1. Introduction: er-nominalizations and the external argument generalization

- Traditionally, er-nominalisations were called agentive nouns/nomen agentis.

- Work in the context of generative grammar broadened this view to a structural generalization. Er-nominals can denote entities with quite different thematic roles as long as these roles are realized by/assigned to the external argument of the underlying verb (Fabb 1984, Keyser & Roeper 1984, Rappaport Hovav & Levin 1992, van Hout & Roeper 1998, among others).

**External argument generalization:** er-nominals typically denote the external argument of the underlying verb, irrespectively of the specific theta role which the argument has.

(1) a. He is a teacher (agent)
b. He is a fire-fighter
c. This is a grinder (instrument)
d. This is a can-opener
e. Anger is a great defuser of pent-up emotions (causer)
f. Education is a leveller of class differences
g. He is a holder of a Visa or Master card (holder)
h. He is a bearer of heavy burden
i. He is an admirer of the Greek poets (experiencer)
j. He is a lover of French cuisine
k. He is a receiver of compliments (beneficiary/goal)

**Further evidence:** Intermediary instruments vs. facilitating/enabling instruments

Only the former can be understood to perform the action expressed by the verb (to some extend) independently, a property that qualifies them as subjects of these verbs (Levin & Rappaport 1988, Kamp & Rossdeutscher 1994, Alexiadou & Schäfer 2006b and the references therein). Crucially, corresponding instrumental er-nominals are only possible for verbs that combine with intermediary instruments which, in turn, can be subjects.

(2) a. Mary opened the can with the new gadget (intermediary)
b. The new gadget opened the can

(3) a. Bill ate the food with a fork (facilitating)
b. *The fork ate the meat

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

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1 I do not discuss the difference between [+eventive] and [-eventive] er-nominalizations and its relation to the presence of complement structure that was established by Rappaport Hovav & Levin (1992). See Ntelitheos (2006) or Alexiadou & Schäfer (to appear) for recent discussion.
• The external argument generalization seems to hold for *er*-nominals across languages. (If a language has further morphemes deriving participant nominalizations, some thematic specialisation might occur).

• Further, formation of external argument denoting *er*-nominalizations is a **totally productive derivational process**; it works with all verbal bases that provide an external argument. (Stative verbs are sometimes out: *the knower of the answer*).

1.1 Exceptions to the external argument generalization

• In the literature, **two types of exceptions** to the external argument generalization have been brought forward. These exceptions do **not** seem to be instances of a **productive word formation process**.

1.1.1 Object/internal argument-denoting *er*-nominalization

• Not all *er*-nominalizations obey the external argument generalizations. The examples in (5) seem to denote the theme, i.e. the internal argument of the underlying predicate.²

(5)  a. baker  (a baked potato)  
     b. broiler  (a broiled chicken)  
     c. scratcher  (a lottery ticket that is scratched)  
     d. bestseller  (something that sells well)  
     e. reader  (a compilation of literature which reads easily)

• Besides object denoting *er*-nominals, we also find *er*-nominals denoting the complement of a preposition modifying the verb (where the preposition is often locational).

(6)  a. diner  (a place to dine in)  
     b. sleeper  (a train where one can sleep in),  
     c. toploader  (a washing machine which one loads from the top)

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² The literature sometimes provides examples of *er*-nominals derived from alleged unaccusative verbs. But these examples involve verbs that can be reanalyzed as unergatives in the right contexts. Such contexts typically assign control to the only argument of the verb. In the examples below (from Ryder 1999), the *er*-nominals are either paired with professional nouns (*vanisher* -> professional + lawyer, *dyer* -> actor) or it is described as controller in a different way. The German examples in (ii) suggest the same analysis:

(i)  a. I swear, the moment I need to talk to Max, he’s suddenly gone. I’m beginning to think he is a professional vanisher, not a lawyer  
     b. So many old melodramas end in deathbed scenes that the actors who played in them had to be good dyers.  
     c. One guy jumped right into the fight, but his friend immediately vanished. The police came and hauled off the fighter, after which the vanisher promptly reappeared laughing.

(ii)  a. ‘Umfaller’ (fall down-er) is not someone who is fainting but someone who agentively gives up his old opinion.  
     b. ‘Abfaller’ (fall away-er) is not something which physically falls apart, but again someone who agentively changes his affiliation with a group/party/idea.  
     c. ‘Durchfaller’ (fall through-er) is not something that physically falls through some physical object, but someone who misses his goals in school.
Since *er*-nominals as in (5) or (6) have an interpretation that is close to the interpretation that the base verb receives in the middle construction, it was proposed that these nominals are in fact derived from the middle version of the underlying verbs.

Since after middle formation, the theme argument denoted by these *er*-nominals is the (either base generated or derived) external argument of the verb, the external argument generalization can be maintained.

Observation 1 about internal argument-denoting *er*-nominals:
While examples as in (5) and (6) can be found in English and Dutch, they seem to be very rare in German. They are not productive across languages.

Observation 2 about internal argument-denoting *er*-nominals:
Even in languages that have (perhaps many) *er*-nominalizations of the type in (5) and (6), their formation is not productive within these languages. A speaker cannot arbitrarily form an *er*-nominal with the intention that this nominal denotes the object of the underlying verb (or object of a verbal preposition). This suggests that object-denoting *er*-nominals are (in fact need to be) lexicalized.

In contrast, a speaker can arbitrarily form an *er*-nominal that is ought to denote the external argument of a verb. This suggests that subject denoting *er*-nominals are formed by a productive process.

1.1.2 Non-verb derived *er*-nominalizations

- There are also *er*-nominals with stems other than verbs (see Ryder 1999 for a large collection of such examples in English, see Meibauer 1995 for German):
  - **adjectival stems**: foreigner, loaner
  - **prepositional stems**: upper, downer, insider
  - **denominal stems**: porker, Londoner, villager, Scotland Yarder, teenager (Dampfer, Laster)
  - **measure words**: fiver, (Fünfziger, Dreitausender)

- Examples as such above have lead some researchers to dismiss the account building on syntactic information and to replace it by a general cognitive/conceptual model (Ryder 1999, Meibauer 1995).

- Once again, it should be noted that such derivations are not fully productive in that we cannot use any adjective, preposition or noun to form a corresponding *er*-nominal.

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3 (6c) and loanwords like ‘bestseller’ exist in German. A reason for this difference could be that English and Dutch form morphologically unmarked middles while German marks its middles with the reflexive pronoun ‘sich’ (cf. Schäfer 2006, 2008 for a proposal which correlates this difference in morphological marking with a difference concerning the syntactic position of the theme in middles; in Dutch and English middles, the theme is a derived external argument, while in German middles, it remains in its VP-internal base position).

4 Many of the object denoting *er*-nominals in English are built from specific verbal subclasses (cooking verbs or clothing verbs).

5 This does not mean that there are no interesting generalizations to be made about what kind of non-verb derived *er*-nominals are possible or not. On the contrary, for example noun-derived *er*-nominals are clearly...
1.1.3 Conclusion

• To conclude, while the class of er-nominalizations which do not denote the external argument of a verb is certainly interesting and amenable to specific generalizations, it seems fair to say that only the formation of external argument denoting er-nominalizations is really a productive derivational process within and across languages and that this process is guided by specific linguistic principles.6

2. Event denoting er-nominalizations in German

• In this section, I discuss a further type of er-nominalizations which I call “event denoting er-nominalizations”.

• These are - as far as I know - restricted to German. While the existence of this type of nominalizations has been acknowledged sometimes in the literature (e.g. Fanselow 1985, Meibauer 1995, the latter calls them product-denoting er-nominals), it has - once again, to my knowledge - never been discussed in detail. Especially, the restrictions on the formation of event denoting er-nominalizations have not been discussed.

• **Productivity**: While this type is restricted in productivity in that it is possible only with verbs from a very specific class, it turns out that, within this class of verbs, its formation is totally productive.

• **Interpretation**: The examples below are ambiguous between a reading (a) where the nominal denotes the external argument of the underlying verb (EA-er) and a reading (b) where the nominal denotes the event of the underlying verb (event-er). The b’-examples show event-ers in a clausal context.

(7) ein Hüpfer
   a. a jumper (a person who jumps)
   b. a jump (a/one jumping event)
   b’ Der Mann/der Wagen hat einen kleinen Hüpfer gemacht
       The man/the car has a little jump made

(8) ein Piepser
   a. a beeper (an agent who beeps)
   b. a beep (a/one beeping event)

restricted by the semantics of the noun; while some noun classes do not allow -er formation at all (e.g. animals: *doger, *cater, *birder), other noun classes are persistently compatible with -er formation and then, the reading these nouns receive is clearly determined by a stereotypical pattern. For example, -er nominalizations from nouns denoting civilizing places (cities, villages, countries, …) denote people who live at this place (but not people who just work there, or have any other relation to the place) Again, languages differ in productivity; English allows this only with nouns denoting cities or villages (London-er, New York-er), German allows it also with many nouns denoting countries (Engländ-er, Italien-er, …). Further, in German, er-nominals derived from company-names denote employees of this company but not people who, for example, buy the products of this company (e.g. Postler, Banker, BMW-ler, …). These are obviously cognitive/conceptual and not linguistic generalizations.

6Alexiadou & Schäfer (to appear) hypothesize to relate the difference between external argument denoting er-nominalizations and the other er-nominalizations to the difference between non-root vs. root-derived nominalizations in the framework of Distributed Morphology. We expect root-derived nominalizations (i) to show idiosyncratic meaning (ii) to be of restricted/semi-productivity as well as to (iii) follow general cognitive principles.
b’ Er hat einen Piepser von sich gegeben
He has a beep from Refl given (He made a beep)

The event reading expresses something like a “minimal event”: (7b) describes one single jumping cycle which starts when a person’s feet leave the ground and stops as soon as the feet touch the ground again. (8b) expresses one short beeping sound. Note that the English counterpart of the b-readings surfaces with zero-morphology.

The formation of event denoting er-nominals is not an idiosyncratic phenomenon restricted to a small number of verbs. Instead, it turns out that it is totally productive within a specific, well defined class of verbs. As a first approximation, we find them within the following semantic verb classes (using the terminology of Levin 1993).

(9)  
   a. Verbs of contact by impact
   b. Verbs of (light/sound/substance) emission
   c. Verbs of manner of motion and body internal motion

A closer inspection of the verbs within these verb classes reveals that a verb must have a semelfactive use in order to be able to form an event denoting er-nominal.

2.1 Semelfactives

According to Rothstein (2007a, b), semelfactives are verbs denoting ‘single occurrence’ events. In addition, these verbs are homonymous with activities denoting verbs which involve iterations of the single event.

‘knock (on the door)’
→ Semelfactive reading: an object is brought in contact sharply with a door once.
→ Activity reading: an object is brought in contact sharply with a door a number of times.

More specifically, Rothstein proposes that activities are derived from semelfactives by the operation of S(ingular)-summing below:

(10) S-summing (Rothstein 2007a): (singular summing) sums activity events with no temporal gap between them and forms a new singular event out of this sum.

All semelfactive predicates have in addition an activity reading but not all activity predicates have a semelfactive reading.

Rothstein (2007b:4) explains the differences and similarities between semelfactives and activities on the basis of a comparison of the two predicates skip and walk:

“Events in the denotation of the activity predicates skip and walk are formed by S-summing from minimal events of skipping and walking. These predicates denote, respectively, the set of skipping and walking events closed under S-summing. The difference between them is that minimal events of skipping are naturally individuable or naturally atomic, while minimal

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7 I identified more than 100 verbs that form event-denoting er-nominals.
events of walking are not.” … “When the minimal events in the denotation of an activity predicate P are naturally atomic, or naturally individuable, then they are lexically accessible.”

… “A predicate P is naturally atomic if what counts as one instance of P is given as part of the meaning of P and is thus not context dependent.” … “A naturally atomic entity is one whose unit structure is perceptually salient and given by the world”.

### 2.1.1 Tests identifying verbs with a semelfactive reading

- The property of predicates with a semelfactive use to be naturally atomic allows us to identify systematic differences between these verbs and pure activities (cf. Rothstein 2007a):

**Semelfactives can be counted in two ways**: counting adverbials can count either the single event (the semelfactive version) or the iterations of the predicate (the activity version). With pure activities only extended events can be counted because the single event is not naturally atomic, i.e. it is not lexically accessible.

(11) a. John knocked twice (ambiguous)
    b. John jumped three times (ambiguous)
    c. She walked three times (not ambiguous)

**Semelfactives can be iterated in two ways**: Again and again can modify either the single event or the activity predicate (Rothstein 2007a). In the case of activities, only the extended event can be iterated.

This leads to different implications about the time course of the iterated events. **Naturally atomic events can be iterated without a break between the individual events.** (12a) can, therefore, denote a process which is ongoing for some time. With activities which do not involve naturally atomic events, the iteration implies that there must be a gap between the individual activity phases. (12b) cannot denote a process ongoing for some time.

(12) a. She jumped again and again -> She jumped for several minutes
    b. He ran again and again -/-> He ran for several minutes

### 2.2 Event denoting er-nominalizations are derived from semelfactive verbs

- I apply such tests to the verbal classes identified in (9). As it turns out, only semelfactive verbs within these verb classes allow the formation of event denoting er-nominalizations.

- **Table I** lists a number of -er nominalizations derived from ‘verbs of contact by impact’.

  - The examples in the left column have two interpretations; they either denote the external argument of the underlying verb or the (minimal) event expressed by the verb (only the latter reading is indicated in the table).

  - The examples in the right column are not ambiguous. They only allow for the external argument interpretation. They do not allow for the event denoting reading (indicated by the * in front of the examples in the table).
A closer inspection of Table I reveals that the verbs underlying the nominals in the left column are semelfactives while the verbs underlying the nominals in the right column are activities. This is illustrated with two verbs, ‘klopfen’ (to knock) and ‘hämmern’ (to hammer) which differ with respect to the tests introduced above.

Event counting gives an ambiguous result with ‘klopfen’ (either an atomic event or an extended event is counted) but not with ‘hämmern’ (only an extended event can be counted).

\[(13) \text{a. Er klopfte dreimal} \quad \text{(ambiguous)}^8 \\
\quad \text{He knocked three times} \\
\text{b. Er hämmerte dreimal} \quad \text{(not ambiguous)} \\
\quad \text{He hämmered three times} \]

Iteration (‘wieder und wieder’ (again and again)) leads to an ambiguous result with ‘klopfen’ (14a) (either the atomic event or the extended activity is iterated.) The verb ‘hämmern’ in (15a) does not show this ambiguity (only the extended event can be iterated.)

This difference between ‘klopfen’ and ‘hämmern’ is stressed by the fact that only the iterated semelfactive event in (14a) is logically compatible with (14b) which involves an atelic temporal modifier. The iterated activity event in (15a) is logically not compatible with (15b) which again involves an atelic temporal modifier. The reason is that the atelic modifier suggests that the agent acts without a break but only a naturally atomic event can be iterated without an interruption. If we want to iterate an extended event, we have to assume that there is a break between the individual extended events, as otherwise we could not identify the beginning or end of the individual extended events.

The c-examples show the same (in)compatibility between iterated events and modifiers which suggest that the agent acted without a break; again, the semelfactive verb in (14c) gives much better results than the pure activity verb in (15c).

\[(14) \text{a. Er klopfte wieder und wieder} \quad \text{(ambiguous)} \\
\quad \text{He knocked again and again} \quad (->) \\
\text{b. Er klopfte eine Zeit lang (am Stück/ohne Pause)} \\
\quad \text{He knocked some time long (at a stretch/without respite)} \\
\text{c. Er klopfte wieder und wieder ohne Unterbrechung} \\
\quad \text{He knocked again and again without respite} \]

\(8^8\) The verb ‘anklopfen’ (at-knock), in contrast, is an activity and, in turn, the -er nominalization does not allow for the event denoting interpretation.

(i) *Anklopf (a knocking-at (the door) event)
Er hämmerte wieder und wieder
He hammered again and again

He hämmerte eine Zeit lang (am Stück/ohne Pause)
He hammered some time long (at a stretch/without respite)

#Er hämmerte wieder und wieder ohne Unterbrechung
He hammered again and again without respite

- **TABLE II** lists a number of -er nominalizations derived from (different types of) ‘verbs of emission’. Again, the examples in the left column are ambiguous, while the examples in the right column only allow for the external argument denoting reading.

<table>
<thead>
<tr>
<th>Semelfactives</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>?Aufblitzer (flashing-event)</td>
<td>*Blinker (a blinking event)</td>
</tr>
<tr>
<td>Piepser (a beep)</td>
<td>*Funkeler (a sparkling event)</td>
</tr>
<tr>
<td>Klopfer (a knock)</td>
<td>*Leuchterer (a glowing event)</td>
</tr>
<tr>
<td>Rülpser (a belch)</td>
<td>*Pieper (a puling event)</td>
</tr>
<tr>
<td>Seufzer (a sigh)</td>
<td>*Weiner (crying event)</td>
</tr>
<tr>
<td>Quietscher (a jar)</td>
<td>*Schreier (a shouting event)</td>
</tr>
<tr>
<td>Krächzer (a caw)</td>
<td>*Rauscher (a showsh)</td>
</tr>
<tr>
<td>Juchzer (a crow)</td>
<td>*Summer (a buzzing)</td>
</tr>
<tr>
<td>Träufler/Tropfer (a drop)</td>
<td>*Rassler (a rattling)</td>
</tr>
<tr>
<td>Spritzer (a splash)</td>
<td>*Bluter (a blooding event)</td>
</tr>
</tbody>
</table>

* Table II: Verbs of emission

- Once again, the verbs underlying the nominalizations in the left column but not the verbs underlying the nominalizations in the right column are semelfactives.

(16) Er piepste dreimal
He peeped three times
Er summte dreimal
He buzzed three times

(17) a. Er piepste wieder und wieder
He peeped again and again
b. Er piepste eine Zeit lang (am Stück/ohne Pause)
He peeped some time long (at a stretch/without respite)
c. #Er piepste ohne Unterbrechung wieder und wieder
He peeped without respite again and again

(18) a. Er summte wieder und wieder
He buzzed again and again
b. Er summte eine Zeit lang (am Stück/ohne Pause)
He buzzed some time long (at a stretch/without respite)
c. #Er summte ohne Unterbrechung wieder und wieder
He buzzed without respite again and again

- The same contrast can be found with the light-emission verbs in (19). ‘(Auf-)blitzen’ (to flash) which allows for the formation of an event denoting -er nominalization is a semelfactive while ‘blinken’ (to blink) which does not allow for an event denoting -er nominalization is an activity.
(19) a. weil die Lampe dreimal (auf-)blitzte (ambiguous)
    because the lamp three times flashed

    b. weil die Lampe dreimal blinkte (not ambiguous)
    because the lamp three times blinked

(20) a. weil die Lampe wieder und wieder (auf-)blitzte (ambiguous)
    because the lamp again and again flashed (->)

    b. weil die Lampe eine Zeit lang (am Stück/ohne Pause) (auf-)blitzte
    because the lamp some time long (at a stretch/without respite) flashed

    c. weil die Lampe ohne Unterbrechung wieder und wieder (auf-)blitzte
    because the lamp without respite again and again flashed

(21) a. weil die Lampe wieder und wieder blinkte (not ambiguous)
    because the lamp again and again blinked (->)

    b. weil die Lampe eine Zeit lang (am Stück/ohne Pause) blinkte
    because the lamp some time long (at a stretch/without respite) blinked

    c. weil die Lampe ohne Unterbrechung wieder und wieder blinkte
    because the lamp without respite again and again blinked

- Finally, TABLE III lists -er nominalizations from ‘verbs of manner of motion’ and ‘verbs of body internal motion’. Again, the examples in the left column are ambiguous, while the examples in the right column only allow for the external argument denoting reading.

<table>
<thead>
<tr>
<th>Semelfactives</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wackeler</td>
<td>*Schütteler</td>
</tr>
<tr>
<td>?Stakser</td>
<td>*Torkler</td>
</tr>
<tr>
<td>Hüpfer</td>
<td>*Rutscher</td>
</tr>
<tr>
<td>Hopser</td>
<td>*Schlitterer</td>
</tr>
<tr>
<td>?Stolperer</td>
<td>*Gleiter</td>
</tr>
<tr>
<td>?Schlenkerer</td>
<td>*Roller</td>
</tr>
<tr>
<td>?Schwenkerer</td>
<td>??Wirbler</td>
</tr>
<tr>
<td>Dreher</td>
<td>??Schaukel</td>
</tr>
</tbody>
</table>

**TABLE III: Verbs of manner of motion and body internal motion**

- Again, what is relevant for the event denoting reading is the semelfactive nature of the underlying verb.

(22) a. Er hüpfte dreimal (ambiguous)
     He hopped three times

    b. Er rollte dreimal (not ambiguous)
     He rolled three times

(23) a. Er hüpfte wieder und wieder (ambiguous)
     He hopped again and again (->)

    b. Er hüpfte eine Zeit lang (am Stück/ohne Pause)
     He hopped some time long (at a stretch/without respite)

    c. Er hüpfte ohne Unterbrechung wieder und wieder
     He hopped without respite again and again

(24) a. Er rollte wieder und wieder (not ambiguous)
     He rolled again and again (->)
b. Er rollte eine Zeit lang (am Stück/ohne Pause)
   He rolled some time long (at a stretch/without respite)
c. #Er rollte ohne Unterbrechung wieder und wieder
   He rolled without respite again and again

→ To conclude: *er*-nominalizations in German can denote events if their source predicate is a semelfactive, i.e. if its event is atomic/individuable.⁹

→ Event-denoting *er*-nominals denote the semelfactive event made up by the underlying predicate. (see the discussion below the examples (7)/(8)).

(25) a. Er hüpf 10 Meter hoch
    He jumps 10 Meter high
b. Er macht einen/viele (10 Meter) hohe Hüpfer
    he makes one/many 10 meters high jumps

(26) a. Er piepst laut und lange
    He beeps loudly and long
b. Er hört einen lauten und langen Piepser

(Sometimes it is hard to keep apart the event itself from the product coming about through the event (beep (a beeping event vs. a beep sound)).
(Sometimes the eventive *er*-nominal is doubled or blocked by a morphologically unmarked event nominal (ein Stoss/??ein Stosser; ein Blitz/??ein Blitzer, ein Pieks/ein Piekser).

3. On the syntax of (event denoting) *er*-nominalizations

Above, I claimed to have identified two productive types of *er*-nominalizations. A number of questions follow:

Q1: Are external argument denoting -*ers* and event denoting -*ers* formed by the same (derivational) morpheme?

→ As long as we do not have clear empirical arguments against it, this would be desirable. (All *er*-nominals behave the same with respect to gender and plural formation.) The goal of the present talk is to investigate this option.

→ This is also the assumption made in the limited literature I know that discusses event denoting -*ers* in passing.

- Assume the answer is yes. Then the following questions arise:

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⁹ Antje Rossdeutscher (p.c.) suggests that besides being semelfactive, the events in event denoting *er*-nominals must be non-intentional. While some event-denoting *er*-nominals do not obviously fit this description ('Jodler', yodeler) this further restriction would explain why the VoiceP level can be missing in the structures of event-denoting -*ers* (see below). Further, *er*-nominals such as ‘Jodler’ (yodeler) and ‘Kratzer’ (scratcher) might be better analyzed as objects of results instead of events.
Q2: Why are event-denoting er-nominals restricted to German?

Q3: Why can’t we form event denoting er-nominals from all verb classes but only from semelfactives?

Q4: Where do the different interpretations (external argument vs. event) come from?

Q5: Does -er have any meaning?

Q6: Is -er a nominalizer or an argument (or a complementizer/linker in a relative clause structure; see fn. 11)?

- **Ad Q6:** If external argument denoting er-nominals and event denoting er-nominals involve the same er-morpheme, we cannot follow the recent proposal in Baker & Vinokurova (to appear) and assume that -er is the nominal version of Kratzer’s Voice head. This is so because Voice heads introduce theta roles for external arguments but they do not introduce events.

  (27) a. -er: \( \lambda P \lambda x \text{Gen} e (P(e) & \text{agent}(e, x)) \)  
  
  b.  
  \[ \begin{array}{c}
  \text{NP} \\
  \text{N}_{\text{Voice}} \quad \text{VP}
  \end{array} \]

- Similarly, we cannot follow van Hout & Roeper (1996) who propose that “-er in nominalizations is base-generated in the Specifier of Voice and moves up with the verb to an empty N head, rather than being base-generated as the nominal head”.

  (28) a.  
  \[ \begin{array}{c}
  \text{nP} \\
  \text{Spec} \quad \text{n} \\
  \text{n} \quad \ldots. \\
  \text{VoiceP} \\
  \text{-er} \quad \text{Voice’} \\
  \text{Voice} \quad \text{VP}
  \end{array} \]

- **Alternative Proposal:** -er is a nominalizer

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10 I find this proposal already suspicious because it forces us to duplicates all the different Voice heads that we need for the thematically different external arguments (agent, causer, experiencer, holder…) under the conception of Voice in Kratzer (1996).

11 The alternative that a reduced small clause underlies all er-nominals would force us to stipulate that the event in semelfactives (and only in semelfactives) is realized (or duplicated) by a covert NP which can be relativized, i.e. can be moved to SpecCP. (See Nthelitheos (2006) for such a proposal for a different type of event-denoting nominalization in Malagasy.)
Case 1: external argument denoting er-nominalizations

- Alexiadou & Schäfer (to appear) propose the structure in (29) for external argument denoting -er nominalizations.

- The verbal event $<e>$ is introduced by the v-head (see Alexiadou & Schäfer (to appear) for arguments that an event is present in all types of external argument denoting er-nominalisations).

- Voice introduces the external argument of the verbal event (Kratzer 1996).

- Perhaps an aspect head on top of VoiceP is present in these er-nominalizations (see Alexiadou & Schäfer (to appear) for motivation, see Ntelitheos 2006 for a slightly alternative perspective).

- Finally, a nominalising n-head realized by -er takes the verbal structure as its complement. The n-head introduces an $<R>$-operator which binds the external argument variable $<x>$ which was introduced in SpecVoice. Therefore, the er-nominalisation denotes the external argument of the verbal event.

- Note that $<R>$ thereby binds the closest argument position.

- Note that I have to stipulate that some covert realisation of the external argument (a variable) exists. I remain agnostic whether this is a PRO (cf. Roy & Soare 2010).

- Note that v, Voice and N have to combine morphologically by some process (head- or XP-movement).

![Diagram](29)

Case 2: event denoting er-nominalizations

- I propose the structure in (30). Voice is missing (and probably aspect, too)\(^{12}\). (The absence of Voice is corroborated by standard tests for implicit external arguments such as control, by-phrases and agentive adverbs).

\(^{12}\) Some semelfactives are transitive. The corresponding event nominals do not license complements. Note that these German event denoting -ers behave thereby as their English zero derived counterparts. If the licensing of internal arguments is related to the presence of Aspect (cf. Ntelitheos 2006) this suggests that event denoting -ers do not involve aspect.
The <R> operator introduced by -er binds the verbal event variable <e> introduced in v. Therefore, the nominal denotes the verbal event.

- Note that in the absence of Voice, <e> is the closest position which <R> can bind.
- Note that v and N have to combine morphologically by some process (head or XP-movement).

\[(30)\]

\[
\begin{array}{c}
\text{nP} \\
\text{-er} \\
\text{vP} \\
\text{<R>} \\
\text{v} \\
\text{<e>} \\
\sqrt{\text{Root}}
\end{array}
\]

The structures in (29) and (30) suggest that there exists only one -er affix which is present in all er-nominalizations. -er is the realization of a n-head which introduces a referential argument slot <R> for the nominal it produces. This <R> is an operator which needs to bind a variable under minimality (closest c-command).

The different meanings result from different binding relations which, in turn, result from different structures (possible answer to Q4).

Let’s turn to Q5:

- Obviously, <R>\textsubscript{ER} cannot be sensitive for the difference between entities and events. If it has meaning, this meaning must be applicable in both, the domain of events and the domain of entities.\footnote{The existence of a derivational morpheme such as -er under the above characterization is not expected under Lieber's lexicalist approach, as in her system “we should not expect to find an affix which creates nouns some of which are concrete and others of which are abstract (that is, some of which bear the feature [+material] and others [-material])” (Lieber 2004:41). In Lieber's system, -er builds only concrete nouns, i.e. has the skeleton [+material, dynamic]. But the above event-denoting nouns are [-material, dynamic] (where the type of dynamic event is highly restricted, i.e. semelfactive). Lieber would therefore be forced to assume that there are two -ers, one forming [+material] and one forming [-material] nouns.}

- We saw that not every type event can be bound by <R>\textsubscript{ER}. Above, I claimed that the event must be semelfactive, i.e. naturally atomic. It seems reasonable to attribute this to a selectional restriction on <R>. Alternatively, <R> carries this semantic property and transfers it to the bound variable.

- Natural atomicity is a property that cuts across the nominal domain (the domain of entities) and the verbal domain (the domain of events).

- Natural atomic events are semelfactives (as well as telic change-of-state verbs (see below)).

(i) Er schubste den Peter (ii) Der Schubser (*des Peters) (iii) Er gab Peter einen Schubser
He pushed the.ACC Peter The hustle (*of Peter) He gave Peter.DAT a push
• **Natural atomic entities are count nouns** (but see Rothstein (2007c) and references there for refinements).

The meaning of $R_{ER}$: $<R>_{ER}$ binds the closest variable. $<R>_{ER}$ has as its meaning the property to be inherently *naturally atomic*. This denotation is assigned to/transferred to the bound variable. At LF, the (“lexical-conceptual restriction” of the) variable bound by $er$ must be semantically/conceptually compatible with this property.

This would answer also **Q3**:

• If the event expressed by a verb is not naturally atomic (e.g. activities like *run*), it cannot be bound by $<R>_{ER}$. Specifically, assume that such events can be bound in the syntax by $<R>$, but that at LF, such nominalizations are filtered out as not comprehensible: $<R>$ wants to bind an atomic event but $<e>$ introduced by verbs such as ‘*run*’ is not atomic and therefore the two do not fit in their interpretations. We get a semantic mismatch.

• What about *-er nominals derived from anticausatives? Why don’t the examples in (31) denote the change-of-state events? This is especially striking as change-of-state/telic events are typically assumed to be atomic.

(31) a. *brecher (break+er) b. *schmelzer (melt+er) (*-> unter the intended event-reading)

• Change-of-state verbs are bi-eventive, involving a process-part followed by a resultant state. Only the combination of these two sub-events makes them atomic.

(32) $[\text{ProcessP} <e> [\text{Result P} <s>]]$ (e.g. AAS 2006a, Ramchand 2008)

• If $<R>_{ER}$ binds only the closest $<e>$ in the process v-head this event is not atomic by itself.

• What about English (and Dutch) which do not have event-denoting *er*-nominals? (Q2)

• Recall that while English does not have event-denoting *er*-nominals, it nevertheless has event denoting nouns that correspond to the semelfactive *er*-nominals in German. These English nouns are zero-derived.

(33) a bounce, a knock, a beep, a jump, …

• Proposal: These nouns have exactly the same syntactic structure as the corresponding event-denoting *er*-nominals in German, i.e. the structure in (30).

• However in English the n-head is spelt out in a different way in such a constellation. The framework of Distributed Morphology allows us to formulate that the Spell Out of the n-head forming atomic nouns can differ depending on the syntactic context. Following Embick (2003), insertion of Vocabulary items is sensitive to Locality. In other words, the

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14 Therefore we do not expect to find object denoting *-ers* as there cannot be an object without a verb introducing an event and intervening between the operator in n and the object
Spell-Out rules for $n$ can make reference to its c-command domain as suggested by the two rules below.

(34) a. Spell-out of n: Voice Cycle
     $n \leftrightarrow -\text{er} / \{\sqrt{\text{BEEP}}, \sqrt{\text{JUMP}}, \ldots\}$
     b. Spell-out of n: v Cycle
     $n \leftrightarrow -\emptyset / \{\sqrt{\text{BEEP}}, \sqrt{\text{JUMP}}, \ldots\}$

3.1 “Products”: an argument against one -er?

- **Back to the alleged meaning of $<\text{R}>_\text{ER}$**: Is it empirically correct that external argument denoting $er$-nominals are always naturally atomic, i.e. **count**?

- **Problem**: We find $er$-nominals denoting **mass nouns**, typically denoting artificial liquids. Following Sleeman & Verheugd (2004), I call these “**products**”.

(35) a. Nagellack-entfern-er
     b. Essig/Teppich-reinig-er
     c. Fotoentwickler/fixierer
     d. Kleber

(36) a. (nail polish) remover
     b. (vinegar) cleaner
     c. photo-developer/fixer

- **Is this then an argument that there must be two $er$-morphemes in German?**

15 Sleeman & Verheugd (2004) discuss French counterparts of (35) and (36). They call them **product-denoting**.

(i) a. un durcisseur d’ongles
     b. un régulateur de la tension nerveuse
     c. un révélateur
     d. un fixateur (d’images photographiques)

These authors explicitly argue that **product-ers differ from agent-denoting and instrument-denoting -ers in that they are not external argument denoting** nor do they involve an event. They argue (Sleeman & Verheugd 2004:149) that “only instruments can be used as external arguments, whereas products cannot”. In the example in (ii) the product-$er$ can only occur as a locatum-argument, not as an external argument. The examples in (ii) are designed after Levin & Rappaport (1988). These authors discuss verbs undergoing the spray/load alternation in order to prove the external argument generalization (iii):

(ii) a. A spray gun sprayed the weedkiller on the grass
     b. *The weedkiller sprayed on the grass
(iii) a. John loaded hay onto the truck
     b. John loaded the truck with hay with a crane
     c. A crane loaded the truck with hay
     d. *The hay loaded the truck
     e. loader -> crane, not stuff

I do not think that the argumentation around (ii) is fair. One would have to show that the denotation of weed-killer cannot be a subject in an event of ‘killing weed’. The example in (iib) just shows that it is not allowed to call a chemical like weedkiller a ‘sprayer’. Constructing fair examples in German suggest that **products do, in fact, obey the external argument generalization**.

(iv) a. Peter entfernte die Flecken mit dieser Flüssigkeit/diesem Mittel
     b. Diese Flüssigkeit entfernte die Flecken rasch
(v) a. Peter reinigte den Topf mit dieser Flüssigkeit
     b. *?(!)Diese Flüssigkeit reinigte den Topf rasch

$\Rightarrow$ Fleckenentferner
$\Rightarrow$ Reiniger
• Should we conclude that the only language with event denoting -ers has, by accident, two different -er morphemes?

• Or should we look for an explanation why external argument denoting -ers can sometimes circumvent the semantic restriction to be naturally atomic?

• Some observations and a sketch of an explanation along the :

While products have clear **mass-readings** (37), **sort/kind/type of readings** (38) are easily available:

(37) Ich habe mir Wasser/Bier/Essigreiniger auf die Hose geschüttet
    I have me water/beer/cleaner at the trouser poured

(38) a. **Ein/Jeder** Teppichreiniger kann verwendet werden
    A/Every carpet-cleaner can be used
   b. Dieser Reiniger ist weit **verbreitet**
    This cleaner is widespread
   c. **Zwei** (verschiedene) Teppichreiniger
    Two different carpet cleaners
   d. **Diese** Teppichreiniger ähneln sich in ihrer Wirkungsweise
    These carpet cleaners are similar in their mode-of-action

Quite generally, we find mass → count shifts (39, 40) as well as count → mass shifts (41) (e.g. Chierchia 2008), but it is remarkable how easily the shifts in in (38) work.

(39) I drank three beers (universal packager)

(40) a. I like only three wines: chardonnay, pinot, and chianti
   b. I like only three dogs: Irish setters, golden retrievers, and collies

“This mechanism [in 40] turns a noun associated with a kind of objects or a kind of substance (dogs, wine) into a noun of subkinds of those objects/substances. [This mechanism], while not restricted to mass nouns, has as a side effect that of **making a mass noun countable**. (Chierchia 2008: 4)”.

(41) There is chicken, apple, teacher, … in the soup/on the floor (universal grinder)

But products do not show all properties of mass nouns; they resist modification with all and most. Thereby, they are similar to coerced count nouns.

(42) a. Das meisste Wasser ist verdunstet
    The most water is evaporated
   b. Der meisste Sand wurde weggekehrt
    The most sand was swept away
   c. Die meisste Zahnpasta wurde weggewischt
    The most toothpaste was wiped-off

(43) a. ??Der meisste Teppichreiniger wurde weggewischt
    The most carpet-cleaner was wiped-off
   b. ??Der meisste Apfel wurde weggewischt
The most apple was wiped-off
The most chicken was wiped-off

(44) a. Ich habe alles Wasser, alle Zahnpasta, allen Sand, ??allen Apfel, ??allen Teppichreiniger wegwewischt
I have all water/all toothpaste/all sand/all apple, all carpet-cleaner wiped-off

Under the present proposal that there is only on naturally atomic -er, we expect shifts such as er\textsubscript{count} → mass but not er\textsubscript{mass} → count, simply because there is no basic er\textsubscript{mass}.

Proposal:
• Products are basically external argument denoting (instrumental) er-nominalizations that are assigned the property of being naturally atomic.

• This leads to an interpretation as a sort, kind or (sub-)kind.

• As all count nouns, products can be coerced into mass; due to the fact that products are fluids, this shift from count to mass happens without much effort.

4. Conclusions

• The central aim of this paper was to present a rarely discussed type of er-nominalizations in German, event denoting er-nominalizations.
  ▪ I showed that event denoting er-nominals can be formed only from semelfactive verbs (i.e., they denote semelfactive events).
  ▪ As the formation of external argument denoting er-nominals, the formation of event denoting er-nominals is a fully productive in that it is possible with any semelfactive verb that exists in German. (Other types of er-nominals found in English, Dutch or German exist, but they are not productive.)

• The existence of this type of nominalizations poses a number of theoretical questions.
  ▪ How many -er morphemes do we have to assume?
  ▪ If one, what is its job?
  ▪ What is the structure of event denoting er-nominalizations and how do they differ from external argument denoting er-nominalizations?
  ▪ Why are event denoting -er nominalizations restricted to semelfactive events?
  ▪ Why do we find event denoting -er nominalizations only in German and not in other languages (e.g. English or Dutch)?

• I investigated the hypothesis that there is actually only one -er morpheme.

• I suggested that this morpheme acts as a nominalizer that introduces an <R>-operator which binds the closest variable. It has a meaning that cuts across the verbal and nominal domain; <R>\textsubscript{ER} has as its meaning the property to be inherently naturally atomic. This denotation is assigned to/transferred to the bound variable. At LF, the variable bound by er must be semantically/conceptually compatible with this property.
• The two readings differ structurally in the presence vs. absence of Voice. If Voice is present, then the <R> operator located in n binds the external argument position, if Voice is absent, <R> binds the event in v.

• While the differences between languages can find a technical solution, the empirical prediction that all types of er-nominals are naturally atomic is not borne out in the domain of entities; across languages, there is a class of er-nominals denoting mass-nouns.

• I proposed that these product-denoting er-nominals denote basically naturally atomic (sub-)kinds, but can be coerced easily into mass nouns.

References


Roy & Soare (2010). *Naming participants in the event: -ant/-eur/-é French nominals and the compositionality in morphology*. Handout of a talk given at Table ronde Nominalisations, Université des Paris 8.


