I quickly drank a cup of coffee

In other words, modification via an eventive adjective does not always coincide with the existence of a corresponding verb as the nominal source (introducing an event variable). But is there a systematic way to distinguish between the two cases?

Two things should be mentioned here. Such sentence-scope phenomena are most common with light verb constructions in languages like Spanish and Greek (see the contrasts in 21 and 22), though English seems to be generally more permissive (Salanova 2002):

- (21) a. kano ena grigoro duche (Spanish)
do a quick shower
b. perno ena grigoro kafe (Greek)
take a fast coffee

- (22) a. ??ida mia grigori tenia (Spanish)
saw a quick movie
b. ??na su serviro ena grigoro kafe (Greek)
should I serve you a quick coffee
cf. May I serve you a quick cup of coffee

Second, Romance languages are quite illuminating for this question because they syntactically differentiate to some extent between intersective and non-intersective readings of adjectives. As Cinque (2003) observed, in Romance, if an ambiguous adjective such as 'beautiful' occurs in the prenominal position it can only receive the eventive interpretation. Post-nominal adjectives remain ambiguous.

- (23) a. Un **buon** attaccante (Italian, from Cinque 2003)
b. A forward good at playing forward (nonintersective)
c. #A good-hearted forward (intersective)

- (24) a. Un attaccante **buono**
b. A forward good at playing forward (nonintersective)
c. A good-hearted forward (intersective)

If all deverbal *-er* nominals involve a syntactically represented event, this predicts that event modifying adjectives are freer in their distribution if they modify deverbal instrument nouns than with root-derived instrument nouns. The following examples (due to Mihaela Marchis, and Giannina Iordachioaia p.c.) suggest that this prediction is borne out:

- (25) a. *o rapida masina a'. o masina rapida (Romanian)
b. *un rapido coche b'. un coche rapido (Spanish)
a fast car a car fast

Rappaport Hovav & Levin? We propose that in both cases a vP is present, but that the event variable is bound by different aspectual operators.

Compare the agents in (30a) with instruments as in (28a/29a, b). The persons are interpreted as “someone intended to V” similar to instruments which are designed for a specific purpose. On the other hand, the agents in (30b/28b) are actually involved in an action and so are the instruments in (31). It seems to us that there is a striking parallelism between “non-event *-ers*” and *generic middles* exemplified in (32):

(32) This mountain climbs easily (Can be true even if no one ever climbed this mountain)

As in the case of “[*-event*] *-ers*”, the interpretation of middles is non-episodic. Middles do not make reference to an actual event having taken place; rather they are derived statives (Ackema & Schoorlemmer 1995). The reason for this is that the event variable of the verb is bound by a generic/dispositional operator (e.g. Lekakou 2005). Middles ascribe a dispositional property to the internal argument of the verb, *-ers* to the external argument of the verb. In middles, the external argument may not be syntactically projected, in *-ers* it is the internal argument that is left out. In both, the non-projected argument is semantically available, interpreted as generic ONE. The only way to express such arguments is via the use of the beneficiary P *for* (the NP is again generic 33a, b; in *-ers* it can also be an incorporated predicate restrictor 33c).

- (33) a. These books read easily for young children
 b. a wiper for windshields
 c. can-opener

In middles, the verb’s event variable (and the implicit external argument) is bound by a generic/dispositional operator (Lekakou 2005). We thus propose that “event nominals” are episodic, “non-event nominals” are dispositional depending on whether the event variable <e> in vP is bound by an episodic or by a dispositional aspect head (see also Ferrari 2005 for Italian instrumental nominals; cf. Ntelitheos 2007 for Malagasy instrumental nominals).

(34) [+event]-*er* – ASP_{EPISODIC}
 [nP -*er* [AspP_{EPIS} [VoiceP <x> [vP <e> [RootP]]]]]

(35) [*-event*]-*er* – ASP_{DISPOSITIONAL}
 [nP -*er* [AspP_{DISPOS} [VoiceP <x> [vP <e> [RootP]]]]]

We believe that the absence of complement structure with instrumental/[*-event*] nominals is related to the specific type of event, i.e. to the presence of this dispositional operator in (35).

Note here that it has been observed that CS can be absent under similar circumstances in verbal constructions even with core transitive verbs (36), which normally cannot appear without their internal argument (cf. Levin (1999) and Goldberg (2001)). Naturally, in the verbal case, the absence of the complement is not obligatory, it is an option which is claimed by Goldberg to have an information structure effect. Importantly, however, these constructions are similar to our *-er* nominals in that they are habitual or generic sentences.

(36) The sewing instructor always cuts ∅ in straight lines

In particular, Goldberg argues that in these cases the indefinite and non-specific patient argument must be predictable from the verb and the sentence context. Furthermore, the patient argument must not be construed as topical or focal and the action of the verb must be construed as emphasized.

We would like to propose that something similar is going on in the case of *-er* nominals and we propose to link this pattern to the differences in the Case licensing properties of specific and non-specific nouns (de Hoop 1996). As argued by de Hoop and many others, the latter can be case licensed via incorporation, while the former require a specific Case projection. As is also well known, specific

(i.e.) strong noun phrases trigger telic interpretations of verbal predicates (Borer 2005 and references therein). On this reasoning, projection of a specific object in *-er* nominals would imply to the unfolding of an actual event; hence it is incompatible with generic semantics. We leave a more detailed argumentation in favor of this analysis for further research (Alexiadou & Schäfer forthcoming).

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