

## Constraining argument structure in nominalizations: The case of English *-er*

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This article will soon be revised heavily. Please contact me at the above e-mail address and I will send you the new version when completed (around mid-July 2013)

The article contributes to the typology of structural factors constraining argument realization in nominalizations, focussing on English *-er*-nominals. It first reappraises the conclusions of earlier studies on when *-er*-nominals can express verbal arguments. Derivations disallowing argument linking (with *-er* and other affixes) are treated as semantically and structurally parallel to nominal compounds, and their argument-structural behaviour is attributed to a generalization that base-generated complex heads prohibit realization of arguments of the nonhead outside the complex head, with principled exceptions. Regarding argument-realizing *-er*-nominals, we observe an idiolect split in which some speakers allow the full range of argument structures permitted by head movement analyses, while less liberal idiolects require a (lexicalist-inspired but syntactically implemented) analysis where *-er* is a Voice head that selects  $V^\circ$ , forcing arguments of V to merge above affixation as arguments of nouns, which is only possible for PP and *of*-insertion arguments.

### 1 Introduction

An important problem concerning the interfaces between syntax, semantics and morphology is that category-changing processes reduce the possibilities for realization of arguments to varying degrees. Examples like the following are typical.

- (1) a. *She is a fast opener of bottles.*  
b. *The {bottle opener/opener (\*of bottles)} is in the drawer.*  
c. *(\*)the discoverers that the world is round*  
d. *\*a maker of linguists angry*
- (2) a. *the breaking of his leg*  
b. *the break (\*of his leg)*
- (3) *an amputee (\*of a leg)*
- (4) a. *dismissive of crypto-lexicalism*  
b. *deceptive (\*of uncritical people)*

Non-lexicalist studies standardly assume that nominalizations inheriting verbal arguments involve head movement (e.g. Alexiadou & Schäfer (2010), Baker & Vinokurova (2009), Borer (2003), Fu et al. (2001), Harley (2006), van Hout & Roeper (1998)). In all such approaches, nominalizers select a phrasal constituent containing V and its argument(s). (This constituent may be a VP as in (5), or a larger extended verbal projection.) The verb undergoes head movement to the nominalizer to form *reading* or *reader*.

- (5) a.  $[_{NP} -er [_{VP} read [_{DP} (of) novels]]]$   
b.  $[_{NP} -ing [_{VP} read [_{DP} (of) novels]]]$

Head movement approaches readily explain nominalizations supporting material normally otherwise found in (extended) verbal projections and not found in underived nominals. An example, due to Fu et al. (2001), is that certain nominalizations support adverbs. Internet-attested nominalizations like (6) plausibly contain at least VP, since comparable uses of adverbs with underived nominals are excluded (*\*events/trips frequently*). By contrast, if one derives *the washing of hands* by attaching *-ing* in the lexicon and allowing V's argument selection to be inherited by the noun *washing*, one makes heavier weather of (6c) since adverbs modify verbs and not nouns, and percolation of a selection feature will not solve the problem since verbs do not select adverbs.

- (6) a. *his announcement of their conversion publicly*

- b. the punishment of them too frequently
- c. the washing thoroughly of hands
- d. the destruction immediately of the conservative movement in the GOP

However, I argue that head movement cannot be the only source of argument inheritance after category-changing processes. In certain argument-inheriting nominalizations, the nominalizer selects a verbal *head*, forcing any inherited arguments to be realized above the nominalizer, which limits the types of arguments that may be inherited. Such derivations are defended for *-er*-derivations in idiolects disallowing (1c). This analysis is inspired by lexicalist ideas, but is implemented in a purely syntactic approach.

Another perennial quandary concerns nominalizations which block (phrasal) realization of the arguments of their bases, such as (1b), (2b) and in some idiolects (3). After describing problems with existing accounts of the constraint in (1b), I argue that the *of*-phrases are excluded for the same reasons as those in *cleaning cloth* (\**of records*) or *scrubwoman* (\**of floors*). The relevant generalization is that base-generated complex heads disallow the projection of arguments of their nonheads outside the complex head. I outline a theory which seeks to explain this generalization and (apparent and genuine) exceptions to it. The theory is compatible with the view that nonheads in compounds like *pencil sharpener* are grammatically represented as arguments of the affixed verb, which we support with new evidence.

We proceed as follows. Section 2 introduces the empirical facts about argument-inheriting and non-argument-inheriting *-er*-nominals, and problems in existing approaches. Section 3 deals with nominalizations with *-er* (and other affixes) disallowing argument linking with *of*-phrases. Subjects discussed include the argument-structural relevance of compounding (section 3.2) and the ban on argument inheritance from nonheads and the derivation of (exceptions to) it (section 3.3). Section 4 treats argument-inheriting *-er*-nominals, noting that they eschew AP and clausal arguments in some idiolects but not others (section 4.1) and presenting an analysis where the arguments tolerated in the less liberal varieties are merged *above* affixation as arguments of *nouns* (section 4.2).

## 2 Two types of *-er* nouns: *-er*<sup>AS</sup> vs. *-er*<sup>nonAS</sup>

Levin & Rappaport (1988; L&R) and others assume two types of *-er*-nominals, according to their sensitivity to the argument structure of their bases. In what I call *-er*<sup>AS</sup> **nominals** like (7a), Patients/Themes or other internal arguments can appear as *of*-phrases, and the referents of the nominals always correspond to Initiators<sup>1</sup> of the base verbs realized as subjects in active clauses. By contrast, *-er*<sup>nonAS</sup> **nominals** disallow *of*-phrases linking Patient/Theme arguments and need not have referents corresponding to V's Initiator: the *-er*-noun in (7b) is an instrument which does not correspond to a syntactic subject (\**The fork opened the bottle*), while (7a) cannot have this reading. (8) illustrates other interpretations of *-er*<sup>nonAS</sup> nominals not corresponding to (external) arguments of V. (For more examples like (8), see L&R, Marchand (1969) or Ryder (1999).)

- (7) a. *an opener of bottles*  
b. *He used a fork as a (bottle) opener*
- (8) a. LOCATION: *kneeler* 'thing for kneeling on', *scribbler*, *jotter*, *dresser*  
b. PATIENT/THEME: *locker* 'lockable cupboard', *reader* 'type of book', *keeper* 'thing to be kept', *fixer-upper* 'house to be fixed up'  
c. INDIRECT CAUSER (≠ V's Agent): *foot tapper/headbanger* 'song able to cause people to tap feet/bang heads', *nail biter* 'situation apt to cause nervous nail-biting', *steam-letter-offer* 'pastime that allows one to let off steam'

<sup>1</sup> *Initiator* is used here as a cover term for Agent, Causer and similar arguments

- d. MISCELLANEOUS: *cliffhanger* ‘suspenseful situation reminiscent of someone hanging from a cliff’

Note that the term  $-er^{nonAS}$  applies to compounds like *pencil sharpener*, *clothes dryer*, although I argue in section 3.2 that compound nonheads can satisfy arguments of the affixed V. The term  $-er^{nonAS}$  is shorthand for “the use of  $-er$  which allows argument realization by compound nonheads but not by *of*-phrases”.

L&R note that the behavior of  $-er$  is not directly sensitive to animacy.  $-er^{AS}$  nouns can be inanimate if they correspond to Initiators of the base verbs, cf. (9).

- (9) pain is a saver of lives; it is a thriller of the mind; adultery is a wrecker of families; carpet is the main accumulator of dust; politicized religion is a frequent causer of wars

## 2.1 Eventive and non-eventive interpretations

In what I call the **standard view** (e.g. L&R, van Hout/Roeper 1998), all  $-er$ -nominals with *of*-arguments and no argumentless or compound  $-er$ -nouns show **eventiveness effects**. One such effect is **frequent-modification**, seen in the judgments in (10). Here *frequent* is eventive in the sense that it quantifies over tokens of events with the property named by the base of  $-er$ .

- (10) a. They are frequent {savers of lives/destroyers of ships}.  
b. They are (\*frequent) {lifesavers/destroyers}.

Another eventiveness effect is an **event entailment**. The standard view claims that only *of*-insertion- $-er$ -nominals entail the occurrence of an event described by the base of  $-er$ . A *washer of clothes* must have washed clothes while a *clothes washer* need not have. Analogous remarks hold for (11).

- (11) a. saver of lives, fighter of fires, destroyer of ships [event entailments]  
b. lifesaver, fire fighter, destroyer (=type of ship) [no event entailments]

A previously unnoted problem for the standard view is that eventiveness effects are not exclusively found with *of*-nominals, cf. (12) and (13).

- (12) a. prize winner, cow worshiper, wine lover/drinker [event/state entailment]  
b. murderer, discoverer, lover, smoker, admirer [event/state entailment]

- (13) a. frequent {dope smokers/beer drinkers/card players}  
b. frequent flyers/drinkers/murderers/workers

My amendment to the standard view is stated in (14) and (15). The statement in (14) differs from the standard view in allowing for data like (12)-(13). In (15) I specify a particular interpretation of  $-er$  nouns not showing eventiveness effects.

- (14) a.  $-er$ -*of*-nominals entail events, and cannot have the *purpose* reading described in (15). They involve existential binding of an event variable.  
b. Other  $-er$ -nominals can either have purpose or event readings.
- (15) a. An  $-er$ -nominal has a **purpose reading** if the canonical or designated function of its referent is to be a participant in the event named by the base of  $-er$ . The purpose reading does not show eventiveness effects. Classes of such **purpose  $-er$ -nominals** are given in (b-e):  
b. **Instruments** (artifacts designed for use in the events named by V): (*lawn*)mower, (*can*) opener, (*coffee*) grinder, *pencil sharpener*, *polish remover*, *lens cleaner*, *guitar tuner*, *penholder*, *letter opener*, *printer*  
c. **Non-intrinsic instruments** (entities *designated*, but not *designed*, for particular uses): *I found a stone that looked like a good {cutter/can crusher}*.  
d. **Humans in professional or similar functions**: (*maths*) teacher, firefighter, dog catcher, law enforcer, peacekeeper, choir leader

e. **Humans in temporary designated functions:** *minutes taker, present giver, door opener*

The purpose reading in (15) differs from the *dispositional* reading which Alexiadou & Schäfer (2010; A&S) apply to *-er* nouns. Dispositional readings can be illustrated with middles: *the book reads easily* means that it has properties predisposing it for easy reading, and indeed a *lawn mower* also has properties which predispose it for lawn mowing. However, the more specific purpose interpretation seems to offer a better description of non-eventive *-er* nouns. Consider the non-intrinsic instrument interpretation in (15)c). This may appear to favour the A&S proposal over mine since *cutter* may describe a sharp stone that is predisposed for cutting but does not have this intrinsic purpose. However, I claim that *cutter* has a purpose interpretation in this context because the *use* of the stone for some purpose is at issue. By contrast, *cutter* is deviant in a context like (16) which excludes the purpose interpretation but still has a dispositional interpretation.

(16) The forest they were exploring was thick with plants that would have cut their hands if they had touched them without gloves. <sup>#</sup>The cutters extended for miles.

Some *-er*-nouns seem have a dispositional reading that is not a purpose reading, but these seem to be lexicalized and not productively formed. (17)a) refers to a branch that is *predisposed* to making widows without having this as its *purpose*. But a widowmaker hanging over a children's playground cannot be called a (*child*) *killer*. The referents of (17)b) have a (possibly unrealized) potential for metaphorical heart-breaking/lady-killing, and thus have purpose dispositional readings for which a purpose reading would require a bizarre context in which broken hearts are desirable. However, parallel readings are unavailable for *seducer*, *man hurter*, *heart winner/capturer*. (17)a-c) suggest that non-purpose dispositional *-er*-nouns are either lexicalized or involve creative (metaphoric, jocular, hyperbolic or otherwise metalinguistic) language use. (17)d) (which I heard someone produce who had not previously been to the playground and thus had not seen evidence of torn pants) is also jocular, but the humour consists in the idea that an artefact has the express *purpose* of tearing pants, an effect not predicted if the dispositional reading were productive.

- (17) a. *widowmaker* 'a branch that is dangerously liable to fall (forestry term)'  
 b. *heartbreaker, lady killer*  
 c. *That guitar riff is a {bone cruncher/baby killer/brain-melter}.*  
 d. *pants shredder* 'slide which might tear children's pants'

## 2.2 Apparent counterexamples to the eventiveness of *-er-of*-nominals

I now dismiss potential counterexamples to the claim that all *-er-of*-nouns are eventive. Firstly, *teachers/instructors of physics* can have qualifications without teaching experience in my judgment (unlike that of Olsen 1992:22f). However, comparison with the synchronically non-deverbal *professor/tutor of physics* suggests that the *of*-phrases are genitives and not realizers of arguments of affixed verbs.

Another threat to the claim that *-er-of*-nominals are always eventive is (18). These nominals need only describe *possible* future events. However, the existence of referents for the *-er*-nominals depends on the occurrence of the events named by the base of *-er*. We cannot for instance continue (18)a) with *...but I will pour the wine down the sink so nobody drinks it*. This does not hold of *-er<sup>nonAS</sup>* nominals: the usability of (*lawn*)*mower* or *lifesaver* is not contingent on whether their referents will ever mow lawns or save lives. I thus conclude that structures like (18) are eventive in ways that *-er<sup>nonAS</sup>* nominals are not.

- (18) a. The drinker of the wine will fall into an eternal sleep. (Olsen 1992:23)  
 b. The finder of this wallet should ring the number 123-45678.

## 2.3 Rejected accounts of the different types of *-er*-nominals

We now describe problems with some possible accounts for the unavailability of *of*-insertion with purpose-*er*-nominals.

Borer (2003) argued that non-argument-realizing affixless nominals like *a break* (*\*of his leg*) are nominalizations of category-neutral roots and not of verbs. Even if this is right for Borer's data, it is inapplicable to *-er*<sup>nonAS</sup>-nouns, since, as Alexiadou & Schäfer (2010) note, these tolerate bases with clearly verbal affixes like *-ize* and *-en*, cf. (19).

(19) organizer, vaporizer, tranquilizer, equalizer, sweetener, moistener, sharpener  
I see little hope for accounts appealing to a *semantic* incompatibility between *of*-phrases and the non-event-entailing semantics of *-er*<sup>nonAS</sup>-nouns. For instance, Alexiadou & Schäfer (2010: 22-24; A&S) claim that *of*-phrases are confined to episodic (event-entailing) contexts because, allegedly, they must have quantized readings which are incompatible with the dispositional-generic interpretation they propose for *-er*<sup>nonAS</sup>-nouns. However, (20)a) shows that *of*-phrases need not be quantized and need not be event-entailing. A draft of A&S proposed that *specifically* interpreted *of*-phrases would force event-entailing readings incompatible with the generic/dispositional/purpose interpretation of *-er*<sup>nonAS</sup>-nouns. However, the underlined material in (20)b,c) is interpreted specifically but compatible with a non-eventive dispositional/purpose interpretation.

- (20) a. Overlegislation includes the banning of very specific hypothetical actions, say the waking of unicorns at midnight or the smoking of weed on pink bicycles.  
b. He made an Osama bin Laden detector, but it was never used.  
c. I made a special long-handled hook for opening that particular window up there, but nobody ever used it.

Van Hout & Roeper (1998) capture eventiveness effects by claiming that *-er*<sup>AS</sup> selects TP, enabling the binding of V's event variable by T. By contrast, *-er*<sup>nonAS</sup> selects only VP. The functional projection licensing *of*-phrases is missing, so internal arguments must incorporate. A problem is that the projections to which both variants of *-er* attach are too large. Attaching *-er* to TP wrongly predicts clausal material such as adverbs (*\*player of chess carefully*, *\*player of the piano well*), and attachment to VP predicts PP complements, but these are impossible with *-er*<sup>nonAS</sup>-nouns: *this machine is a tank filler* (*\*with water*).

## 3 Blocking *of*-arguments with the purpose reading

### 3.1 The compound-like interpretation of purpose *-er*-nominals

I will argue that we can derive the argument-structural behavior of *-er*<sup>nonAS</sup> if we assume that it combines with verbs in the same way as heads of compounds combine with their nonheads. Thus, the purpose interpretation of *wiper* is analogous to *wiping cloth*, and its inability to link *of*-arguments in this reading reduces to the independent problem seen in *wiping cloth* (*\*of windows*). Preliminary demonstrations of the interpretational parallels are given in (21) and (22). For instance, *washer* has a reading synonymous with *washing machine*. Both structures have purpose interpretations ('machine/thing for washing').

- |      |                          |                    |
|------|--------------------------|--------------------|
| (21) | a. washing machine       | a'. washer         |
|      | b. wiping cloth          | b'. wiper          |
|      | c. kneeling cushion      | c'. kneeler        |
|      | d. reading book          | d'. reader         |
|      | e. cleaning lady         | d'. cleaner        |
| (22) | a. record cleaning cloth | a'. record cleaner |
|      | b. window cleaning fluid | b'. window cleaner |
|      | c. wire stripping tool   | c'. wire stripper  |
|      | d. pool cleaning device  | e'. pool cleaner   |

The compounds parallel *-er*-nominals in not showing eventiveness effects like *frequent*-modification and prior event entailments, and in disallowing *of*-complements. (In the following examples, *washer* and *record cleaner* are to be understood in their purpose readings, parallel to *washing machine*, *record cleaning cloth*.)

- (23) a. \*frequent washing machine                      b'. \*frequent washer  
       b. \*frequent record cleaning cloth            b'. \*frequent record cleaner
- (24) a. previously unused washing machine        a'. previously unused washer  
       b. previously unused record cleaning cloth    b'. previously unused record cleaner
- (25) a. washing machine (\*of clothes)                a'. washer (\*of clothes)  
       b. cleaning cloth (\*of records)                b'. cleaner (\*of records)

Treating *-er*-nouns and compounds alike is not made implausible by the following differences between them: (i) *-er* happens to be a bound morpheme, which I take to be irrelevant to its semantics and argument structure. (ii) *-er*<sup>nonAS</sup> has an extremely general meaning similar to *entity* but also allowing animate and non-count interpretations, cf. (21)e), (22)b). (iii) *-er* attaches to verbs (or can do so; there are many exceptions like *falconer*, *real-estater*; see Ryder 1999), while in English clear cases of [<sub>N</sub> VN] compounds like *scrubwoman* are rare and probably unproductive. What we mainly find are *VingN* forms like those in (21) and (22). Here either *-ing* is a meaningless linking morph in a structure [<sub>N</sub> [<sub>V</sub> V-*ing*]<sub>N</sub>] or *-ing* nominalizes V to allow it to undergo productive N-N compounding. Either way, that *-ing* has no semantic effects is seen in the fact that the same interpretations can be obtained in German [<sub>N</sub> VN] compounds like *Waschmaschine* 'wash<sub>V</sub>-machine', *Schuhputztuch* 'shoe-clean<sub>V</sub>-cloth' (on which see Gast 2008).

I assume the simple structures in (26) (recursive structures like (22) raise special questions addressed in section 3.2). (26) could be seen as 'lexical' derivations, but I assume that heads can freely merge in syntax, provided the resulting structures satisfy morphological constraints, say the English constraint that [<sub>N</sub><sup>o</sup> NN] is well-formed while [<sub>N</sub> VN] is only possible in idioms like *scrubwoman* and [<sub>V</sub> NV] is only licensed by certain affixes like *-er*.

- (26) a. [<sub>N</sub><sup>o</sup> [<sub>N</sub><sup>o</sup> *washing*] [<sub>N</sub><sup>o</sup> *machine*]]  
       b. [<sub>N</sub><sup>o</sup> [<sub>V</sub><sup>o</sup> *wash*] [<sub>N</sub><sup>o</sup> *-er*]]

*Pace* Harley (2008) I do not derive compounds using head movement, since this wrongly allows complement-stranding structures like \*[[<sub>N</sub><sup>o</sup> *son promotion* [<sub>NP</sub> *t<sub>son</sub> of a friend*]]] in the sense 'promotion of the son of a friend' (see section 3.3.1). The inability of compounds and *-er*<sup>nonAS</sup>-nouns to project arguments, recall (25), is discussed further in section 3.3.

Compounds and *-er*<sup>nonAS</sup>-nouns can be interpreted in such a way that the head is in what one can call a **FOR-relation** to the nonhead (cf. L&R 1988:1080, note 3). Thus, *washing machine* and *washer* are interpreted like *machine for washing*. (The French equivalent *machine à laver* expresses the FOR-relation overtly with *à*.) (27) describes the FOR-interpretation more precisely. (27) says nothing about the thematic role of y in the situation named by x, since (8) shows that *er*<sup>nonAS</sup>-nouns are not only Agents or Instruments. (27) may derive from a more general schema stipulating only that the compound constituents be in some underspecified relation deduced from contextual or encyclopedic knowledge.

- (27) a. One of the possible interpretations of [<sub>N</sub> X Y] is a relation  $\lambda x \lambda y \text{ FOR}(y)(x)$ .  
       b.  $\lambda x \lambda y \text{ FOR}(y)(x)$  is true if y, an entity, has the (intrinsic or designated) purpose of participating in the situation named by x.

Non-purpose dispositional *-er*-nouns like (17) would have to be derived by a rule other than (27) (or perhaps an extension of (27)) which is not fully productive (recall (16)) and seems inapplicable to normal NN compounds (a rare exception being *stinging nettle*, a plant predisposed to stinging). I will not formulate this rule here, but I assume that it creates the same structure as other *-er*<sup>nonAS</sup>-nouns, and will thus disallow the projection of *of*-complements for reasons seen in section 3.3.

### 3.2 Incorporated arguments: *record cleaner* and *record cleaning cloth*

Cases like *record cleaner* and *record cleaning cloth* and others in (22) need special discussion, since we must decide between left-branching analyses like (28)a,b) and right-branching analyses like (28)c,d). (28)a) is clearly preferable to (28)c) since first elements of right-branching compounds do not otherwise receive main stress (e.g. Libermann & Sproat 1992), witness the interpretations of [*SCHOOL planning*] *group* vs. *school* [*PLANNING group*].

- (28) a. [<sub>N°</sub> [<sub>N°</sub> *record cleaning*] *cloth*]  
 b. [<sub>N°</sub> [<sub>V°</sub> *record clean*] *-er*]]  
 c. \*[<sub>N°</sub> *record* [<sub>N°</sub> *cleaning cloth*]]  
 d. [<sub>N°</sub> *record* [<sub>N°</sub> *cleaner*]]

Less clear is the choice between (28)b) and (28)d). (28)b) will be compatible with my approach in section 3.3, but requires me to defuse arguments against it based on the unacceptability of *\*I record-cleaned*. (28)d) also raises problems. If we posit (28)d) with *record* grammatically represented as a Patient argument of *clean* or *cleaner*, we must explain why compound nonheads but not *of*-phrases can realize arguments in *-er*<sup>nonAS</sup>-structures. I cannot do this without courting the problems of the Alexidaou-Schäfer account noted in section 2.3.

(28)d) could be reconciled with my account in section 3.3 if we assume that *record* is not grammatically represented as an argument of *clean*, and that the structure means something like ‘cleaner associated with records’, which would subsume the argument interpretation. This is hard to defend in cases where stress distinguishes the two interpretations: *góvernment auditors* can only mean ‘people who (are meant to) audit governments’, while *goveRNment áuditors* can have clear non-argument interpretations not involving auditing of governments. A different problem comes from idiom-based compounds. Consider *hackle-raiser* (which has 1720 Google attestations). It makes little sense to analyse *hackle-raiser* as meaning ‘raiser associated with hackles’, at least for speakers for whom *hackle* is only usable as part of an idiom chunk with *raise*. The likewise well-attested *appetite whetter* is similar, except that in this case the base of *-er*, *whet*, is collocationally restricted for many speakers.

I thus find it unsafe to adopt (28)d) and will defend (28)b). The inability of *record-clean* to surface overtly (*\*I record-cleaned*) is often taken to argue against N-V constituents in synthetic compounds (e.g. Lieber 2004:48f). However, much of the uneasiness about positing otherwise unusable noun-incorporating verbs dissipates when one considers German compounds like (29)/(30). These feature N-V-N strings with the constituent bearing main stress capitalized. In the (a) variants the initial Ns are stressed and interpreted like Patients of V. In the (b) variants this interpretation is excluded (perhaps due to an implicature based on the availability of the (a) variants). In the (a) variants an objection to a left-branching structure [[NV]N] based on the unavailability of the N-V strings as freestanding verbs (*\*computerstören*, *\*computeroptimieren*) is untenable, since German (like English) has a rule that right-branching compounds are stressed on the second element, cf. (31) (Wiese 1996:297f). While this German-based argument does not show that English *record cleaner* must be left-branching, it does show that virtual N-V constituents *can* exist and thus that (28)b) is not automatically wrong. Given the problems with (28)d), I assume (28)b), though I will make provision for the integration of (28)d) into my overall theory where this is important.

- (29) a. COMPUTERstörproblem  
       [computer.disturb<sub>v</sub>].problem (problem of disturbed computers)  
 b. ComputerSTÖRproblem  
       computer[disturb<sub>v</sub>.problem] (problem of things being disturbed by computers)
- (30) a. COMPUTERoptimiervorgang

- [computer.optimize<sub>v</sub>].process (process of optimizing computers)
- b. ComputerOPTIMIERvorgang  
computer[optimize<sub>v</sub>.process] (optimizing something using computers)
- (31) a. STADTplanungsbüro  
[TOWN planning] office (office for planning towns)
- b. StadtPLANUNGSbüro  
town [PLANNING office] (town office for planning something)

### 3.3 Blocking argument realization: the Morphological Nonhead Constraint

I see the ban on *of*-arguments with *-er*<sup>nonAS</sup>-nouns (*\*the opener of bottles in the drawer*) and with compounds (*\*washing machine of clothes*) as an instance of a phenomenon stated descriptively in (32) (a descendent of claims about compounds by e.g. Di Sciullo & Williams (1987:30)). Section 3.3.1 discusses spurious and genuine exceptions to (32). Section 3.3.2 attempts to derive (32) and its genuine exceptions.

- (32) **Morphological Nonhead Constraint (MNC):** If X is nonhead of a base-generated complex head [<sub>Y°</sub> XY], X's arguments cannot be realized outside [<sub>Y°</sub> XY]

#### 3.3.1 Apparent and genuine exceptions to the MNC

Structures like *record cleaner* would be exceptions to the MNC in (32) if they had the structure [<sub>N°</sub> record [<sub>N°</sub> cleaner]] and if *record* is represented as an argument of *clean*. However, section 3.2 argued for the structure [<sub>N</sub> [<sub>V°</sub> record clean]-er]], which (32) does not forbid.

**P-to-V incorporation.** Possible exceptions to (32) are complex verbs formed by preposition incorporation like (33), where P contributes an argument not necessarily obeying V's selection restrictions (and even assigns inherent Case to the DP in some languages, Miller (1993:117ff), Kim (1997)).

- (33) a. *overstep the line, overcome problems, bypass someone*  
b. *offload books, overturn carts, uproot trees*

The various imaginable head movement approaches to P-to-V incorporation, say (34), would not contradict (32), which is only claimed to hold for *base-generated* complex heads.

- (34) a. [<sub>VP</sub> [<sub>V°</sub> over-step] [<sub>PP</sub> t<sub>over</sub> [<sub>DP</sub> the line]]]  
b. [<sub>VP</sub> [<sub>V°</sub> off-load] [<sub>SC</sub> [<sub>DP</sub> the books] [<sub>PP</sub> t<sub>off</sub>]]]

However, I doubt that all P-to-V incorporation involves head movement. Consider *overseer*, which can have a non-argument-realizing purpose use, although *oversee* is obligatorily transitive. If *oversee the project* has a derivation like (34)a), then the structure for *overseer* would have to include an *over*-PP containing no (overt) argument which is unavailable in the derivation of *oversee*. I was unable to motivate such an analysis. The problem also affects P-V-N compounds like German *Überschreibmodus* '[<sub>N</sub> [<sub>V</sub> overwrite]mode]', in which the obligatory object of *überschreib*- 'write over' can go unrealized. Analogous problems arguably affect particle verb nominalizations like *fixer-up-er*, *soaker-up-er* (McIntyre 2012a).

It seems safest to concede that cases like (33) have (or can have) derivations that flout (32). I make provision for this possibility in (35).

- (35) a. At least some P-incorporating verbs are base-generated complex heads.  
b. DP arguments of such complex verbs which are realized (as direct objects, *of*-insertion arguments) are grammatically represented as arguments of the whole complex verb.  
c. When such complex predicates undergo further word formation, as in *overseer* or *Überschreibmodus* these arguments can be suppressed in a mechanism described in section 3.3.2. (This mechanism can only affect arguments of the whole structure inputting word formation, not arguments of embedded predicates.)



(35)b) claims that a nonhead can add an argument to the selecting head's argument structure in P-V-structures, which we must prevent in nominal compounds like *cleaning lady* (\**of windows*). I suggest that this is possible in P-V-structures because of the special role of verbs as hosts of secondary predication. Some analyses of secondary predication use small clauses, which are mostly seen as projections of functional heads like Pr(edication) (Bowers 1993) or little *p* (Svenonius 2003), cf. (36)a). An alternative is a complex predicate analysis like (36)b) (e.g. Winkler 1997). I propose to unite these approaches by assuming that PPs and other secondary predicates cannot realize their external arguments (or externalized arguments, cf. (33)a)) inside their own projection for some reason, and must thus pass an argument selection feature to the head selecting them. Such a head can be a verb, including both *tip* in (36)b) and *step* in [<sub>V</sub> *overstep*].<sup>2</sup> Nouns simply do not act like verbs as hosts of secondary predicates, so we should not expect them to be able to pilfer argument selection features from nonheads they compound with.

- (36) a. [<sub>VP</sub> *She* [<sub>V</sub> *tip*-V [<sub>VP</sub> *tip* [<sub>PrP</sub> [<sub>DP</sub> *the water*] [<sub>Pr</sub> Pr [<sub>PP</sub> *out of the bucket*]]]]]]]  
 b. [<sub>VP</sub> *She* [<sub>V</sub> *tip*-V [<sub>DP</sub> *the water*] [<sub>V</sub> *t<sub>tip</sub>* [<sub>PP</sub> *out of the bucket*]]]]]

**Nominal compounds apparently violating the MNC.** In contrast to what is observed with \**scrubwoman of floors*, \**cleaning lady of windows*, \**stripping tool of wire*, some nominal compounds do allow *of*-phrases which are conceivably arguments of nonheads, witness internet attestations like (37) and German examples in Fabricius-Hansen (1993). Not all English and German speakers accept such examples. I for instance reject (37)a-d).

- (37) a. %the name choice of my child (“choice of my child’s name”)  
 b. %the destruction plans of Dresden (“plans of the destruction of Dresden”)  
 c. %a word in first sister position of the verb (Roeper & Siegel 1978:208)  
 d. %location hypotheses of Atlantis  
 e. i. the daughter languages of Latin  
 ii. the ancestor language of nearly all European languages  
 iii. the ancestral language of a good many of today's languages.

An imaginable approach is that speakers accepting (37)a-d) derive (some) compounds by head movement, which allows complement stranding: [<sub>N</sub>° *name choice* [<sub>NP</sub> *t<sub>name</sub>* *of my child*]]. In this case (32) would not be counterexemplified, since it is only concerned with base-generated complex heads.

However, I suggest that the *of*-phrases are genitives licensed by the fact that the compounds express inherently relational concepts. (37)e) speaks for such a semantic approach, since *ancestral* in (37)e iii) is an adjective, not a compound nonhead, making the structure an unlikely candidate for a head movement derivation, while the semantic approach would only need to say that *ancestral language* is a relational concept (it entails the existence of descendent languages). (37)e iii) is unacceptable without *ancestral*, since *language* alone is not relational in the same way.

Genitives like those in (37) are apparently never obligatory for speakers who accept them. This even holds in (38), where the compound nonhead is a transitive or unaccusative verb with an otherwise obligatory Theme. Genitives with nominal compounds like (37)-(38) are unlike the obligatory arguments of V-incorporated prepositions in (33), which further supports the claim that (37)-(38) do not involve genuine argument inheritance from nonheads.

<sup>2</sup> These ideas also apply to adjectival secondary predicates. Consider German *das Glattstreichen (des Mörtels)* ‘the smooth-stroking (of the mortar)’, where the incorporation of *glatt* is evidenced by its inability to be modified by *sehr* ‘very’ (and arguably by its prenominal position, McIntyre 2012a). Parallel to *overseer*, we find non-argument-realizing instrument nominalizations like *Glattstreicher* ‘smooth.stroker = spatula’ or *Weichspüler* ‘smooth-rinser = fabric softener’.

- (38) a. die Meldepflicht (%der Symptome) [German]  
the report<sub>V</sub>.duty (of.the symptoms)  
“the duty of doctors to report symptoms to the authorities”  
b. die Sterbehilfe (%des Patienten)  
the die.help (of.the patient)  
“assisted dying/suicide (where the patient dies)”

**Derivations involving Voice heads.** In section 4.2 I argue that there are derivations like (39)a), where V’s arguments are realized outside the complex head, as another exception to the MNC. Here it will be crucial that this use of *-er* is, unlike the other morphological heads seen so far, a species of Voice head (Kratzer 1996) which is sensitive to an argument-structural feature on V, entailing that V’s argument structure must be active (more on this in section 3.3.2). Adjectival passives are another relevant case if any of them have a base-generated complex head structure like (39)b), and if we accept the arguments in McIntyre (2012b) that the participle morphology is a type of defective Voice head and that the Theme is initially merged outside AP.

- (39) a. [<sub>N°</sub> [<sub>V°</sub> *read*]-*er*<sup>AS</sup>] *of novels*  
b. [<sub>A°</sub> *un*-[<sub>V°</sub> *train*]-*ed*] *people*

### 3.3.2 Motivating the Morphological Nonhead Constraint

I now try to motivate (40), which states the MNC with the exceptions seen in section 3.3.1.

- (40) **Morphological Nonhead Constraint (revised):** If X is nonhead of a base-generated complex head [<sub>Y°</sub> XY], X’s arguments cannot be realized outside [<sub>Y°</sub> XY], unless:  
a. X can pass its argument-selection features to Y. (This holds if Y is V and X a predicative category like P, but not if Y is N.)  
b. Y is a Voice head.

The range of data covered by (40) starts to make sense if we understand (40) as a claim that the argument structure of X is inactive in [<sub>Y°</sub> XY] *unless Y is sensitive to X’s argument structure*. This covers the exception in (40)a) if we assume that P-incorporating verbs involve copula-like uses of the verbs which specify that their Theme arguments must be inherited from the P-item with which they merge (section 3.3.1). The exception in (40)b) can be explained if Voice heads are sensitive to an argument-structural feature on V which I will label [+Initiator]. Voice heads are thus incompatible with Vs with inactive argument-structural features. They are compatible with Vs with active argument-structural features, in which case V’s non-Initiator arguments will be realized, as is observed in clausal syntax and with *-er*<sup>AS</sup> (which is analysed in section 4 as a Voice head).<sup>3</sup>

We now ask why X’s argument structure can be inactive in a structure [<sub>Y°</sub> XY] where Y is not argument-structure-sensitive. The question is non-trivial. Why is [<sub>Y°</sub> XY] not limited to Xs lacking (obligatory) arguments? Why are *moisturizer* and *overseer* possible without the otherwise obligatory arguments of *moisturize* and *oversee*, yielding what one might, in nostalgic parlance, call a Projection Principle violation? I now discuss some possible responses to this dilemma.

<sup>3</sup> Another instance of this phenomenon would be *-ing*-participles like (i). These involve Voice, witness the presence of (externalized) Initiators. V’s argument-structural features are active, witness the obligatory realization of the non-Initiator arguments. For (ii) I must assume that *-ing*-participles allow V’s argument-structural features to be satisfied covertly, say by arbitrary PRO.

(i) *\*(life-)wrecking choices, \*(tree-)uprooting storms, \*(power-)consuming devices*

(ii) *{filling/fattening/disgusting/interesting/sick-making} food*

**Hypothesis A.** V's argument-structural features can in principle be active or inactive. They cannot be inactive in clauses, witness \*[<sub>TP</sub> *Moisturizes*], since T (or another clausal head) selects a VoiceP, and Voice is incompatible with argument-structurally inactive V, as just proposed. Nothing prevents V's argument-structural features from being inactive when they are nonheads of structures headed by non-argument-structure-sensitive items.

**Hypothesis B.** Arguments are not selected by lexical items, but are projected by functional heads (e.g. Borer 2003, 2005). In [<sub>Y°</sub> XY] X appears without the functional heads licensing what are traditionally seen as arguments of X. Argument-realizing nominalizations involve the functional heads needed for argument projection.

**Hypothesis C.** An operation (call it SUPPRESS) occurs which deactivates the argument-structural features of a nonhead, preventing it from projecting too much structure for use in [<sub>Y°</sub> XY]. There are several variants of this approach. One could assume either that X's argument structure is literally switched off or that arguments are satisfied by existential binding (cf. Landau's (2009) Saturation operator). SUPPRESS may or may not be ascribed to a special (silent) morpheme. Arguably SUPPRESS is one of the functions of the linking morph *-e-* in German V-N compounds in (38) and (41). Traditionally linking morphs are seen as meaningless morphological glue, which is understandable given that they appear in no more than 20% of V-N compounds (Lohde 2006:26f) and then only unsystematically (*Klebeband* 'stick<sub>V</sub>.tape = cello tape' vs. *Kleb(<sup>°</sup>e)streifen* 'stick.strip = cello tape' *Klebstoff* 'stick.substance = glue'). Certainly, *-e-* does not primarily have the argument suppression function sometimes accorded to passive, antipassive or detransitivizing morphemes, but we are not far from the traditional view if we assume that linking morphs are signals that a morpheme has been downgraded to a mere bound (conjunct) form and thus stripped of the privileges of free morphemes, and that one of these privileges is the projection of arguments.

(41) *Tragetasche* 'carry bag', *Zeigefinger* 'point.finger=index finger', *Halteschraube* 'hold.screw', *Lesebuch* 'read.book'

Hypothesis C can accommodate the position (section 3.2) that *record* in *record cleaner* and *record cleaning cloth* is represented as an argument of *clean*, at least if we allow SUPPRESS to occur after V has merged with *record*. Hypotheses A and B force one to jettison the view that compound nonheads satisfy argument-structural features. Hypothesis A additionally allows an intermediate position in which compounding is argument-structurally relevant but does not satisfy uninterpretable (c-selection) features. This is tempting given e.g. *\*(data)-based theories*, where *data* satisfies an obligatory argument but flouts the formal requirement of the verb *base* for an *on*-PP: *we base theories \*(on data)*. (This assumes that *\*based theories* is excluded for argument-structural reasons, and is not semantically implausible as an opposite to *baseless theories*.) However, since this last approach is in its infancy and since I argued in section 3.2 that compounding is a mode of argument satisfaction, I favour Hypothesis C. Although more should be said on these matters, I hope to have made some progress towards deriving the Morphological Nonhead Constraint.

### 3.4 Applications to other affixes

In this section I briefly suggest some applications of my approach to other non-argument-realizing nominals. However, I emphasize that the explanation given for argument blocking with *-er<sup>nonAS</sup>*-nominals and compounds only aspires to be a contribution to the typology of possible explanations for argument blocking effects. It would be rash to exclude the possibility that other argument blocking phenomena in English and beyond have different sources. For instance, argument blocking effects seen with certain verb particles (*play (\*the piano) on*) might exist because particles obligatorily predicate over direct objects, yielding semantic deviance in such cases. Some such account might be preferable to McIntyre's (2004) use of elaborate machinery in deriving the phenomenon from the MNC.

### 3.4.1 -ee affixation

Assuming that *-ee* in *employee* realizes V's Patient is an oversimplification, as many *-ee*-nominals are not analysable as arguments of V. An *amputee* is for instance not a Patient of *amputate*: \**The doctor amputated him*. (42) gives similar examples from Barker (1998).

- (42) *twistee* 'person whose arm was twisted'; *advertisee* 'person targeted by advertising'  
*snatchee* 'person whose bag was snatched' *slittee* 'person whose throat was slit'

Examples like (43) of *-ee*-nominals which inherit V's arguments are judged unacceptable by Barker (1998:713) and myself, though an internet search suggests that some speakers accept analogous structures. The behavior of *-ee* in the more permissive idiolects deserves study, but I will confine myself here to *-ee* in idiolects rejecting (43).

- (43) %payee of a large sum; %advisee of the danger; %evictee from the apartment; %invitee to the party; %trainee to kill; %advisee to plead guilty

In idiolects disallowing (43), I assume that *-ee*-nouns have the structure [<sub>N°</sub> V-*ee*], where *-ee* means roughly 'affected person'. Accordingly, *amputee* means 'affected person relating to an amputation event' and is interpreted like *amputation victim*. Since *-ee* is not sensitive to V's argument structure, (42) is permitted. V cannot project arguments outside [<sub>N°</sub> V-*ee*], as per the MNC in (40). %*amputee of legs* and other cases in (43) are rejected by the relevant speakers for the same reasons as \**amputation victim of legs*. As with *-er<sup>nonAS</sup>*-nominals, the approach does not forbid [<sub>N°</sub> [[<sub>V°</sub> NV]]-*ee*] compounds like *leg amputee*. Perhaps study of these cases will further support the argument-structural relevance of synthetic compounding, since a ban on compound nonheads realizing Initiators (\**doctor amputee*) is hard to exclude if *leg amputee* means simply 'amputee associated with legs'.

### 3.4.2 Simple event nominals

The *simple event nominals* in (44) express events but disallow realization of V's arguments (Grimshaw (1990), Borer (2003)).

- (44) a. a push (\*of the cart)  
 b. the exam (\*of those students) yesterday  
 c. the raise (%of their wages)

The analysis in (45)a) assumes a null suffix meaning 'event, situation'. V is in a [<sub>N°</sub> VN] configuration and thus precluded by the MNC in (40) from projecting arguments outside the nominal. The interpretation and argument non-realization are analogous to what is seen in (45)b).

- (45) a. [<sub>N</sub> [<sub>V</sub> *push*] Ø] (where Ø means 'event, situation')  
 b. *pushing events* (\*of carts); *the exam event* (\*of the student) yesterday

As usual, the theory allows for argument realization only in the configuration [<sub>N°</sub> [<sub>V°</sub> NV] Ø]. A possible instantiation is seen in *dummy spit* 'tantrum', cf. the idiom *spit the dummy* 'throw a tantrum' and \**a spit of the dummy*.

Overt nominalizers can also form simple event nominals, cf. (46), where *John* need not be an argument of the base verbs (he may only have supervised the events) and where plural marking is inconsistent with the mass interpretation normally found with argument-realizing nominals (Grimshaw 1990). I assume that these suffixes can have the 'event'-interpretation ascribed to Ø in (45)a).

- (46) *John's {punishments/beatings/examinations/trials/foreclosures/mergers}*

The affixes in (46) and the null affix Ø in (45)a) also have argument-realizing uses where they merge as functional heads. This is paralleled by *-er* in my analysis, which may either merge in a compound structure like (26) or as a Voice head (section 4.2)). Full assessment of this

account will ultimately require diachronic study to ascertain the reanalysis processes leading to this dual functionality.<sup>4</sup>

Unlike my account, Borer (2003) analyses (44) without zero affixes and elegantly predicts that zero nominals eschew argument-realizing interpretations. Since structures like *the frequent {censure/murder/capture/defeat/rape} of people* are well-attested (Harley 2006), I assume that argument blockages like (44)a,c) simply indicate that  $\emptyset$  is less productive in its argument-realizing functional use.

#### 4 Argument-inheriting *-er* nominals

The realization of arguments of V in *-er*<sup>AS</sup> nominals has been analyzed in terms of head movement (e.g. Alexiadou & Schäfer 2010, Baker & Vinokurova 2009, Harley 2008, van Hout & Roeper 1998). (47) illustrates variants of this approach, for perspicuity ignoring head movement of the verb/root *read* to *-er*. In (47)a), *-er* is to be understood as a type of Voice head which expresses a property of an Initiator (cf. Baker & Vinokurova 2009:520, 532). The inherited DP argument is licensed inside VP, with *of* inserted for Case reasons by some mechanism. (47)b) gives a variation (cf. Alexiadou & Schäfer 2010:14f) where *-er* selects a VoiceP with an unpronounced Initiator which I label as *x*. *-er* binds this argument. In the variant in (47)c), *of*-arguments are licensed as specifiers of a functional category (cf. A&S, van Hout & Roeper). *-er* selects different projections in different theories, ranging from VP (Baker & Vinokurova) to VoiceP (A&S) to TP (van Hout & Roeper). Other differences concern whether VP in (47) is seen as a projection of a category-neutral root (A&S, Harley (2008)).

- (47) a.  $[_{NP} -er [_{VP} read [_{DP/PP} (of) the book]]]$   
 b.  $[_{NP} -er [_{VoiceP} x [_{V'} Voice \dots [_{VP} read [_{DP/PP} (of) the book]]]]]$   
 c.  $[_{NP} -er [_{FP} [_{DP/PP} (of) the book] F [_{VP} read t_{the\ book}]]]$

I argue that head movement is applicable to *-er*<sup>AS</sup>-nominals in some English idiolects but not others. The data distinguishing the two idiolects are introduced now.

##### 4.1 Speaker variation on argument realizability with *-er*<sup>AS</sup> nominals

The judgments in (48) echo Grimshaw's (1990:101f) rejection of *-er*-nominals with clausal complements. However, web attestations like (49) show that some speakers allow clausal complements for *-er*-nouns. Four of six native speakers I surveyed accepted structures like (49).<sup>5</sup>

- (48) a. \*the discoverer  $[_{CP} that the world is round]$   
 b. LIKE (a): observer, doubter, denier, pretender, revealer, preacher, thinker, proclaimer, remarker, reporter, explainer, complainer, boaster  
 c. \*a pretender/opter/aspirer/tryer/hoper/proposer/proponent to change the system  
 d. \*an instructor/advisor of people to obey orders  
 e. \*the causer/orderer of these people to be killed
- (49) a. (\*) a firm believer that knowledge is power  
 b. (\*) the first discoverer that sound can be transmitted by an electrical current

<sup>4</sup> Such a reanalysis may be underway with zero agentive nominalizations, to judge by web-attested *of*-complement uses like (i), which I reject.

(i) *a good cook of Indian food; a cheat of his father; a show-off of his skills.*

<sup>5</sup> I reject all clausal complements in (48) and (49), except with *believer* with deontic (believed-in) propositions, cf. (i) and (ii). Perhaps the CP in (i) is embedded under a deleted *in* (all speakers allow PPs with *-er*<sup>AS</sup>).

(i) ?a believer that discipline is good (= a believer in discipline)

(ii) \*a believer that Oswald shot Kennedy (= ??a believer in the lone assassin theory)

c. (\*)a proponent that people should be compelled to ID themselves  
Head movement approaches like (47) do not predict judgments like (48), since they posit phrasal projections which should be able to house clausal complements.

AP resultative and depictive predicates were rejected by three of six informants (two of whom rejected clausal complements with *-er*-nominals).

- (50) a. (\*)She is a habitual {painter of walls white/hammerer of metal flat}.  
b. (\*)The English are habitual drinkers of beer warm.

AP predicates with causative light verbs like (51)a) were rejected by five out of six informants. However, I will concede that head movement approaches may be able to handle this by appealing to the ban on *of*-insertion in ECM contexts (51)b,c).

- (51) a. \*Ignorant purism is a {maker sick of linguists/maker of linguists sick}.  
b. \*the making {sick of linguists/of linguists sick}  
c. \*the considering/consideration of John honest

Double object constructions and predicative DP constructions are universally rejected in *-er*-nominals, but it is unclear if this is a strike against head movement. Their unacceptability has several potential causes, including a possible ban on multiple *of*-insertion, the ban on *of*-insertion with ECM structures in (b), the incompatibility of nominalizers with silent morphemes posited in double object constructions (applicative heads, silent prepositions).

- (52) a. \*a giver (of) children (of) presents; \*a baker (of) people (of) cakes  
b. \*a caller (of) people (of) names; \*the caller of John (of) a moron

Adverbs are excluded from agentive nominals in all varieties, cf. (53)<sup>6</sup>. However, this can arguably be explained in a head movement approach. Baker & Vinokurova (2009) police this by merging adverbs above Agent-introducing heads; *-er* is such a head, but also nominalizes the structure, rendering it incapable of adverbial modification.

- (53) builders (of houses) (\*skilfully/\*well), \*a worder of contracts carefully

By contrast, all speakers accept *of*-insertion DP arguments with *-er*<sup>AS</sup>, and PP arguments:<sup>7</sup>

- (54) a. travellers to Spain, contributors to books, workers for BP, voters for Bush, spongers off the state, sufferers from gout  
b. a driver of trucks to Zambia  
c. the largest importer of goods into the US  
d. a giver of presents to journalists  
e. separators of the wheat from the chaff, protectors of people from harm  
f. a legendary drinker of people under the table.

My conclusion from this section is that an English speaker may have either of the following variants of *-er*<sup>AS</sup>:

*-er*<sup>AS.liberal</sup>: This is compatible with all kinds of arguments (e.g. PPs, DPs, CPs, APs), except those excluded for independent reasons compatible with head movement. I assume that one of the head movement approaches discussed above (47) is appropriate for *-er*<sup>AS.liberal</sup>.

*-er*<sup>AS.restr(ictive)</sup>: This allows PPs and *of*-insertion phrases, but not other arguments like APs and clausal complements. The next section describes its grammatical properties.

<sup>6</sup> One finds exceptions like (i), at least in business English. However, such adverbs are irrelevant since they can modify simplex nouns, cf. the internet attestation in (ii). These adverbs may be modifiers of implicit participles, as is clearest in an imaginable article title *Adverbs (viewed) crosslinguistically*.

(i) %providers {globally/internationally/worldwide} of quality goods

(ii) %its nomination for “Best Private Bank Internationally for Innovative Products and Services”

<sup>7</sup> For reasons unclear, not all PPs are unreservedly acceptable: (\*)lookers at pictures, (\*)talkers about inflation, \*a beater of people to death; \*the breaker of the vase to bits.

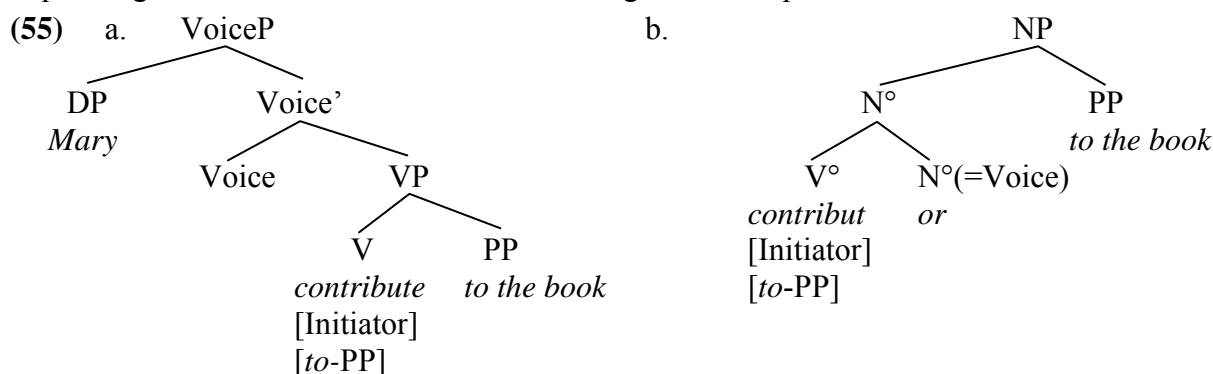
## 4.2 The grammar of $-er^{AS.restr}$ -nominals

I now present an analysis of  $-er^{AS.restr}$  which explains its confinement to PP and *of*-insertion arguments.

**A)**  $-er^{AS.restr}$  has selection restrictions permitting it to merge with  $V^\circ$  but not a phrasal projection. This is consonant with a lexical derivation, but because I am committed to testing the feasibility of a non-lexicalist approach, I assume that  $-er$  attaches in syntax. Its insistence on non-phrasal  $V^\circ$  bases is either a particularly narrow *syntactic* selection restriction or a morphophonological constraint which for some reason cannot be satisfied by head-moving  $-er$  out of a phrasal projection.

**B)**  $-er^{AS}$  (in both variants  $-er^{AS.restr}$  and  $-er^{AS.liberal}$ ) is a nominal Voice head. Unlike clausal Voice heads it expresses a property of an Initiator of an event described by V. That  $-er$  is a Voice head predicts correctly that argument-inheriting uses of  $-er$  are only possible when the referent of the  $-er$ -nominal corresponds to the subject of V in normal active clauses. Since  $-er$  is a Voice head, it is licensed by an argument-structural [Initiator] feature on V. Hence it cannot merge with V unless V's argument selection features are active (section 3.3.2), so arguments corresponding to V's internal arguments in clauses must be realized in  $-er^{AS.restr}$ -nominals.

**C)** The structure  $[N^\circ V^\circ -er^{AS.restr}]$  forced by the selection restrictions of  $-er^{AS.restr}$  could accommodate arguments of V if they merge with V in a base-generated complex head configuration. Such  $[N^\circ [V^\circ XV] -er^{AS.restr}]$  structures might be implicated in *frequent dope smokers*, *frequent overrulers of decisions*. However, phrasal arguments of V cannot form a complex  $V^\circ$  and must thus be realized *outside*  $[N^\circ V^\circ -er^{AS.restr}]$ . (55) compares a clausal derivation with an  $-er^{AS.restr}$ -nominalization. Nothing prevents merger of the PP below Voice in (a), while in (b) it merges above Voice since the Voice exponent selects  $V^\circ$ , resulting in a 'squeezing-out' or 'externalization' of the PP argument to a position outside  $N^\circ$ .



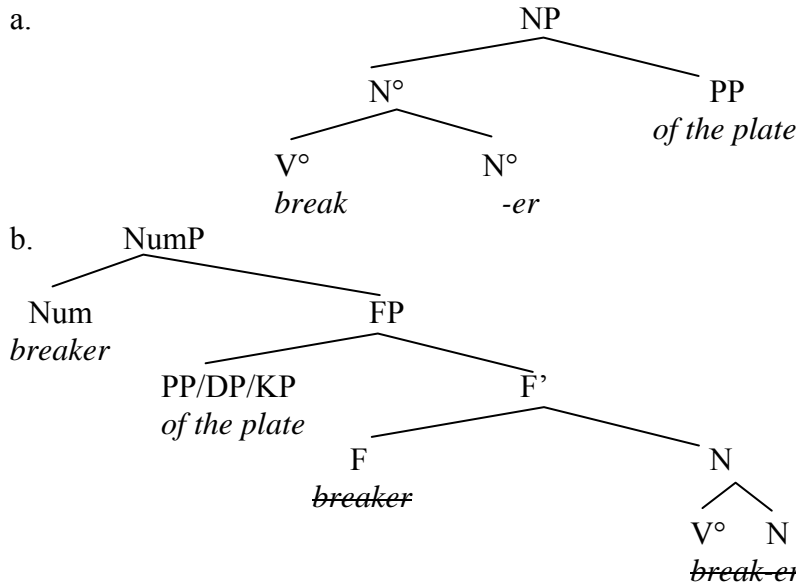
**D)** Whether arguments of V can be realized outside  $[N^\circ V -er^{AS.restr}]$  depends on their ability to integrate into a nominal (extended) projection as *arguments of nouns*. I now argue that this is possible for PPs and DPs, but not CPs and AP complements.

**D1)** DP arguments realized using *of*-insertion are introduced above  $-er^{AS.restr}$ . Either the *of*-phrase merges directly with N, as in (56a), or as specifier of a functional projection, as in (56b) (where N must move to a still higher functional head, say Number). I prefer (b) for reasons given in section 4.3, but either way, *of*-phrases are independently available as a way of realizing DP arguments of underived nouns, cf. *enemies of John*, *authors of books*.<sup>8</sup>

<sup>8</sup> Whether prenominal genitives can realize inherited arguments in  $-er$ -nouns is unclear. Claiming that they are always possessors explains (i)-(ii) but not (iii).

(i) *the car's owner/driver* [cars without owners/drivers]

(56) a.



**D2)** The incompatibility of AP arguments with  $-er^{AS.restr}$  seen in (50)a)/(51) ( ${}^{\circ}$ *hammerer of metal flat*) is explained by the assumption that inherited arguments in  $-er$ -nominals are realized above  $-er$  and thus as arguments of nouns, and the fact that APs are not possible arguments of nouns, cf. (57)a). The desired interpretations are only possible using non-intersective adjectival modification, (57)b). That depictive adjectives are bad with  $-er^{AS.restr}$  ( ${}^{\circ}$ *drinkers of tea hot*) follows if depictives cannot be part of the V° input to affixation.

- (57) a. *\*his/the {appearance/demeanour/belief/look} sick*  
 b. *his sick demeanour; good lookers; careful worders of documents*

**D3)** That PP arguments of  $-er$ -nominals like (54) are acceptable is unsurprising given that PPs are the commonest type of argument/modifier in underived nominals (*faith in someone, concern for something*).

**D4)** Grimshaw (1990.97ff) argued that DP-internal CPs/TPs like those in (58) are not arguments but appositive modifiers. Evidence for this includes that they are never obligatory and that they can be stranded by copulas, a property not found with genuine arguments, cf. (59). Whatever the explanation for the fact that CPs/TPs receive the appositive modifier interpretation if merged with N, it is clear that if such phrases are merged with entity-denoting nominals like  $-er$ -nouns, the appositive interpretation is nonsensical.<sup>9</sup>

- (58) a. the rumour that I am a crypto-lexicalist  
 b. LIKEWISE: hypothesis, point, view, idea criticism, belief, proposal, claim...  
 c. the decision to leave  
 d. *\*a prophet/proponent/advocate that changes must occur*

- (59) a. The {belief/conclusion/hypothesis/idea} was that I am a crypto-lexicalist.  
 b. Their decision was {to leave/that they should leave}.  
 c. The arrangement/plan was for them to leave.

(ii) *\*the bottle's drinker/opener* [*\*bottles without drinkers/openers*]

(iii) *the city's destroyers/conquerors* [*\*cities without destroyers/conquerors*]

<sup>9</sup> An open problem is the judgements of a speaker who rejected APs in  $-er$ -nouns, and therefore has  $-er^{AS.restr}$ , but accepted CPs. These judgments are less surprising than the reverse judgments, since we at least find nouns with CP satellites like (58), whereas nothing comparable is found with APs (*\*the demeanour sad*). Possibly the informant in question analyses the CPs in (58) as true arguments of nouns, contra the view adopted in the main text.



- d. \*The destruction was of Carthage.
- e. \*The defeat was Reagan's

The web attestations in (60) involve genuine clausal arguments by Grimshaw's tests, but are complex event nominals and thus plausibly derived by head movement (recall (6)), which would mean that the clauses are arguments of verbs, not of nouns.

- (60)
- a. %his frequent claiming that the Nazis were left wing
  - b. the ordering of them to cease by the GCO
  - c. his frequent refusal to comment on his work

### 4.3 Appendix: *of*-insertion phrases as specifiers

My theory is compatible with treating *of*-insertion phrases as either complement of N or specifiers of a functional category, cf. (56). An argument for the specifier approach can be derived from web attestations in (61) showing that *of*-insertion can co-occur with an *of*-phrase selected by the nominalized item

- (61)
- a. a clearing **of** it **of** all contagion (cf. *We cleared it of contagion*)
  - b. the depriving **of** them **of** their invaluable rights and liberties
  - c. clearance **of** them **of** allegation of wrong doing
  - d. the divesting **of** them **of** their most important privileges
  - e. the relieving **of** them **of** their responsibilities
  - f. the fondness **of** people **of** Italy (cf. *They are fond of Italy*)

(62)a) indicates that *of*-insertion phrases precede *of*-phrases selected by the nominalized expressions, unless the former is heavy and thus forced to extrapose, as in (62)b,c). In the specifier approach, *-er*-nominalizations have structures like (62)d) (for *-er*<sup>AS.liberal</sup>) or (62)e)) (for *-er*<sup>AS.restr</sup>). In these structures the unmarked ordering seen in (a) follows naturally. If all *of*-phrases are complements of N, it is less clear how to predict (62)a-c).

- (62)
- a. *disabuser {of people of silly ideas/\*of silly ideas of people}*
  - b. ??*a disabuser of silly ideas of anybody who takes the time to listen to him*
  - c. ?*the fondness of Italy of any tourist who has spent time there*
  - d. *disabuser* [FP *of people* F [NP *t<sub>disabuser</sub>* [VP *t<sub>disabuse</sub> of silly ideas*]]]
  - e. *disabuser* [FP *of people* F [NP [N *t<sub>disabuser</sub>*] [PP *of silly ideas*]]]

### 4.4 General remarks

My analysis of *-er*<sup>AS.restr</sup> is inspired by the traditional lexicalist assumption (e.g. Grimshaw 1990) that inherited arguments of V are realized above nominalizers as arguments of N. It parts ways with the non-lexicalist tendency to explain all argument inheritance phenomena in head movement terms. However, if I am right in claiming that [N° V° *-er*] is created in syntax, then the overgeneration problem of head movement approaches is not an argument for presyntactic lexicalist derivations, which is arguably desirable given the difficulties of generating (6) in such approaches.

If indeed head movement overgenerates for *-er*<sup>AS.restr</sup> and derivations like (55)b) and (56) are needed, then certain arguments can merge as V-sisters in clauses but not in *-er*<sup>AS</sup>-nominals, contra Baker's (1988) Uniformity of Theta Assignment Hypothesis. This finding also poses a challenge for hierarchical linking systems: If clausal syntax uses a hierarchy which includes Agent>Patient, one wonders why some nominalizations use a different hierarchy which includes Patient>Agent.

Finally, if *-er*<sup>AS.restr</sup> only merges with V°, then nominalizations involving incorporated prepositional elements like *overseers of convicts*, *thrower-out-er of books* suggest that the

complex verbs on which they are based are formed by direct merger and not head movement and/or small clauses in at least some circumstances.

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