The Lexicogrammatical Profile of Non-agentive Deverbal *-er* Nominals: A Usage-based Approach*

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In this paper we analyse the lexicogrammatical profile of 30 non-agentive deverbal *-er* nominalisations, showing that the different semantic types that middle structures instantiate in Heyvaert's (2003) usage-based classification (i.e., *facility-*, *quality-*, *feasibility-*, *destiny-* and *result*-oriented) can be systematically found among the non-agentive *-er* nominals in our corpus. Following Lemmens (1998) and Heyvaert (2001, 2003), we believe that a detailed analysis of the type of base verbs used in deverbal *-er* formations is necessary to provide a more accurate classification on a lexicogrammatical basis. A basic distinction is thus made between *-er* nominals that profile *patientive* participants and *-er* nominals that designate *circumstantial* participants. Patientive nominalisations include Goal-profiling derivations based on transitive verbs, such as *Freerider* or *scratcher*, as well as Medium-profiling formations derived from ergative verbs, such as *best-seller*, *top-seller* and *broiler*, where the profiled entities can be said to co-participate in the process. Circumstantial nominalisations (mostly derived from intransitive verbs) include Location-profiling formations, like *two-seater* or *bed-sitter*, and Instrumental-profiling formations, such as *baby jumper* or *tourer*. We have conducted a qualitative corpus-based analysis in order to examine the lexico-semantic and lexico-paradigmatic profile of 30 deverbal *-er* nominalisations in present-day English. Using the Concordance section of Sketch Engine in the enTenTen20 corpus, we have been able to retrieve a total of 2,847 contextualised examples, including agentive and non-agentive instantiations.

Keywords: agentive; non-agentive; cognitive-functional; deverbal *-er* nominals; middle; usage-based

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1. Introduction

Linguists such as Quirk et al. (1985, 1150) seem to ignore the existence of non-agentive *-er* nominals and they refer to the suffix *-er* as agentive. Although *-er* can be regarded as the default affix for deriving novel agentive formations (see Bauer et al. 2013, 232), non-agentive deverbal *-er* nominals are indeed very productive in contemporary Modern English, which means that the system of deverbal *-er* nominalisations in English cannot be exclusively interpreted as a mere semantic extension (or reanalysis) of the agentive prototype (see Heyvaert 2001, 2003, contra Ryder, 1999).[1]

In their cognitive approach to *-er* nominals, Panther and Thornburg point out that *-er* nominalisations "seem to constitute an unpredictable and chaotic collection because of their extreme formal and referential diversity" (2001, 153).[2] As we will try to illustrate in this paper, Heyvaert's agnation-based approach, where the options in the system of deverbal *-er* formations "significantly resemble those at clause level" (Heyvaert 2001, 317), can help to present a more coherent and less chaotic picture of deverbal *-er* suffixation in present-day English. Adopting Heyvaert's usage-based view, according to which "we must attach substantial importance to the instantiations in actual language use" (Heyvaert 2003, 11), this paper offers a fine-grained lexico-semantic and lexico-paradigmatic typology of non-agentive deverbal *-er* nominals, based on 30 representative items.[3] Using the Concordance section of Sketch Engine, we have been able to compile a corpus of 2,847 contextualised examples collected from the English Web 2020 (enTenTen20).

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1 Against Ryder's analysis, Heyvaert (2001, 286) claims that non-prototypical cases of *-er* nominals cannot be interpreted as *semantic reanalyses* of the agentive prototype. In her account of deverbal *-er* nominalisations, the *-er* suffix profiles a (subject-like) entity that is not "necessarily *causally* responsible for the process" (Heyvaert 2001, 285).

2 Panther and Thornburg (2001, 193) claim that the meanings of *-er* nominals "form a complex conceptual category with a central sense to which a large number of other senses is more or less directly linked." Although Heyvaert agrees with the hypothesis that *-er* suffixation originated as an agentive system, she claims that "it has now turned into a Subject-oriented system" (Heyvaert 2003, 149). Notwithstanding this difference in approach, we believe that many of Panther and Thornburg's (2001, 2009) observations concerning the semantics of deverbal *-er* suffixation (and showing how metaphor and metonymy operate on the *-er* suffix) can indeed be reconciled with Heyvaert's account of deverbal nominals.

3 The list of deverbal *-er* nominalisations of this study includes examples of compound formations. As spelling is not always a reliable criterion in compounding, we have included hyphenated forms (e.g., *bed-sitter*, *best-seller,* etc.) as well as forms consisting of two spaced words (e.g., *easy walker(s), pedal pushers*, etc.). The full list of *–er* formations is presented in the Appendix.

This paper is organised as follows: Section 2 presents an overview of Heyvaert's (2001, 2003) analysis of non-prototypical *-er* nominals, where she explores the interrelationship between middle formation and non-agentive *-er* nominalisations. Along the lines of Lemmens's (1998) lexical-paradigmatic approach, Section 3 draws a distinction between Patient-profiling and Circumstance-profiling *-er* nominalisations, further elaborating on the lexico-semantic values that each type instantiates. In section 4 we present the methodology we have used to conduct our qualitative corpus-based research, justifying the choice of the English Web 2020 for the analysis we put forward in this paper. Section 5 offers the main findings of our analysis, providing relative frequencies of occurrence for the 30 non-agentive *-er* formations and their agentive variants. Section 6 includes some final remarks. In the Appendix we provide definitions for the non-agentive uses of the 30 deverbal *-er* nominals analysed in this paper.

2. Heyvaert's Account of Non-agentive Deverbal *-er* Nominalisations

As argued by Heyvaert (2003, 128-130), the great versatility of middle formation is also a feature of non-agentive *-er* nominalisation, which also combines various process types with different types of participants.

Heyvaert (2003, 133-137) identifies five kinds of middle constructions: *facility-*, *quality-*, *feasibility-*, *destiny-* and *result*-oriented middles, as illustrated in (1):

(1) a. [about conditioning milk] (…) rinses *easily* away and really works.
     b. This is easily done because the car handles *superbly*.
     c. This dress buttons.
     d. Playset folds up *into a storage case with handle* for easy carrying.
     e. She doesn't photograph *well*.

The different subtypes in Heyvaert's classification profile different semantic configurations, which vary "depending on which facet of the interaction between the non-agentive Subject and the process they highlight" (2003, 132). Middles of the *facility* and *quality* types profile the middle stage of the event. *Facility*-oriented middles specify how easy or difficult it is to carry out a particular process on the subject entity, including an adverb of manner such as *easily*, as in (1a), while *quality*-oriented middles provide a more general indication of the way in which the process can be carried out by incorporating a value adverb, as in (1b). Middles of the *feasibility*-oriented type highlight the beginning of the event, focusing on whether the properties of the entity construed as subject make a process possible; as illustrated in (1c), feasibility middles do not incorporate an

adverbial modifier. Finally, *destiny*- and *result*-oriented middles profile the end stage of the event. The *destiny*-oriented subtype frequently includes a locative circumstance, which specifies where an entity is to be placed, as illustrated in (1d), while the *result*-oriented middle focuses on the result of the process on the subject entity, as exemplified in (1e).

According to Heyvaert, the "constructional link" between a non-agentive participant and the verb form in middles has its morphological counterpart in non-agentive *-er* nominalisations:

> Like middle clauses, non-agentive *-er* nominalizations may even foreground specific facets of the interaction between the process and the non-agentive entity which they profile, ranging from the feasibility of the process, the facility or speed with which the process can be carried out, and the place it is oriented towards, to the result of carrying it out. (Heyvaert 2003, 158)

The connection between the middle and *-er* formations is obvious in *facility*- or *quality*-oriented nominalisations such as *easy-rider*, where the adverbial modifier specifies how easy it is to carry out the process denoted by the verb: an *easy-rider* rides *easily* (Heyvaert 2003, 155-156).[4]

However, the meaning of other Location-profiling *-er* nominalisations such as *sleeper* (train) or *diner*, as illustrated by our corpus examples in (2), is not so explicit, as "they do not specify which facet they foreground" (Heyvaert 2003, 156):

(2) a. He emerges from the train station in Chiang Mai in the north of Thailand
       to discover himself in the middle of a spectacular Buddhist ceremony,
       before making friends with a baby elephant and jumping on a *sleeper* train
       to Bangkok.
    b. Now where's the nearest 50's *diner*? With plenty of classic retro skirt prints
       (…) , you can find the perfect vintage skirt at Hell Bunny today.

Following Heyvaert (2003, 143), we assume that non-agentive formations like *sleeper* and *diner* can also be said to instantiate the meaning of *conduciveness* that characterises middle constructions: *sleeper* in (2a) is a specially adapted train which enables passengers to sleep in it, and *diner* in (2b) denotes a place with the facilities to let people dine.

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4 Heyvaert (2003, 156) points out that even a deverbal formation like *seller*, where the
   modifier is not overtly expressed, focuses on the way in which the process is carried out,
   as it is also the case of adverbless middle constructions with *sell* (e.g., *This book sells*), still
   emphasising the properties of the object sold (see also Lemmens 1998, 139).

Section 3 elaborates in some more detail on the lexico-paradigmatic profile of non-agentive deverbal *-er* nominalizations and on the lexico-semantic value that each type conveys, showing that the different semantic types of middles in Heyvaert's typology can indeed be found among non-agentive deverbal *-er* nominals.

3. The Lexico-paradigmatic Profile of Non-agentive Deverbal *-er* Nominals

Lemmens (1998) shows that the distinction between the systems of transitivity and ergativity, as described in Davidse (1992, 107-109), is also operative in deverbal *-er* formations. The participant role configurations of *Actor-Goal* and *Instigator-Medium* are applied as mutually exclusive interpretations and the transitive and ergative paradigms are thus viewed as two distinct systems, structured on the basis of two different variables. In the "Actor-centred" transitive mode, as illustrated in (3), the variable is one of extension, while in the "Medium-centred" ergative model, as shown in (4), the central variable is one of instigation: "is the process 'self-instigated' or 'externally instigated'?" (Davidse, 1992, 109):

(3) Transitive processes (*Actor*-centred)
    a. The lion (*Actor*) is running.
    b. The lion (*Actor*) is chasing the tourist (*Goal*).

(4) Ergative processes (*Medium*-centred)
    a. The glass (*Medium*) broke.
    b. The cat (*Instigator*) broke the glass (*Medium*).

On Lemmens's (1998, 131-139) lexical-paradigmatic view on *-er*, the different meanings of the suffix are conditioned by the transitive and ergative paradigms, represented in (3) and (4) above. Goal-profiling nominals are derived from transitive processes. The author (1998, 137) cites *scratcher*, defined as "a lottery ticket to be scratched", and *sipper*, "a drink that is sipped", as examples of Goal-profiling derivations. On the other hand, Medium-profiling nominals profile the Medium of an ergative process, (i.e., an entity which co-participates in the process, and which is not purely patientive). A derivation like *cracker*, for instance, nominalises an ergative process: the profiled entity (a thin biscuit) cracks when you eat it (see Lemmens 1998, 135).[5]

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5   Notice that, in Lemmens's (1998, 131) analysis, where the category Agent "schematizes over the transitive Actor and the ergative Instigator", Medium-profiling *-er* nominals based on verbs of cooking are regarded as agentive.

Following Lemmens (1998, 137) and Heyvaert (2001, 294), we believe that a detailed analysis of the type of base verbs used in deverbal -er formations is necessary to provide a more accurate description of their lexicogrammatical profile. A basic distinction needs to be made between non-agentive -er nominals that designate *patientive* participants (derived from transitive or ergative verbs) and -er nominals that designate *circumstantial* participants (derived mostly from intransitive verbs).

Table 1 presents a two-dimension classification of the 30 -er formations examined in our corpus. Drawing on Lemmens (1998) and Heyvaert (2003), this table combines a lexico-paradigmatic arrangement of non-agentive nominals into those designating Patient-profiling participants and those referring to Circumstance-profiling participants (see the labels on the vertical axis) and a lexico-semantic classification of non-agentive -er nominalisations, distinguishing among those having a *facility-/quality*-oriented reading, a *facility-/feasibility*-oriented value, and a *purpose-* and/or *result*-oriented interpretation (corresponding to the categories on the horizontal axis).[6]

TABLE 1. Lexico-paradigmatic and lexico-semantic classification of the 30 items examined

Lexico-paradigmatic classification		Lexico-semantic types		
		Facility- and Quality-oriented	Facility- and Feasibility-oriented	Purpose- and/or Result-oriented
Patient-profiling	Goal-profiling	easy-rider, *Freerider*	loaner	keeper, scratcher
	Medium-profiling	top-seller, hot-seller, best-seller		broiler
Circumstance-profiling	Locative-profiling	*Easy Diner*	diner, kneeler, sleeper	back-seater, bed-sitter, front-loader, front-seater, two-seater, low-loader, top-loader
	Instrument-profiling	easy walker/*Easy Walker*	joggers, sneakers, pedal pushers, waders	baby jumper, dipper, sledder, tourer, *Tramper*

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6   In the remainder of this paper we use the label "*purpose*-oriented", thus replacing Heyvaert's term "*destiny*-oriented".

Derivations which profile patientive participants include Goal-profiling derivations based on transitive verbs, such as *easy-rider*, *Freerider*, *loaner*,[7] *keeper* or *scratcher*, as well as Medium-profiling nominalisations derived from ergative processes where the profiled entities co-participate in the process, like *best-seller* (also *hot-seller*, *top-seller*) and *broiler*.

As illustrated in table 1, the two types of Patient-profiling nominalisations (Goal-profiling and Medium-profiling) illustrate three different lexico-semantic types. The former group includes *facility*- and *quality*- oriented derivations like *easy-rider* in (5a); nominals like *loaner*, in (5b), foreground the *feasibility* and *facility* of the process denoted by the transitive verb; finally, formations like *keeper* and *scratcher*, illustrated in (5c) and (5d/e),[8] can be said to convey the meaning of *purpose*.[9] Medium-profiling derivations, on the other hand, can be *facility*- and *feasibility*- oriented, as *best-seller* in (6a), or *purpose*- and *result*-oriented, as illustrated by *broiler* in (6b).

(5) a. I don't own any skin-tight cycling clobber. Nor do I own much of a bicycle, just one of those *easy-rider* roadster bikes with a comfy seat.
   b. One of Adil's personal highlights was riding a *loaner* bike across the 'Googleplex' to meet with people from the Android Team.
   c. Powerful. Feels good in my hand. This one is a real *keeper*! I like it!!!! I like this drill. I have no problems with it.
   d. There's an ATM right next door to the lottery machine in Simpsonville, KY. A lady took money out and played all kinds of *scratchers*.
   e. For indecisive cats and their owners, this triple cat *scratcher* is the perfect starter post. It features three different scratching posts (…) to allow your cat to figure out what it likes best.

(6) a. It was nominated for the National Book Award, is one of his better-known novels, and was a *best-seller*.
   b. Chickens farmed for meat are called *broilers*, whilst those farmed for eggs are called egg-laying hens.

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7   Notice that *loaner* does not actually designate a prototypically patientive entity, as it profiles "the range of scope of the process" (Halliday 1994, 146). See Heyvaert (2001, 294).

8   The examples in (5d) and (5e) illustrate the two different senses of *scratcher* included in the Appendix. Both have been regarded as Goal-profiling in our analysis, as "they profile the Goal of the transitive base process" (Lemmens 1998, 137).

9   Panther & Thornburg (2009, 295) present *scratcher* and *broiler* as examples of -*er* formations respectively denoting a "purpose-designed" entity and an entity "with inherent properties that make them suitable for certain purposes". *Keeper*, on the other hand, is an example of what they call *Valued-patients*, "which fulfil a purpose in a person's value system" (2009, 295).

Circumstantial nominalisations are mostly derived from intransitive verbs and include Location-profiling formations and Instrumental *-er* formations. The group of Locative-profiling *-er* formations includes *facility-/quality*-oriented derivations, as illustrated by *Easy Diner* in (7); *facility-/feasibility*-oriented nominalisations, such as *sleeper* (coach) or *kneeler* in (8); and *purpose*-oriented nominals, such as *low-loader*, *top-loader*, *front-loader*, *two-seater*, *back-seater* or *bed-sitter* in (9):[10]

> (7) Ed's *Easy Diner* is an American diner chain who serve American specialities and breakfasts.
> (8) a. Each Chalet has two bedrooms, with two single beds and crisp clean linen in each. The open plan living area has a dining table, a *sleeper* coach, flatscreen, DSTV (satellite) and a fully equipped kitchen(…).
>   b. The beautiful *kneelers* seen here, like those in the body of the Church, were made by the ladies of this parish.
> (9) a. The Stockport firm of Robert Walker (Haulage) Ltd is a family firm which specialises in the transportation of forklift trucks across the UK and Southern Ireland, operating a fleet of 35 tractor units and 50 trailers, all of which are *low-loaders* or semi low-loaders.
>   b. If cost is a priority, *top-loaders* are the most affordable type on average and with improvement in midwash soaking and more aggressive agitation, they are a fine alternative to a *front-loader*.
>   c. It's not clear yet, however, whether two or three rear seats will be offered; the coupe is a strict *two-seater* in the back.
>   d. The F-15B had tandem seats, with the *back-seater* in a raised position to give a better forward view, and a back-hinging clamshell canopy.
>   e. Of our 24 chalets, we have 18 *bed-sitters* and 6 one-bedroom units.

The semantics of these non-agentive *-er* nominalisations is clearly compositional. A derivation such as *low-loader*, illustrated in (9a), specifies *where* the properties of the profiled entity (a trailer) allow the process of loading to take place, thus foregrounding the meaning of *purpose*. Similarly, locative formations like *two-seater* in (9c), *back-seater* in (9d) and *bed-sitter* in (9e), can also be said to have a *purpose-* (or *destiny-*) oriented focus: a *two-seater* allows 2 people to sit; a *back-seater* is the seat located at the back; and a *bed-sitter* is a sitting room that also serves as a bedroom.

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10 *Low-loader*, *top-loader* and *front-loader* are cited by Heyvaert (2003, 156) as examples of formations which resemble the *destiny*-oriented middle type. Following Panther & Thornburg, we call these nominals *purpose*-oriented, as they can be said to be "designed for special purposes of human Agents" (2009, 294).

As shown in table 1, non-agentive Instrumental derivations instantiate the following types:[11] *facility-* and *quality*-oriented nominals, such as *easy walker* in (10); *facility-* and *feasibility*-oriented derivations such as *sneakers*,[12] *waders* or *pedal pushers* in (11); and, finally, *purpose*-oriented instrumental formations, such as *tourer*, *Tramper*, *sledder*, *dipper* or *baby jumper* in (12):

(10) Three supple straps offer a strong closure with easy on-the-fly adjustability. Our 1cm rubber heel bumper makes this shoe an *easy walker* with either two-bolt or three-bolt cleats.

(11) a. I also came across these lovely Alexander McQueen inspired faux leather *sneakers* by Forever New. They come in either white/black or all while and retail for $79.99.

b. Do you have the best trolling boat motors & accessories? Did you buy the best fishing float tubes and the best fishing *waders*?

c. Sandra wore a red V-neck blouse that showed a lot of damp cleavage, and her pink *pedal pushers* stretched taut on her thighs.

(12) a. We [are] catering to all rider levels, from learners through to experts and in between, riding all kinds of bikes, from luxury *tourers*, sports bikes, sports tourers, dual purpose and cruisers.

b.We have teamed up with the Woolacombe & Mortehoe Tourist Information Centre and Countryside Mobility to make an all-terrain mobility scooter (or '*Tramper*') available to hire Woolacombe.

c. They landed high and then hiked for another couplish miles before taking a *sledder* for threeish miles back down into the big salmon fork "valley".

d. Developed in the second half of the sixth century, most probably in the workshop of Nikosthenes, the kyathos (pl. kyathoi; compare the Greek verb, kuein – 'to contain') is a small *dipper*, with a single high handle and low foot.

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11 Our group of Instrumental formations includes objects used by an implied Agent to carry out the process denoted by the verb. Deverbal formations designating instrumental events such as *season opener* or *eye opener* have been discarded in our study. In Panther and Thornburg's (2009, 299) comprehensive account of *-er* nominals with event referents, these agent-like formations are described as instances of *reification*, achieved though the EVENTS ARE OBJECTS METAPHOR, which operates on the *-er* suffix.

12 A reviewer points out that *sneakers* seems to be lexicalized to a point where we cannot consider it as a complex word derived from the process of sneaking. This is also the case of other non-agentive –*er* nominalisations designating items of clothing such as *loafers* or *jumper*, which can be characterized by "a certain loss of analysability" (Heyvaert 2003, 264; fn 52).

   e. Originally, I wanted to get an Exersaucer. I saw that style a lot, so I
      assumed it must be the best *baby jumper*. After showing my husband a
      video of a baby jumping in an Exersaucer, he was completely against.

4. Methodology of Analysis: The English Web 2020 Corpus

In this paper we have conducted a qualitative corpus study of contextualised
examples in order to examine the lexico-semantic and lexico-paradigmatic
profile of 30 non-agentive deverbal *-er* nominalisations in English, also providing
frequencies of occurrence of these formations and their agentive *-er* variants. In
the following paragraphs we justify the choice of the English Web 2020 corpus,
and we explain the steps followed to retrieve the contextualised instances that
incorporate the 30 *-er* nominalisations in our study.

   The software used in the present project is Sketch Engine, which is
an advanced online text analysis tool mainly employed by linguists and
lexicographers that work with large and varied corpora. Within its wide range, we
selected the English Web 2020 (enTenTen20) corpus because it was the largest
English corpus available in Sketch Engine at the time of this research.[13] Regarding
its size, the enTenTen20 corpus consists of 36 billion words, 43 billion tokens,
and 78 million documents. Therefore, its capacity exceeds that of other corpora
of reference (as the British National Corpus), which only consists of 96 million
words, 112 million tokens, and 4 million documents.

   The enTenTen20 is an all-purpose corpus that contains texts compiled
from November 2019 to January 2021, and its metadata was retrieved from the
Internet by using technology specialised in collecting only linguistically valuable
web content. In this paper, we opted for an all-purpose English corpus rather
than a specialised one because of the semantically varied nature of the 30 terms
selected for our study.

   Another distinctive feature of the enTenTen20 corpus (as compared to former
versions within the enTenTen corpora family) is that it operates on the basis of
genre annotation and topic classification. Despite being an all-purpose English
corpus, its use is recommended for both general and also specialised language, as
it contains a wide range of domains, genres, topics, text types and web sources.[14]

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13 Currently, the largest English corpus available in the Sketch Engine platform is the latest
    version, the enTenTen21 corpus.
14 Genres refer to the writing styles of the input texts and, in this corpus, are divided into
    these main categories: news, blog, discussion, fiction, legal, and reference/encyclopaedia.
    Topic classification includes the following groups, among others: arts, beauty and fashion,
    culture and entertainment, economy, health and medicine, means of transport, nature and
    environment, politics, science, sports, technology, and travel and tourism.

With regards to the tagging and lemmatisation processes, the enTenTen20 corpus is also an advanced and sophisticated tool, as it is characterised by being part-of-speech tagged. The corpus texts also contain lemmatisation since each word form from the corpus is assigned to its lemma (or base form).

The data collection process was conducted using the Concordance tool within the enTenTen20 corpus. The Concordance tool in Sketch Engine provides a wide range of basic and advanced search options (including words, phrases, tags, documents, metadata text types, and more). We opted for words only on this occasion. These can be further sorted and filtered, and the results are always displayed in context. Contextualisation is essential for the objectives of this paper, as a semantic distinction between an agentive and a non-agentive reading of the 30 selected terms was subsequently carried out manually, as detailed below. Figure 1 shows a screenshot of the contextualised results of the basic search of *tourer* within the Concordance tool.
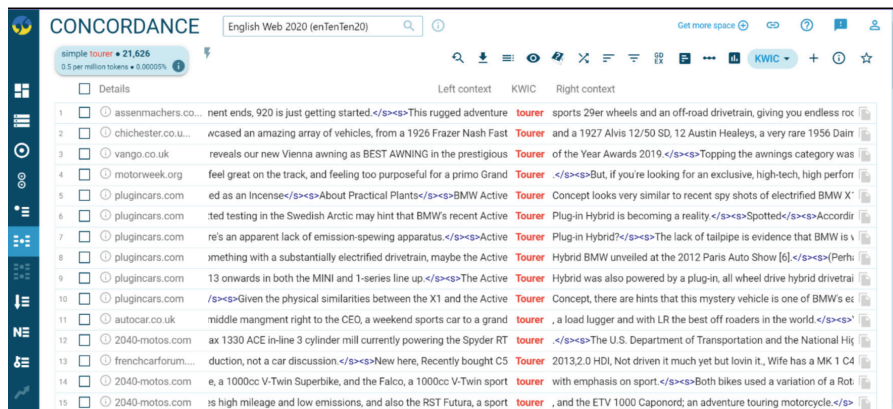
FIGURE 1. Concordance lines of 'tourer'

Figure 1 illustrates the concordance lines of one of the *-er* nominalisations analysed in our paper, *tourer*. The concordance lines are displayed in the order in which they are found in the corpus. Other displayed information includes source websites (left), number of total instances found in the corpus (top left), and sentence boundaries (in blue).

We selected a total of 2,847 contextualised instances, including agentive and non-agentive interpretations of the 30 *-er* nominalisations examined. The overall number of corpus attestations that we extracted amounted to 640,311. However, in order to keep the number of examples in the corpus manageable, we selected

the first 100 contextualised examples for each of the 30 items.[15] In this way, our research is necessarily qualitative rather than quantitative, as we have analysed a representative sample of each *-er* nominalisation.

    A process of manual pruning was required in order to compile the examples of non-agentive nominalisations from the corpus, since the query system of Sketch Engine does not allow semantic specifications that filter out agentive vs. non-agentive uses. The total number of analysed instances was 2,847: 1,799 had a non-agentive value, while the remaining 1,048 instances were agentive. In the following section, we present the main results of our corpus-based study, including illustrative contextualised examples of Goal-profiling and Circumstance-profiling *-er* nominals which allow both interpretations, agentive and non-agentive.

5. Results and Discussion

If we consider the distribution of the different lexico-paradigmatic types of non-agentive *-er* nominals in our corpus, we observe that (on a total of 1,799 non-agentive attestations) the large majority was Circumstance-profiling, as illustrated in figure 2.

FIGURE 2. Relative frequency of occurrence of the 30 *-er* non-agentive nominalisations along the lexico-paradigmatic axis
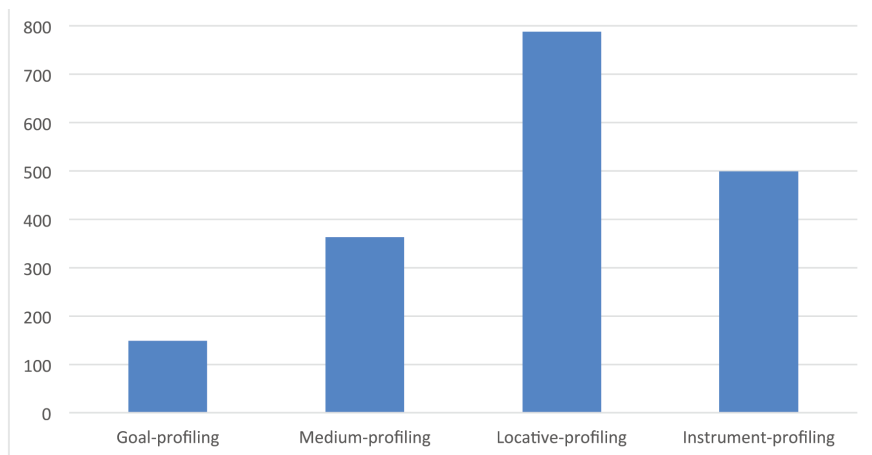

Figure 2 shows that the class of Locative-profiling items is the most frequent type (788 instances), followed by the group of Instrument-profiling formations

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15   It should be observed that, in the case of *easy-rider* and *front-seater*, we were able to retrieve only 23 and 24 instances, respectively.
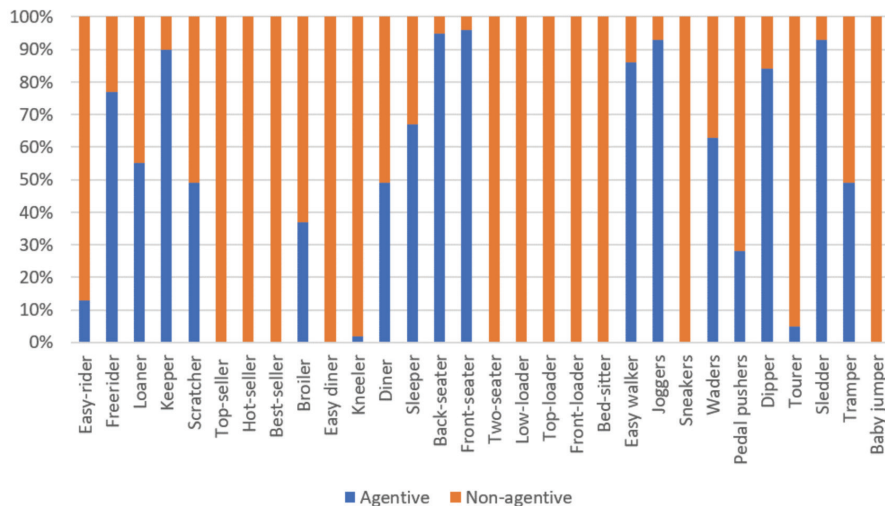
(499 examples). On the other hand, Patient-profiling nominalisations were less productive in the corpus: we found 363 instances of Medium-profiling nominalisations and 149 cases of Goal-profiling formations.

Our findings thus seem to confirm that, as emphasized by Lemmens (*contra* Keyser and Roper 1984),[16] Medium-profiling *-er* nominals such as *top-seller*, *hot-seller*, *best-seller* and *broiler* must not be regarded as idiosyncratic. In the author's words:

> Although somewhat unpredictable, these formations are motivated by the stronger independence of the Medium. The higher the independence, the more likely it becomes that an *-er* formation may profile this participant rather than the Instigator. (Lemmens 1998, 136).

Figure 3 provides the relative frequency of occurrence of the non-agentive values of these 30 *-er* nominalisations, as compared to the proportion of agentive interpretations that were found in the corpus compiled (on a total of 2,847 agentive and non-agentive attestations).

FIGURE **3.** Relative frequency of occurrence of the agentive and non-agentive uses of the 30 *-er* formations in the corpus compiled

As can be observed in figure 3, the non-agentive interpretation of most of the *-er* nominalisations outnumbers the agentive instances found in the corpus. This is

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16 According to Keyser and Roeper (1984, 395; n 13), non-agentive *-er* formations like *broiler*, as in *This chicken is a good broiler*, are dismissed as exceptional.

particularly relevant in those cases where 100% of the contextualised examples analysed involved a non-agentive interpretation, as in *top-seller, hot-seller, best-seller,*[17] *Easy Diner, two-seater, low-loader, top-loader, front-loader, bed-sitter, sneakers* and *baby jumper*. Interestingly, among the group of Medium-profiling items (i.e., *best-seller, top-seller, hot-seller* and *broiler*) only *broiler* allowed an agentive interpretation (in 37% of the cases). Other *-er* nominalisations, namely, *easy-rider, kneeler, tourer, Tramper* and *pedal pushers,* received a non-agentive reading in more than 50% of the analysed examples. On the other hand, in the case of *freerider, loaner, keeper, sleeper, back-seater, front-seater, easy-walker, joggers, sledder* and *waders*, their agentive interpretations outnumbered the cases of non-agentive uses in our corpus, where we retrieved more than 50% of agentive instantiations per item.

The examples in (13)-(23) illustrate the contrast between the non-agentive uses of some of the *-er* formations in our corpus and their agentive variants. We have selected those *-er* formations with a large majority of agentive uses (more than 50%), as illustrated in figure 3: i.e., *Freerider, loaner, keeper, sleeper, back-seater, front-seater, easy walker, joggers, waders, dipper* and *sledder*.

As shown in (13)-(15), *-er* nominals with a Goal-profiling interpretation frequently allow reference to an Agent. The nominals in (13a)-(15a) receive a non-agentive reading, whereas the examples in (13b)-(15b) illustrate their agentive variants. In (13a), for example, *freerider* denotes a type of shoe (the *Freerider Pro*), whereas in its agentive use in (13b), *freerider* refers to a person who jumps and performs other tricks like spins and pirouettes with a skate or a mountain bike:

(13) a. The *Freerider* Pro is my favorite shoe to date. - Synthetic, light-weight, weather-resistant upper - Impact-resistant toe box (…).
     b. *Freeriders* prefer the all mountain experience: open terrain, backcountry chutes, and fresh powder.
(14) a. The other day one car dealer employee with overalls asked if I wanted a *loaner*. Today someone with a class ring and slacks asked if I needed a rental car.
     b. Expert advice should be sought as to the risks associated with particular situations and regional activities. The hotel bar… it's an interesting place, the hotel bar. A melting pot of businessmen, bridesmaids, out-of-towners, and *loaners*.

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17 As an anonymous reviewer points out, the high degree of lexicalization of *best-seller* seems to prevent the derivation of the agentive variant. Although the results in figure 3 correspond to our analysis of *best-seller* as a hyphenated form, a subsequent search in the corpus has revealed that the two-word form *best seller* mainly occurs with a non-agentive interpretation as well (e.g., *This Cocksville Blockers funny t-shirt is our best seller and for good reason*). See also footnote 4 in this regard.

(15) a. All in all, Cars 3 is a decent film, but not a *keeper*.
      b. The penalty was expertly slid into the corner of the net to the *keeper*'s left to increase Kilbride's lead to 5 points.

Instances (16)-(17) illustrate the non-agentive uses of Locative-profiling *-er* nominals such as *sleeper*, *back-seater*, *front-seater*, as opposed to their corresponding (primary) agentive readings. For instance, *sleeper* in (16a) refers to a type of train where you can sleep, whereas in (16b) it denotes a type of person who has light sleep. The items *front-seater* and *back-seater* were the two *-er* nominals with the highest proportion of agentive cases in our corpus (96% and 95%, respectively). In (17a) and (18a), the *-er* nominals refer to the location within the vehicle where a person sits, whereas in (17b) and (18b), their corresponding agentive variants denote human entities:

(16) a. They will also outline some of the challenges to their introduction and the benefits expected plus the traction strategy for the *sleeper* trains.
      b. Roller shutters are a fantastic form of light control, great for sleeping babys, shift workers, light *sleepers* or if you just want to keep a room dark, as they will block out nearly 100% of light.
(17) a. The *back-seater*'s controls are replaced with modern multi-function displays. Its electronic countermeasures capabilities have also been upgraded, with new ECM pods on the wingtips.
      b. The car goes spinning in space and the *back-seaters* die.
(18) a. The *front-seater*'s cockpit layout is very much like that of the MiG-29SMT, but although the back-seater still has flight controls, the rear panel layout features a large CRT to display TV (…).
      b. Just because the Fiesta is small doesn't mean its driver must be similarly small. So while the Fiesta is definitely compact outside, the interior is actually generous for *front-seaters* in all dimensions.

Finally, the *-er* nominals in examples (19)-(23) illustrate their uses as non-agentive instruments and as agentive entities. For instance, while *easy walker* in (19a) refers to a type of walking shoe,[18] the *Easy Walker*, in its agentive reading in (19b) the *-er* form is used to refer to a type of person who prefers a hiking activity of a low or medium difficulty level. In the case of *joggers* (mainly found with an agentive interpretation in the corpus consulted), example (20a) refers to the type of sports trousers worn especially for jogging, while (20b) illustrates the agentive use of *jogger*, denoting a person who practices jogging. Notice that

18 Note that the instrumental formation *easy walker* is also mentioned by Heyvaert (2003, 156) to refer to a type of stroller.

both *wader* and *dipper* designate a type of bird in (21b) and (22b), respectively. In consonance with Quirk et al.'s (1985, 741) definition of the notion of *agent* as "the animate being instigating or causing the happening denoted by the verb", they have been regarded as agentive. In turn, their non-agentive counterparts in (21a) and (22a) refer to a type of high rubber boots that you wear for walking in water (*waders*) and a type of utensil (a spoon or ladle) for dipping up water (*dipper*). Finally, *sledder* in (23a) designates a type of small vehicle used in transportation over snow or ice, where in its agentive use in (23b) it refers to the person driving the sledge:

(19) a. My shopping consisted of a semi-satisfactory steak and salad at the Food Court, and a bargain priced pair of *Easy Walker* shoes at Kinney. I must buy some more pairs. To foreshadow, these shoes became an addiction.

b. Option 1 - Ancient villages of the Tarouca valley. Total ascent: 600 feet (180m). Total descent: 1,600 feet (480m). In summary: The *easier walkers* start at the hamlet of Parafita before traversing the hillside to wander through the ancient village of Mazes.

(20) a. ZSupply offers the best in easygoing essentials that fit women of all shapes, and its many categories, including dresses, tees, *joggers* and shorts, can be worn as effortlessly to the gym as they can be dressed up for date night.

b. *Joggers* and bicyclists will gain access to 2.5 miles of new trails (1¼-mile in each direction) on which to ride and run.

(21) a. The high water that devastated Venice this month flooded streets, squares and landmark churches. Tourists are still welcomed, but advised to bring *waders*.

b. Rabil lagoon (or Ribeira de Água lagoon) is one of the best sites in the Cape Verde Islands for aquatic birds (herons, ducks, *waders*, terns, etc.).

(22) a. Rub the spoon in margarine and the honey will come off. Or better still, use a honey *dipper* - available in the shop, of course!

b. Birders may spot the sought-after torrent duck, white-capped *dipper* and silver-beaked, blue-necked, fawn-breasted and saffron-crowned tanagers.

(23) a. Winter Sledding Ages 3 and up. In this Winter Sledding craft the penguin really sleds down the hill! You also have an option of coloring your own *sledder*. A really fun Winter Craft for preschoolers on up!

b. Some sleds are designed for the rider to lie face-first, but these should only be used in specially prepared lanes at winter resorts, or by experienced *sledders*.

Distinguishing the agentive and the non-agentive values of deverbal *-er* nominalisations is indeed essential for translation purposes. This is particularly significant, for instance, in the case of the so-called neural machine translation systems, where mistaken interpretations might result in ambiguities or even in an overuse of the traditionally accepted agentive value of the *-er* suffix. As Palma Gutiérrez (forthcoming) argues, "neural machine translation has not reached human-like competence yet, because although it uses deep learning processes based on statistics to improve translations, certain semantic and pragmatic notions are not considered". Therefore, the creation of datasets that provide the type of information identified in this paper might contribute to the process of disambiguation between an agentive and a non-agentive interpretation of *-er* nominalisations in English at a lexico-semantic and discourse-pragmatic level of analysis. Gathering new data of *–er* nominalisations to create bilingual (or multilingual) parallel corpora remains for future research.

6. Final Remarks

In this paper we have explored the connections between middle formation and non-agentive *-er* nominalisations, showing that, like middle clauses, the deverbal *-er* nominals in our corpus focus on different specific aspects of the interaction between the process and the non-agentive entity which they profile. For instance, the creative formation *Freerider* (used as a brand name) illustrates the *facility-/quality*-oriented middle type (the *Freerider Pro* is a comfortable type of mountain bike shoe which allows you to ride your bike *easily*, settling *freely* (or more *naturally*) on the pedals, while a nominalisation such as *broiler* seems to convey *purpose* (broilers are chickens farmed for meat), also with a focus on the *result* on the subject entity (a broiler is a type of chicken that broils *well*).[19] We have seen that derivations such as *low-loader*, *two-seater* or *bed-sitter* are Locative-profiling formations specifying the notion of *purpose*, while instrumental formations such as *waders* or *pedal pushers* combine the meanings of *facility* and *feasibility*.

   Drawing on Heyvert's (2003) division into semantic types, we have proposed another basic distinction between non-agentive *-er* nominals that designate Patient-profiling participants and non-agentive *-er* nominals that profile Circumstance-profiling participants. The first group is subdivided into Goal-profiling derivations, where the direct object of the transitive process

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19 As pointed out by Heyvaert (2003, 157), *broiler* and other lexicalized food-related *-er* derivations (*steamer*, *cooker*, etc.) resemble the *result*-oriented type of middle formation. Rappaport Hovav and Levin (1992, 148) also associate the analysis of *broiler* to the interpretation that the verb *broil* receives in the middle construction *This chicken broils well*.

is profiled (e.g., *easy-rider*, *Freerider*, *loaner, keeper, scratcher*) and Medium-profiling nominalisations based on ergative processes, where the profiled entity co-participates in the process (e.g., *best-seller, broiler*). On the other hand, the Circumstance-profiling group, the most productive in our analysis, is also further subdivided into Locative-profiling, where the *-er* formations profile the place where the action denoted is carried out (e.g., *Easy diner, sleeper, bed-sitter*), and Instrument-profiling, where the profiled participants highlight the instrumental facet of the event denoted by the verb (e.g., *easy walker, waders, dipper*).

We hope to have been able to demonstrate that Heyvaert's cognitive-functional analysis of *-er* nominalisations, where the relationship of agnation between middle clauses and non-agentive *-er* formation is emphasised, can help to disentangle the lexico-paradigmatic complexities of the system of deverbal *-er* nominalisation. As argued by the author, the system of deverbal *-er* nominalisation is not exclusively agentive and, therefore, the category of Agent clearly "fails to account for the non-agentive instances of *-er* nominalisations" (Heyvaert 2003, 110). The fact that a purely agentive value was not found in any of the 30 terms analysed, indicates that the agentive interpretation prototypically associated with the suffix *-er* has been traditionally overvalued. Although agentive readings are not excluded, as illustrated in Section 5,[20] the traditional term *nomen agentis* is clearly inaccurate to refer to the phenomenon of deverbal *-er* formation in present-day English, and the interrelation between non-agentive *-er* suffixation and middle formation is indeed systematic, transcending obvious cases like *easy-rider* or *best-seller*, as Heyvaert (2001, 296) claims.

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20 Actually, the corpus data revealed a high frequency of agentive uses in some of the Goal-profiling and Circumstance-profiling –*er* formations examined in this paper (e.g., *keeper*, *sleeper*, *joggers*, etc.).

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Appendix[21]

back-seater	a place at the back of an aircraft where the rear pilot sits
baby jumper	an inflatable structure on which children can jump
bed-sitter	a rented room that can be used both as a bedroom and as a sitting room (chiefly in the UK)
best-seller	a popular product (usually a book) that sells well
broiler	a type of chicken suitable to be broiled
diner	a small restaurant (esp. in American English)
dipper	a type of utensil (a spoon or ladle) for dipping up water
easy-rider	a type of motorcycle with tall handlebars, usually a chopper, resembling the model used in the 1969 film *Easy Rider*
Easy Diner*	American diner chain, *Ed's Easy Diner*, based in the UK
easy walker, Easy Walker*	a type of lightweight walking and driving shoe.
Freerider*	a type of mountain-bike shoe; the brand offers different models (the *Freerider Pro*, the *Freerider Canvas*, etc.)
front-loader	a home appliance (as a washing machine or dryer) which can be loaded (and unloaded) at the front
front-seater	a place in the front of an aircraft where the copilot can sit
hot-seller	a popular product that sells extremely well
joggers	loose-fitting trousers worn for jogging
keeper	something or someone that is worth keeping
kneeler	a stool or cushion where you can kneel on in a church

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21 20 of these 30 items were mentioned in Heyvaert (2001, 2003), Lemmens (1998), Rappaport Hovav & Levin (1992), Ryder (1999) and Panther & Thornburg (2001, 2009). The 10 remaining formations were chosen mainly for reasons of morphological analogy with the other nominalisations found in the literature. They are the following: *back-seater, baby jumper, Easy Diner, Freerider, front-seater, hot-seller, top-seller, two- (three-, etc.) seater, Tramper,* and *Easy Walker.*

loaner	something (esp. a vehicle) that is loaned to someone
low-loader	a vehicle with a low platform to facilitate the loading (and unloading) operations
pedal pushers	calf-length slacks worn for cycling
scratcher	(i) a ticket or card you need to scratch to see if you have winning numbers (ii) a wooden post that cats can scratch
sledder	a small vehicle used in transportation over snow or ice
sleeper	a specially adapted train (or bus coach) which enables passengers to sleep in it
sneakers	light shoes with rubber soles worn for sports
top-loader	(i) a home appliance (as a washing machine or dryer) which can be loaded (and unloaded) through the top door of the machine
top-seller	a popular product that sells in large numbers
tourer	a type of bicycle designed to handle bicycle touring
two-(*three-*, etc.) *seater*	a vehicle with a seating capacity for a specified number of people
Tramper*	an all-terrain mobility scooter that can be used on rough ground
waders	high rubber boots that you wear for wading (i.e., walking in water)

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* In our corpus examples, *Easy Diner*, *Easy Walker*, *Freerider* and *Tramper* are used as brand names.