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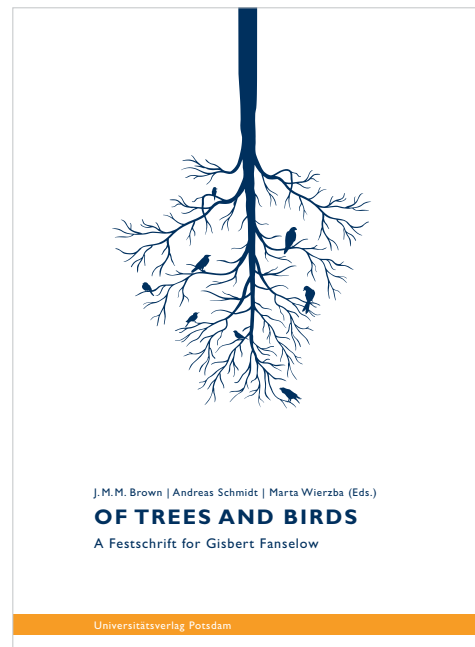
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The instrumental *-er* suffix

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1 Introduction

It is well-known and universally accepted that deverbal *-er* nominals denoting agents (in the broadest sense, including, e.g., possessors and recipients) permit the internal argument of their underlying verb to be realized as a complement in a syntactic phrase that they head, cf. (1). It has also been recognized since Roeper (1987: 281–297) and Fanselow (1988: 106) that deverbal *-er* nominals denoting instruments contrast with those denoting agents in that the latter do not permit the realization of the verbal argument, cf. (2).¹

(1) producer of the film

(2) *shredder of paper

Many attempts have been undertaken to explain this difference in behavior between agent and instrument *-er* nominalizations, among others Keyser & Roeper (1984), Rappaport Hovav & Levin (1992), van Hout & Roeper (1998), Borer (2003) and Alexiadou & Schäfer (2010).

The received view in the traditional handbooks of word formation as well as in the linguistic literature is that the suffix *-er* combines with a

1. With this contribution, I would like to express my warmest congratulations to Gisbert Fanselow on the occasion of his 60th birthday. Its contents result from thought-provoking statements by Gisbert against the inheritance of arguments in instrumental nominalizations, cf. Fanselow (1988: 103–108). Actually, that work argues against argument inheritance with “semantically non-vacuous” suffixes like *-er* in general, but I have since forgiven him for that part of his argument. ☺

verb to produce the primary meanings of agent and instrument nouns as well as a number of secondary readings such as patient, location and event (for recent discussion see especially Lieber 2016). This brief article will argue that the two putative primary meanings of the *-er* suffix, that of agent and instrument, are not (metaphorical, metonymical or contextual) variants of a prototypical agentive suffix *-er* (as argued by Ryder 1999, Panther & Thornburg 2002, Lieber 2016 and many others). Rather, as also argued in Olsen (2019), the *-er* suffix is actually ambiguous; it represents two semantically distinct suffixes, an agentive or actor suffix (*-er_{actor}*) on the one hand and an instrumental suffix (*-er_{instr}*) on the other.

2 Earlier analyses of the *-er* suffix

Rappaport Hovav & Levin (1992) attempted to explain the difference in the ability of agent and instrument *-er* nominals to realize arguments in the syntactic phrases they head by assuming a difference, not between agentive and instrumental *-er* nominalizations, but between those nominalizations that are understood as eventive, i.e. in which an event takes place or has taken place, and those that are non-eventive where an event is not implied. In eventive nominals the argument structure of the verb is active and can be realized, while in the case of non-eventive meanings this is not the case.

Van Hout & Roeper (1998), working within a formal syntactic framework of derivational morphology, attempt to capture the generalization in a more principled fashion as a reflex of the aspectual properties that characterize the underlying syntactic representation of the nominal and their need to be licensed. As in a sentential construction, a telic structure in a nominalization requires the quantized object of the base verb to raise to the specifier position of the aspect phrase in order to be licensed. The verb itself moves up through the voice phrase to pick up the external argument of the verb (realized by the *-er* suffix) that is generated in the specifier position of the voice head. This explains the agentive nature of telic *-er* nominals. From there the syntactically united *V+er* complex raises to the N head that dominates the embedded event structure.

An unquantized object in an atelic VP, on the other hand, is licensed in SpecVP and doesn't require the overt movement to a higher position. The verb itself cliticizes to the left of the nominalizing head that immediately dominates the VP. Atelic nominalizations, therefore, are not limited to the role of agent. The *-er* morpheme to which the verb cliticizes originates in the N that dominates VP and not in the specifier position of a higher voice phrase. Consequently, due to the fact that no functional structure above VP is available, there is no agent present and no presupposition of an event. Thus, the nominalization is free to denote an instrument or any other thematic role.

Alexiadou & Schäfer (2010) also make use of the telic–atelic distinction in their more recent analysis of *-er* nominals within the framework of distributed morphology. They assume that the functional morpheme *-er* embeds under it the functional configuration TP, AspectPhrase, VoicePhrase and *v*Phrase characteristic of a sentence. “Little *v*” merges with a category-neutral root, characterizing the root as a verb. The verb root then moves up through the AspectPhrase, picking up either an episodic or a dispositional aspect feature on its way up to unite with the functional morpheme *-er* that categorizes the entire structure as nominal. Dispositional aspect – as opposed to episodic aspect – allows an unquantized object to remain implicit in the structure because of its unspecific nature. This explains the lack of realization of arguments in dispositional (i.e. instrumental) structures. In episodic cases, a quantized object must be licensed by movement into the specifier position of Aspect.

The problem with attempts like these to use the telic–atelic or episodic–dispositional dichotomy to explain when an argument can (and cannot) be realized as the complement of an *-er* nominal is that atelic/dispositional nominalizations permit the realization of an argument just like telic/episodic structures do, cf. (3a) and (4a). But when they do, the agent interpretation is mandatory just as it is in telic/episodic structures, cf. (3b) and (4b). An instrumental interpretation is ruled out in both cases:

- (3) Telic/episodic
- a. The **pruner of the tree** just completed his job. person
- b. *The **pruner of the tree** was broken. *instrument
- (4) Atelic/dispositional
- a. The park is searching for a reliable **pruner of trees**. person
- b. *The park purchased a more effective **pruner of trees**.
*instrument

Since syntactic analyses haven't been successful in explaining the inability of argument realization with instrumental nominals, let us turn our attention in the next section to a semantically oriented framework.

3 Characterization of the er_{actor} suffix

Bierwisch (1989, 2015a) has proposed a lexicalist theory of nominalization that is based on a theory of semantics in which meaning is separated into two levels of representation (cf. Bierwisch 1983, 1988, 2007, 2011, 2015a,b, Bierwisch & Lang 1989, Lang & Maienborn 2011, Maienborn 2017). The theory of two-level semantics encompasses, on the one hand, a highly articulated, complex level of conceptual structure (CS) that reflects our conceptual knowledge and can be enriched by contextually relevant features. On the other hand, it envisages a level of lexical-semantic structure (semantic form: SF) that is conceived of as a condensed version of CS. It represents the interface between CS and the system of grammar in that it encodes only the aspects of the more comprehensive conceptual meaning that are needed to establish the categories of grammar with their compositional properties. Consider as an example the entry for the verb *sweep* in (5).

- (5) [swi:p] [V] $\lambda x \lambda y \lambda e$ [$e : [y \text{ SWEEP } x]$]
PF CAT AS SF

The entry for *sweep* gives its phonological form (= PF), its grammatical category (= CAT) and provides its lexical semantic meaning in its se-

semantic form (SF), which is the level of meaning visible to the grammar. Recall that SF characterizes the invariant aspects of meaning bound to the language system and is strictly compositional. The verb’s argument structure (AS) is derived directly from the SF by binding the variable positions that are relevant to the syntax and ordering the corresponding lambda expressions in inverse order. This creates a hierarchy of assignment such that a lower argument is discharged before a higher argument.

Affixes have similar lexical entries, but they are bound morphemes that combine with a lexeme as their argument. For example, the suffix *-er* selects a verb as its lexical argument. Therefore, its AS in (6a) is made up of a predicational argument λP with the annotation [V]. The argument vector $\lambda\vec{v}$ represents the verb’s unsaturated arguments to be taken over by the derived nominal. In the case of the verb *sweep* in (6b) these will be the external and internal arguments (= y and x). In the course of inheriting the arguments of *sweep*, the suffix *-er* binds the event variable of the verb (= e) with a generic operator (= $\text{Gen}(e')$). The result is *sweeper* in (6c).

- | | | | | | | | |
|-----|----|------------|-----|-------------------------------|------------------|------------------|--------------------------------|
| (6) | a. | [-ər] | [N] | λP | $\lambda\vec{v}$ | $\text{Gen}(e')$ | $[P(\vec{v})(e')]$ |
| | | | | [V] | | | |
| | b. | [swi:p] | [V] | $\lambda x\lambda y\lambda e$ | | | $[e : [y [\text{SWEEP } x]]]$ |
| | c. | [swi:p-ər] | [N] | $\lambda x\lambda y$ | | $\text{Gen}(e')$ | $[e' : [y [\text{SWEEP } x]]]$ |

With the event variable of the underlying verb now bound by the generic operator, it is no longer syntactically active. The highest active argument in the AS of the derived noun (= λy) corresponds to the original external argument of the verb *sweep* which has now become the referential argument of the derived nominal, i.e. *sweeper* ‘one who sweeps’, cf. the discussion in Bierwisch (2015a: 1062–1082).²

Although the variable e' is blocked in AS (i.e. bound by the generic operator), it is present in SF and is therefore part of our conceptual knowledge. So we could ask: what type of event is implicit (as background

2. For the lexical entry of the suffix *-er* in (6a) I have used a formally equivalent variant of Bierwisch’s actual proposal for the discussion of which I am indebted to Claudia Maienborn.

information) in a nominal that refers, not to the event itself, but to the actor of an event such as *sweeper*? When they denote actors, *-er* nominals can imply the following types of activity, cf. Rainer (2015):

- (7) Implicit activity types of actor nominals in *-er*
- a. an occasional activity: *protester, voter, gawker*
 - b. a habitual activity: *gambler, smoker, complainer*
 - c. an occupation: *designer, preacher, programmer*
 - d. often all types are possible: *hunter, swimmer, seller, . . .*

In stark contrast to this, the referents of instrumental *-er* nouns such as *shredder, grater, heater* don't imply an activity at all. In fact, what they denote is in no way dependent on an activity being carried out (cf. also Alexiadou & Schäfer (2010), Rappaport Hovav & Levin (1992), among others). They simply denote artifacts that have been constructed for an intended purpose. In contrast to a *protester, gambler* or *designer*, a *shredder, heater* or *grater* is not identified by virtue of any activity taking place or having taken place. The artifact may never have been put to use to shred, heat or grate anything. They are shredders, heaters or graters by virtue of their design which is determined by the purpose for which they were constructed. So, for instance, a *shredder* understood as an actor is identified by the activity of shredding: it is a person who is implementing or has implemented the activity encoded by the base verb. If no shredding has taken place, the person cannot be labeled a shredder. But the instrument shredder is a thing identified by its design and construction from the moment of its creation, irrespective of any activity that may or may not be carried out.

4 Addition of an *er_{instr}* suffix

Bierwisch (2015b: 1118–1120) suggests two possibilities of accounting for the two primary meanings of the *-er* suffix that are intended to relate (what he terms) its “personal” to its “non-personal” readings, cf. (*piano*) *player* and (*record*) *player*. First, the suffix *-er* could derive personal nouns to which a coercive shift would apply to yield non-personal variants (i.e. (*piano*) *player* > (*record*) *player*). Or, alternatively, the relevant

verb could be listed with a personal and a non-personal subject. As for the first option, it is hard to see non-personal *-er* nominals deriving directly from personal *-er* nominals by shifting the referent from a person to a thing. Not all instruments depend on the existence of personal actors for their derivation, cf. the nominals in (8):

(8) Primary instruments

computer, adapter, fertilizer, humidifier, thruster, blower, recliner, heater, trailer, freezer, feeder, condenser, muffler, bumper, beeper, tranquilizer, multiplier, refrigerator, vibrator, simulator, projector, calculator, ventilator, duplicator, monitor

The second option of characterizing verbs for personal and non-personal subjects doesn't contribute a convincing solution to the problem either. Why should the verb *sweep* used with a non-personal subject in (9a) block the realization of its argument in the corresponding derived noun of (9b)?

- (9) a. This device sweeps the floor.
 b. *sweeper of the floor

In light of the evidence induced in the previous discussion, it seems reasonable to adopt an independent *-er* suffix that forms a class of instruments that are not characterized by an activity, but by a purpose. The instrumental suffix *-er_{instr}* would define a class of artifacts with a variable purpose whose specific content is supplied by the verbal lexeme to which the suffix *-er_{instr}* attaches, cf. (10):

- (10) $-er_{instr}$ [N] $\lambda P \lambda z \text{ Gen}(e') [\text{INSTR}(z) \ \& \ z \text{ PURPOSE}(e') \ \& \ P(e')]$
 [V]

The representation of the *-er_{instr}* suffix in (10) requires a verbal predicate to substitute for the predicate variable *P*. Thus, all arguments of the verbal predicate apart from its referential event argument must be existentially bound before entering the formula. Applying the function in (10) to *sweep* in (6b), the result is *sweeper* in (11):

(11) *sweeper*: [N] λz Gen(e') [INSTR(z) & z PURPOSE(e') & SWEEP(e')]

The class of underived instruments most likely have a similar SF representation, with the difference that each underived instrumental lexeme has lexicalized its individual purpose, cf. *knife* in (12) with the purpose CUT:

(12) *knife*: [N] λz Gen(e') [INSTR(z) & z PURPOSE(e') & CUT(e')]

Under these assumptions, instrumental *-er* nominals are not the result of transferred or coerced meaning from an agentive nominal as Lieber (2016), Bierwisch (2015b) and others suggest. Rather, they are derived directly by a second suffix *-er_{instr}* that is homonymous with the agentive suffix *-er_{actor}*.

5 Verbal arguments vs. inferred events

Recall that the *er_{actor}* suffix in (6a) – repeated here for convenience – takes over the arguments of the verb with which it combines, while blocking (via a generic binding) the referential event argument of the verb. Thus, what was originally the external argument of the verb becomes the referential argument of the derived noun and the internal argument can be realized in a syntactic phrase, cf. *sweeper of the room*.

(6) a. [- ∂ r] [N] $\lambda P \lambda \vec{v}$ Gen(e') [$P(\vec{v})(e')$]
[V]

The referential argument λz of the *er_{instr}* suffix – repeated in (10) –, on the other hand, characterizes the derived nominal directly as an instrument via its referential argument λz which binds the variable of the predicated constant INSTR(z) in its SF. The verbal predicate enters the formula as a specification of the predicate variable P , and in so doing is stripped of all its arguments except for its bound event argument e' .

(10) *-er_{instr}* [N] $\lambda P \lambda z$ Gen(e') [INSTR(z) & z PURPOSE(e') & $P(e')$]
[V]

Hence, no arguments of the underlying verb are available for expression in the syntax of a derived instrument, cf. **shredder of paper*.

Nevertheless, derived instruments do allow the verbal event to be accessed by an attributive adjective in a non-intersective reading, cf. *fast shredder* in (13). A non-intersective reading arises when an attributive adjective functions as an adverbial by modifying, not the referent of the noun it accompanies, but an event associated with the meaning of that noun:³

(13) *fast shredder* ‘x shreds in a fast manner’

Non-intersective meanings are possible with agentive nominals as well, cf. (14).

(14) *beautiful dancer* ‘x dances beautifully’

Alexiadou & Schäfer (2010) assume that both “episodic” nominals like *dancer* and “dispositional” nominals like *shredder* (using their terms) share a syntactic representation in which an event structure with its cascade of functional categories (i.e. TP, AspP, VoiceP and *v*P) is present. The head of *v*P (“little *v*”) introduces the event variable that permits the non-intersective reading in both types of nominals.

However, non-intersective modification is found with underived instrumental and agentive nominals as well as with those derived from a verb. The nouns in (15) and (16) are simple, underived nouns. Yet, when modified by an adjective like *fast* or *good*, the adjective takes on an adverbial function.

(15) *fast car* = drives fast

(16) *good doctor* = performs the job of a doctor well

Hence, an implicit event must be accessible for modification by the adjective in underived agent and instrumental nouns as well. This is clearly

3. For a thorough discussion of the intersective vs. non-intersective function of adjectives see Larson (1998) who – as argued here – also considers the phenomenon to be semantic in nature.

a semantic, not a syntactic, fact. As basic nouns there is no reason to postulate a full sentence structure in their representation, including verb movement through all the proposed functional heads up to the nominal suffix. It is far more sensible to assume that non-intersective readings arise on the basis of the semantics of the noun in all four cases, and is not anchored in an unfounded syntactic structure. The adjectival modifier is apparently able to access an implicit event suggested by the semantic structure of the noun. This mode of modification is not a compositional semantic process in the strict sense, but requires a coercive step. The adjective doesn't refer to the referent of *shredder*, *dancer*, *car* or *doctor*. This would yield an intersective reading (i.e. *beautiful dancer* 'x is beautiful & dancer'). Rather, a plausible event is induced on the basis of the meaning of the constituents to which the adjective can successively apply. For recent discussions of the role of such coercive processes in the explanation of the flexibility and contextual adaptability of meaning within the context of conceptual semantics and for a formal proposal for such coercive processes, cf. Maienborn (2017) and Bücking & Maienborn (forthcoming).

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