1. Introduction: Polysemy of -er nouns

Every linguistic expression is polysemous. This is true at various levels of linguistic unit, such as discourse, sentence, lexeme and even morpheme. Among them, this study particularly pays attention to lexical polysemy, particularly the semantic diversity of English deverbal -er nouns. Derivational expressions are of great use in examining the semantic relation of the parts and the whole of lexemes. The polysemy of -er nouns can be captured not less than at three levels: the levels of base, affix and the whole expression. Furthermore, lexemes based on derivation are important in that they exist across different levels of linguistic units; derivational words can be extended to sentences or narrowed to morphemes. Such a feature is of great significance in exploring the border between grammar and lexicon, and between lexicon and morphology.

The polysemy which is concerned with -er nouns has been discussed in many literatures, mainly with its variety in the referents and semantic roles focused on. As shown in (1), Ryder (1999) classifies -er nouns into seven as to what kind of referent it represents and also into seven on the basis of the semantic roles the referents play, as in (2):

(1) a. people (singer), b. animals (pointer), c. plants (creeper),

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d. instruments (sweeper), e. clothing (romper) f. locations (diner),
g. event/activities (laugher)

(2) a. Agent/Actor (baker), b. Instrument (stapler), c. Location (diner),
d. Patient (scratcher), e. Causer (yawner), f. Clothing/device worn when Verbing (loafers), g. Instance of Verbing

Ryder (1999:294-295)

-er nouns are generally and typically used to refer to a person who is engaged in the act represented by the base verb. Besides, some -er nouns sometimes also denote an instrument or a device. The instrumental use is usually derived metaphorically from the general use to denote a subjective person. In another case, -er nouns can go so far as to refer to a location or an event associated with an activity the base verb denotes.

The polysemy of -er nouns seen above is basically caused by the suffix -er; the whole noun is polysemous because the suffix is polysemous. Besides, there are also cases where the reasons for the semantic variety of the whole unit can be found in the base verb. For example, the semantics of addresser varies according to that of the base verb address. In this way, the partial polysemy leads to the whole polysemy differently.

In addition to the "inter-referential" polysemy seen above, polysemy within an -er noun denoting a person corresponding to the subject in the same activity can also be found. As an illustration of this, teacher usually refers to a person whose occupation is teaching mainly in school but occasionally it can also refer to anyone who teaches something to others, if the context permits. Both of the teachers refer to someone who is engaged in teaching in broadly the same sense. This kind of observation can be seen in previous studies like Shimamura (1990), Rappaport Hovav and Levin (1992), Ryder (1999), Heyvaert (2003) and Kageyama (2011). All of them are fully insightful, but none of them treats lexicalized and non-lexicalized meanings of -er nouns as a realization
of the polysemy; there is still much room for examining how the two types of meanings are related to each other semantically.

In order to attempt this, this article pays special attention to the context appearing in the form of linguistic expressions. Taylor (2003) argues that context 'may certainly include the extralinguistic context, but extralinguistic context alone is insufficient [...] and has to include the linguistic context, broadly understood, that is, the syntactic and lexical environments in which the words are used.' (2003:29) In the case of lexeme like -er noun, we can find its context in phrases, sentences, discourses and so on, each of which is larger than lexeme as a linguistic unit. Among them, this study focuses only on the inside of the nominal phrase, where the modifiers function as the context of the -er nouns. The modifiers can simply be divided into two kinds: prenominal and postnominal. The former is represented by an adjective and a noun. The latter appears in the form of a prepositional phrases like of-, on-, to- and so forth.

It is noteworthy that another kind of context can be found inside -er nominalization. For the base verb which is a lexeme by itself, -er suffixation satisfies the condition of the context Taylor suggests, without any problems. And this is one of the very reasons why -er noun is significant in the study of lexical polysemy in the light of context. Polysemy of a linguistic expression can be disambiguated when it is applied to a specific context. In more concrete terms, suffixation often disambiguates the polysemy of the base. For example, runner tends to be interpreted to denote a person who runs for exercise, although the base verb run also has so many other uses. For example, it is transitively used to denote an activity of causing others to run or one of managing offices. Of course, this is just a tendency; run in such other meanings can be derived into -er nouns when the larger linguistic and the non-linguistic context are adequate. -Er derivation by itself is not the deciding factor, but it must contribute to the specification of the meaning of the base verb, interacting with other kinds of context.

This study aims to show in what way the polysemy of English -er noun
denoting a subjective person is disambiguated, interacting with the context embodied in the form of the modifiers. Taking advantage of corpus survey, it argues that in some cases like that of compounds the modifiers can even be lexicalized together with the modifiee; some expressions like frequent flier and moviegoer are in the state of being lexicalized as a whole, rather than only as a noun. Context, which usually helps -er nouns get lexicalized, can sometimes be integrated in the lexicalization itself. Meanwhile it is not obligatory the -er noun be so lexicalized within itself as to appear alone without any modifiers. These facts prevent us from drawing a clear border between the modifier and the noun, according to the meaning they are assumed to have. Therefore it is not always easy to grasp exactly what the meaning of -er noun itself is.

2. Transparency and Lexical Integrity

It is necessary at first to introduce the concepts of transparency and lexical integrity, on which how useful the semantics of the parts of -er nouns can be to know the whole meanings is examined. First, transparency refers to such a state of a linguistic expression as we can predict the whole meaning from that of the components it consists of. In the case of -er nouns, the base and the suffix -er correspond to the components of the whole expression. Such is the productivity of the suffix -er that even verbs usually not lexically combined with it can occasionally when necessary. In the case of the -er nouns which go through a process like this, the semantics of the whole noun is necessarily much more predictable from the components than in the case of -er nouns like writer and teacher which are established firmly as a simple noun. The whole meaning of the -er noun in such a case can be defined to “a person who does the act the base verb represents”, which is considered to be the most transparent.

Second, lexical integrity is a principle that the internal structure of a lexeme is independent of any syntactic operations. Di Sciullo and Williams (1987) states that “[t]he words have “features,” or properties, but these features have
no structure, and the relation of these features to the internal composition of the
word cannot be relevant in syntax” (1987: 49). This principle is often referred
to in relation to the compounds impossible to be modified internally. -Er nominalization is not based on compounding but on derivation, which apparently
seems to suggest that compared with compounds -er nouns are lexically inte-
grated enough; intuitively, derivational expressions are much more atomic than
compounded ones. This may be explained through the observation that the base
verb cannot be inflected according to the change of tense or person and that the
most dominant category of the prenominal modifying expression is not an ad-
verb directly related to the base verb but an adjective qualifying the whole noun.
This would also be supported by the fact that bound morphemes in derivational
expressions cannot stand alone. However, it is still worthy to doubt if all the
derivational expressions are uniformly integrated. Here, treating lexical integrity
in relation to the issue of transparency makes it possible to find gradience extant
along the lexicalizedness of various -er nouns. Modifiers within the -er nominals
are useful to examine this, in part because some of them can represent the inter-
nal transparency of the head noun and in part because others can be externally
integrated together with the noun as a lexical idiom.

3. Postnominal of- phrase

Quirk et al. (1985) argue that an -er noun and the postnominal of- phrase is
gained through the nominalization of a proposition, as in (3):

(3) a. The X -er of Y
    b. (NP) X-ed Y. (Quirk et al. 1925: 1528)

In the formulation above, the object Y of the verb X in (3b) is inherited in the
form of of- phrase in (3a) where the -er noun is derived. Quirk et al. maintain that
the two expressions are synonymous; the nominalization involves little change

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(37)
of meaning.

The postnominal inheritance should be argued in relation to other kinds of inheritance. Sugioka and Kageyama (2011) suggest that there are three ways the noun corresponding to the object of a verb is inherited when it is deverbally derived into the -er noun.

(4) a. The noun is not explicit.

   painter, writer, teacher, smoker, consumer, destroyer

b. The noun is compounded with the -er noun.

   English teacher, record-holder, homeowner, jazz lover, tennis player

c. The noun is inherited in the form of a postnominal of-phrase.

   teacher of my children, breaker of promises, maker of video games, lover of Italian operas, owner of this buildings

Kageyama (2011) suggests two ways of the interpretation assigned to -er nouns and other nouns representing a person: individual interpretation and event interpretation. The former is given to the examples in (4a) and (4b) above, all of which denote a habitual role, function or profession. And not surprisingly, the latter is related to (4c). They argue that an -er noun is interpreted as indicating an actual event when it is followed by a postnominal of-phrase. Sugioka and Kageyama assume, for example, expressions like teacher of my children or breaker of promises connotes that the act of teaching the children or breaking promises has actually happened or will happen. Rappaport Hovav and Levin (1992), who are the first to argue that the inheritance of argument structure is related to the actual event, contrast lifesaver with saver of lives and argue that “[s]omeone may be called a lifesaver even if he or she has never saved anyone, but someone may not be called a saver of lives unless he or she has actually been involved in saving lives”.

(38)
On the other hand, Heyvaert (2003) is not obedient to the idea that a postnominal of- phrase stands for the event interpretation. Heyvaert names the operation working on the two different types of -er nouns lexicalization and ad hoc nominalization respectively, regardless of whether they are based on what really happens. With some counterexamples against Rappaport Hovav and Levin, she maintains that whether the argument structure can be inherited is not convenient for measuring lexicalizedness or actuality of the -er nouns. As an example of this, teacher, Heyvaert illustrates an expression a teacher of German and French, which the individual interpretation is assigned to.

With regard to the issue of the postnominal of- phrase and the inheritance seen above, there are two crucial points to discuss. First, as Heyvaert points out, it is doubtful if all the postnominal of- phrases are always the result of the inheritance of the argument structure. Generally speaking, a noun can be followed by an of- phrase modifying the preceding expression, even when the noun is not derived from a verb. For example, writer can take of- phrases like of the century, of the generation and of the English literature, none of which can never be the object of the verb write. This kind of of- phrase would not modify the head as a whole adjectivally rather than the base verb directly. In this case the -er noun establishes its status as a noun firmly. The examples of teacher Heyvaert shows would be included in this case. Therefore it would be adequate to assume that there are two kinds of of- phrase; One is purely adjectival and the other is a result of the inheritance.

Second, attention must be paid to the fact that the assumed proposition is not necessarily associated with an actual event. According to Shimamura (1990), even if we translate he was a writer, which means that his occupation was writing novels or columns or something, into another clause he wrote, the information about his occupation still remains. Therefore, the paraphrasability does not always contradict the individual interpretation of an -er noun which indicates the purpose or the function of the referent. It follows that it cannot be
argued properly that a postnominal of- phrase can follow an -er noun only when it is associated with an actual event. Furthermore, whether an -er noun followed by a postnominal of- phrase forces event interpretation greatly depends on the existence of a satisfactorily lexicalized synonymous expression which exclusively accepts the individual interpretation. For example, saver of lives might have undergone individual interpretation if lifesaver had not appeared.

Finally, it should be concluded that examining the possibility that an -er noun can take a postnominal of- phrase alone is not so helpful as to know how much it is lexicalized. Whether the argument structure of the base verb is inherited to the derivational expression is not identical to whether the whole the expression can be interpreted as indicating an event.

4. Prenominal modifiers

4.1 Adjective modifiers

Rappaport Hovav and Levin (1992) and Kageyama (2011) suggest that whether nouns can be pre-posed by an adjective whose meaning is related to frequency like frequent and constant depends on how they are interpreted; it is only when they are interpreted as denoting an event that the modification is possible. The pre-posing is impossible when individual interpretation is adequate:

\begin{enumerate}
\item a. frequent passenger, frequent customer, frequent rain
\item b. *frequent violinist, *frequent teacher, *frequent desk
\end{enumerate}

On the other hand, adjective excellent cannot precede nouns interpreted as an event.

\begin{enumerate}
\item a. an excellent doctor, an excellent nurse, an excellent chef
\item b. *an excellent pedestrian, *an excellent passenger, *excellent rain
\end{enumerate}
Kageyama argues that this is because such an adjective modifies the purpose and the function of the noun, which can be found only when individual interpretation is adequate.

Heyvaert (2003) remarks that adjectives like frequent, regular and professional "realize lexically what many 'entrenched' -er nominalizations incorporate in the grounding that is implied in them, viz. the fact that a specific process is carried out habitually, regularly or professionally". (2003: 170) In other words, accumulation of a specific event or process leads to habitual characteristics. Intuitively, -er nouns with those adjectives seem lexicalized to some degree. Actually Heyvaert maintains that the difference between -er nouns based on lexicalization and ones based on non-phoric ad hoc nominalization (see note 1) is rather vague. Some of them might be so lexically integrated as perfectly entrenched -er nouns. If so, they must appear frequently enough to be established as a fixed expression. In order to investigate with what kind of -er nouns those adjectives are more likely to be compatible, Corpus of Contemporary English of America (COCA)^5, which has been created by Mark Davies at Brigham Young University, is adopted in this study. First, adjective modifiers frequent and constant are examined as to what kind of -er nouns they tend to occur with. The figures in the parentheses after the -er nouns show how many times they appear in as lemmas in COCA.

(7) -er nouns which occur frequently with prenominal frequent
flter/flyer (442), traveler (86), user (34), customer (24), speaker (20), lecturer (14), reminder (13), prayer (10), caller (10), trader (8), moviegoer, dissenter, winner, writer (7), shopper (6), presenter, player, offender, partner, passenger, churchgoer (5), faller, gambler, computer, teacher, questioner, reader, headliner, buyer, drinker, commuter (3)
The result indicates that flier is by far the most compatible with frequent. A frequent flier refers to a passenger who often takes flights. Flier by itself cannot avoid a possibility of meaning something another like an inanimate flying object and a leaflet. Flier can also denote other kinds of flying person like an airman. Once it occurs with frequent, however, the referent is limited to a person traveling by plane, particularly as a customer of airlines. Such information is not completely predictable from the components. It is also notable that the adjective that occurs with flier the most is frequent. Here the polysemy of flier is disambiguated in a specific context frequent. In this sense, frequent flier is established as a lexical idiom as a whole, while the derivation of flier alone is based on actual events and ad hoc nominalization in terms of Heyvaert. What is lexicalized is not the -er noun but the -er nominal phrase including the modifiers. As a result, compared with other frequent -ers, frequent flier appears so frequently that the unity has become firm.

As for constant, types of -er nouns which follow the adjective is more limited. The most dominant one is reminder, which also occurs frequently with frequent. Reminder takes the complement in the form of a that-clause or an of-phrase. Although this apparently seems to suggest the existence of inheritance of the argument structure from the verb remind, it would still be hasty to compare reminder as a realization of ad hoc nominalization, given the observation that according to COCA reminder occurs not only with frequent and constant but also with several other adjectives like stark, painful and grim, functioning as the object in a particular kind of clause where the subject denotes a person or thing that carries out an act of reminding and the main verb is played by provide, as in this book provides a constant reminder of the accident.
In this way, some of the frequent -er nouns are lexically integrated with the prenominal adjective frequent or constant. In this case, it is not the case that the -er noun itself is so lexicalized as to stand alone. On the other hand, -er nouns alone can sometimes be so lexically integrated even if they follow an adjective derived from an adverb usually modifying the base verb. This is obvious because such an adjective can precede various non-derivational nouns. Professional can be an example for this case. Though Heyvaert treats professional in the same way as adjectives like frequent and constant, it should be grasped differently from the others because it can appear together with an -er noun fully lexically integrated. The adjective does not always denote a specific event, that is, what actually happens. Consequently, professional precedes various types of -er nouns much more productively than frequent and constant. This is shown by a corpus survey based on COCA:

(9) -er nouns which occur frequently with professional
photographer (174), golfer (154), soldier (149), astronomer (133), dancer (106), writer (99), player (82), wrestler (76), engineer (71), organizer, hunter (62), manager (52), appraiser (41), singer (40), speaker, driver (32), trainer (30), killer (29), caregiver (26), performer (25), gambler (23), composer (21), philosopher, fighter (20), ballplayer, storyteller, painter (19), bowler, trader, baker (18), geographer, interpreter, designer (17), forester (16), fund-raiser, builder (15), skier, firefighter (14), poker (13), bodybuilder, gardener (12), snowboarder (11), matchmaker, angler, planner, runner (10)

Professional makes it explicit not only if the person adopts the act denoted by the verb as a profession, but also whether he or she is good at the activity. For example, the two following examples from COCA with professional photographer indicate this well:
(10) a. You're a professional photographer, George!

b. The contest is open to amateur and professional photographers.

Following the cases of the two adjective examined already, -er nouns which come after a adjective professional seem to have a general meaning by themselves in that the prenominal adjective specifies the characteristics of the referent denoted by the following -er nouns. In (10b), professional appears so that professional photographers can be contrasted to amateur ones and the occupation as a photographer can be represented. Nevertheless, this is not the case that photographer is completely general. This is because photographer can appear alone to denote a professional photographer. Professional is usually optional, though it is necessary in (10b) for the sake of contrast. Unlike the case of frequent, it is not the case that professional photographer is not lexicalized as a whole. After all, what is lexicalized would be photographer; if his or her profession is not relevant to photography, and if he or she is not even an amateur, a photographer must be different from a person who just takes photos in the most general sense. So photographer in amateur photographer is lexicalized to almost the same extent. Professional does not agentively participate in lexicalization, also because it is so productive that it is not easy to be united only with specific nouns firmly. As long as the adjective is regarded as optional, it would be adequate to think that photographer in professional photographer share the same meaning with photographer in the individual interpretation.

On the other hand, photographer in (10a) should be interpreted differently. The expression in (10b) is assumed to be a kind of compliment, which implies that George is not actually a professional photographer but he takes photos well. As seen already, propositional expression can convey information associated with occupation. Thus there can be the inheritance of he is a professional photographer in the sense of (10b) from he professionally photographs.
On the other hand, it is hard to assume that *professional photographer* in (10a) is directly inherited from the clause above. Rather, such an expression would be resulted from metaphor of a productive pattern *professional -er*, where -er noun is usually given a fully individual interpretation as in (10b). This enables many non-lexicalized -er nouns to be modified by *professional*. In this case the meaning of a -er noun itself is interpreted as denoting actual events for no one can be a complimentee if he or she does not take any photos. In this way, there is the polysemy between the semantics of *photographer* in (10a) and (10b).

4.2 Nominal modifiers

Rappaport Hovav and Levin deny the possibility for -er nouns to be modified prenominally, because *an admirer of poetry*, for example, cannot be paraphrased into *poetry's admirer*. However, as already seen, pre-posing of the object is possible if the modifier and the noun are more likely to be united as a lexical expression. Indeed, their example *lifesaver* exemplifies this well. Strictly speaking, compounds cannot be separated into the modified and the modifying parts as long as it is considered to be a single unit. But if we take into account the facts that as in (4b) the modifying part is often said to be inherited from an argument of the base verb and that there are orthographical variants, it may become possible to assume that there is gradience in the extent to which the two parts are united firmly.

-er nouns in the examples like *English teacher* and *soccer player* are associated with occupation and lexically integrated by themselves, without any support of their modifiers; they can appear alone independently of the non-linguistic context. On the other hand, *giver* and *taker*, for instance, tend not to appear alone without any complements. Both of them are compatible particularly with *care*, as in *cargiver* and *caretaker*. This probably results from the fact that each of the two verbs plays a role as the head in a phrasal verb in which *care* participates in as the object: *give care to* and *take care of*. Note that the most
general way care and each of the two verbs are united is that they are completely compounded orthographically; there are no any blanks or hyphens between them, like caregiver, not care giver or care-taker, although of course they might be nothing but notational variants.

What -er nouns can pre-pose within compounds is not limited to the object of the base verb. For example goer is often combined with a noun representing the destination, which plays a role of the complement of go in the form of a to- prepositional phrase. The present study surveyed using COCA what kind of -er nouns including goer is frequently used. Among the result, only the expressions that appear more than two times are shown below:

(11) compounds which includes goer
    Moviegoer (600), churchgoer (301), party-goer (260), theatergoer (175), concert-goer (140), playgoer (42), caucus-goer (39), fair-goer (37), clubgoer (18), festival-goer (17), conference-goer (13), filmgoer, museum-goer, racegoer (7), operagoer, beachgoer (6), cinemagoer (5), museumgoer (4), gallery-goer (3), theatre-goer (3), film-goer (3), theater-goer (3), prom-goer (3)

The types of the preceding nouns are extremely limited. They are concentrated on church, conference and recreational facilities like movie and theater. Besides, with regard to the examples particularly frequent, it is not only implied that the subject goes to the denoted place, but also that they go to the place frequently or for fun. The independent use of goer is not at all general; COCA provides only one example where goer is not compounded with another noun. The self-sustainability of goer is extremely low and therefore the -er noun behaves as if it were a bound morpheme like affixes. As a result, the lexical integrity of the compounds as a whole becomes firm.

The polysemy between lexicalized and non-lexicalized goer must exist,
because we can also find examples in which *goer* is used alone in Oxford English Dictionary. However, as long as the lexical integrity and semantic opacity of *goer* in the compounds seen above is achieved with the support of the preceding modifier, it is not easy to compare non-lexicalized *goer* with lexicalized one strictly alone, for lexical integration operates across the two nouns *movie* and *goer* rather than within the -*er* nouns.

5. Conclusion

It is concluded that there must be polysemy according to the degree an -*er* noun is lexically integrated, which can be captured in connection to the context realized in the form of modifiers. As shown in the previous studies, individual interpretation and event interpretation are contradictory to each other in some points. However, distinctive characteristics of the two are not so clear; postnominal of-phrase can be added to the both. This is in part because such a phrase can in some times be interpreted to modify the preceding noun as a whole adjectivally and sometimes in other times the base verb of the preceding noun as an inheritance of the argument structure. The reason why it is ambiguous can be found in the fact that even stative verbs and the corresponding -*er* nouns can be paraphrased into each other. Prenominal modifiers and -*er* nouns are often lexicalized so that the whole meaning is not exactly predictable. In such a case the semantics of -*er* noun alone need not be fully lexicalized, but it is sometimes hard to extract only the meaning assigned to it. It prevents us from grasping the semantic variation of -*er* noun itself.

While there is polysemy between lexicalized and non-lexicalized meanings, it is not easy to assume a fully non-lexicalized -*er* nouns. No matter how general and transparent the meaning is, it must be more or less lexicalized as long as it appears in the form of a noun in the context. Not an expression can be perfectly general in a specific context. It must be equipped with some sort of specificity when actually used. Surrounded by characteristic modifiers, -*er*
nouns formed through ad hoc nominalization take the essence full lexicalized -er nouns can never have. In other words -er nouns understood as an individual can never have the same semantics as those which are interpreted as an event. Even anaphoric usages of -er nouns, which refer to a person who executes the action represented by the base verb, cannot avoid this, for it has a specific referent found in the preceding expressions. This would be impossible for a totally general -er nouns.

Such an idea lets us doubt if the polysemy examined in this article is really within-referential. What is meant by being polysemous is not that some expression is ambiguous in any specific context. Context is what polysemous expression is disambiguated in. That is, any expression in a specific context is unambiguous. As seen previously, however transparent a given meaning of a derivational expression is, it cannot completely cover other meanings which are more or less lexicalized. Conversely, the more lexicalized meanings cannot stay inside the more general meanings. As their referents are not identical, the semantic relationship between lexicalized and non-lexicalized meanings may not be so different from those which are characterized by various kinds of referents and semantic roles shown in (1) and (2).

Notes
1 The reason why teacher of my children tends to be interpreted as an event would be related to the fact the nominal phrase in the of- phrase corresponds to the indirect object of the base verb. The postnominal of- phrase should be taken heed to much more carefully if the base verbs of the -er noun is ditransitive.

2 Heyvaert classifies ad hoc nominalization into two: phoric ad hoc nominalization and non-phoric one. The former has an anaphoric reference, which enables an -er noun to appear. On the other hand, the latter does not, but an -er noun appears when it meets necessity.

3 However, frequent teacher can be seen in (3).
It is interesting that giver and taker, which can form an antonymous pair when they appear alone, become synonymous by being compounded with care; both of them refer to a person who looks after others. This results from the polysemy of the two verbs.

References