



Posterior Elements of an English Intransitive Verb: A Study of the Verb **LIVE***¹

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Abstract

This study intends to delineate the types of posterior elements of the intransitive, specifically unergative, verb *live* and examine the respective functions of each type. The research data was elicited from the free online, searchable Corpus of Contemporary American English (COCA), and there were 1,200 sentence instances containing four equally apportioned inflected forms of the lemma *live* (*live*, *lives*, *lived*, and *living*). All posterior elements of the unergative *live* are of two broad types: *live* with posterior elements and with zero posterior elements. Results of the study have shown that *live* comes in company substantially more with posterior elements than without ones (98.25% and 1.75%, respectively), and adverbials are the most frequently found types of all postverbal elements found (95.08%). This study found that the co-occurring patterns of the intransitive *live* and its posterior elements can be justified on semantic as well as pragmatic grounds.

1. Introduction

In English as a subject-prominent-language, a typical clause consists of a subject, or customarily a noun phrase (NP), and a predicate, or verb phrase (VP), which means that the subject is a syntactically discrete element from any other clause element, e.g. a direct object, an indirect object, a subject predicative, a clausal complement, an adverbial, an adverbial clause; therefore, syntactically speaking, a subject is considered external to the verb phrase, or not a constituent not intrinsic to a verb phrase, while any elements other than a subject are internal to the verb phrase, or a verb's constituent (Huddleston & Pullum, 2002). A main verb is thus deemed the central element in a canonical clause and, more specifically, the head of the predicate. It also determines other kinds of elements that follows it in the rest of the predicate and spells out a relation between those elements in terms of meaning (Biber *et al.*, 2002).

Verbs in English exhibit idiosyncratic patterns with regard to numbers of NPs (to be particular a subject, a direct/indirect object¹) they select. Transitive verbs take an overt

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¹ Other important clause elements are as follows: complements and adjuncts. Complements are syntactic constituents that are required to give further necessary information about a subject, an object, among others, which means if they are otherwise omitted, the overall meaning of a clause will be completely impaired. Complements typically surface as clauses, *to*-phrases, NPs, adjective phrases (ADJP), prepositional phrases (PPs), etc. For example, as in *Gabby was afraid [to say anything more]* (Biber *et al.*, 2002), the *to*-phrase *to say*



nominal complement and have two NPs (one is a subject NP; the other a direct object NP) to make their meanings complete. Examples of transitive verbs are *devour, made, buy, kick*, etc. Intransitive verbs only select one NP, which is a subject NP, and do not take any overt complements, restricted by their selectional or subcategorization properties. Intransitive verbs can thus be referred to as single-argument verbs or one-place predicates (Chomsky, 1957; Pinker, 1989; Jackendoff, 1990). Huddleston & Pullum (2002) and many other English grammar reference books and dictionaries of the English language associate the absence of object NPs with verbs traditionally classified as intransitive verbs. Trask (1993) specifically defines an intransitive verb as 'one that occurs without a direct object.' However, it is important to note that the presence of postverbal elements in the intransitive sentence is ubiquitous.

Appealingly enough, this traditionally prescribed view that intransitive verbs require no objects is not an all-inclusive reflection of naturally occurring language use, especially when instantiations in English grammar books are no more than the plain combination of a subject and a verb in order to differentiate an intransitive verb from other valency patterns of verbs, like *I fainted* (Huddleston & Pullum, 2002). *Collins Cobuild English Language Dictionary* (2000) labels verbs typically occur with no object 'mainly intransitive.' However, it does not go so far as to give greater attention to the placement of posterior elements regardless of whether they are NPs or many others. Besides, Biber *et al.*, (2002) copes with the definition of an intransitive differently: "intransitive verbs occur with no obligatory elements following the verb." Therefore, as in *More people came* (Biber *et al.*, 2002), the intransitive verb *came* alone, with its selection of only one NP subject, can render the whole clause semantically self-contained and syntactically well-formed.

However, like transitive verbs which require the presence of an object NP to be grammatical, intransitive verbs are oftentimes found to co-occur with a postverbal NP, and grammaticality remains intact, as in the following intransitive sentences.

- (1) a. He *grinned* a wicked grin.
- b. She *screamed* her way out of the room.
- c. Jacob *whistled* a happy tune.
- d. Neil *ran* the car into the garage.
- e. Sam *slept* the whole afternoon away.
- f. Jack *died* a beggar.

In (1), *grin, scream, whistle, run, slept*, and *die* are considered intransitive verbs since they are not typically followed by a postverbal noun phrase, i.e. a direct object, in the postverbal position, but from the observation of both lexicographical and corpus data, intransitive verbs most of the times allow noun phrases (e.g. *a wicked grin, her way, a happy tune, the car, the*

anything more is a complement, the absence of which causes an irreversible change in meaning to the whole clause. Unlike complements, adjuncts are regarded as syntactically non-obligatory. Adjuncts are syntactic constituents that can be dispensed from a sentence, which leaves no damage to the overall meaning. As in *She smiled sweetly* (Biber *et al.*, 2002), for example, the adverb *sweetly* is an adjunct because when it is crossed out, as in *She smiled*, the overall meaning of the counterpart clause remains intact as well as felicitous. This is because the adverb *sweetly* only adds extra information on the manner of smiling, so without it, the core meaning about a female individual who initiates the action of smiling, which occurred in the past, is preserved. Adjuncts can appear in a variety of positions in a clause and come in many syntactic forms, such as adverbials (PPs, adverb phrases, and adverb clauses) and *to*-phrases.



whole afternoon, a beggar, respectively) to appear postverbally, as in (1). They can also co-occur with other complement types (e.g. adverbials, complement clauses, non-finite complements), as shown in (2).

- (2) a. The sun *emerged* from behind the clouds.
b. Jack *walked* himself dead.
c. Daniel *arose* at dawn.
d. Adam and Eve *lived* peacefully together.

In (2), as well as in their typical usages, intransitive verbs *emerge*, *walk*, *remain*, *arise* and *live* allow a variety of complement types (e.g. *from behind the clouds*, *at dawn*, *himself dead*, *peacefully*, respectively). Of all intransitive constructions, tokens with postverbal elements, which pattern as S+V+NP/ADV/PP+....., occur more frequently than those without (S+V).

This study seeks to delineate types of posterior elements the intransitive verb *live* takes. By the term *posterior elements* used in this study, it is specifically referred to as any syntactic constituent that occur immediately after the verb *live*, so only one syntactic constituent that occur postverbally is meant to be under investigation. For example, as in (2d), only the adverb *peacefully* is included in the investigation; the other adverb *together* further away from the head verb *live* ruled out. In addition, this study intends to explore whether the co-occurrence of the intransitive *live* and its posterior elements is based on semantic grounds or pragmatic grounds.

2. Classification of the intransitive verb *live*

Cross-linguistically, intransitive verbs show some non-arbitrary grammatical heterogeneity (Ryu, 1996). Perlmutter (1978) first proposed a dichotomous classification for intransitive verbs in English, namely 'split intransitivity' under Relational Grammar and later adopted into the framework of Government and Binding theory (GB), proposed by Burzio (1986). Intransitive verbs can be categorized into two distinct classes: *unergative verbs* and *unaccusative verbs*, both of which select their sole argument differently with respect to their thematic natures.

On the one hand, intransitive verbs such as *laugh*, *walk*, *smile*, *talk*, *grin*, *sleep*, *jump*, *yawn*, and *shout* subcategorize for one external argument, a subject, as in *Jane laughed*. The verb *smile* selects the subject argument *Jane* who instigates, or has volitional control over, the action denoted by the verb. In other words, the verb *laugh* is said to theta-mark the subject argument *John* with the AGENT role. This class of intransitives that takes AGENT as their subjects is known as unergative verbs. The intransitive verb *live* traditionally fall under this category.

On the other, intransitive verbs such as *arrive*, *appear*, *leave*, *occur*, *thrive*, *emerge*, *elapse*, *drift*, *happen*, *arise*, *wilt*, *fall*, and *rise* subcategorize for one internal argument, an object, as in *The accident happened*. The verb *happen* selects one underlying object argument *the accident* which obligatorily surfaces in the subject position (Burzio, 1986). This sole argument is internal to the VP (or an object at the initial level of representation) and theta-marks the underlying object argument *the accident* with the THEME (PATIENT) role. Unlike unergative verbs, this class of intransitives that takes Theme/Patient as their subjects, which are affected by the event denoted by the verb and undergo a change of some sort, is called unaccusative verbs.



This bifurcated dichotomy within the intransitive verb class is related directly with a distinct underlying syntactic structure (Perlmutter, 1978; Burzio, 1986), illustrated by the following syntactic configurations in (3).

- (3) a. Unergative: [S [NP *Jane_i*] [VP [v *laughed*]]]
 b. Unaccusative: [S [NP *The accident_i*] [VP [V *happened*] [NP *t_i*]]]



The unergative *laugh* in (3a) has an underlying subject as an external argument bearing the participant role AGENT (Jackendoff, 1974), which is originated in the subject position and remains as such throughout the syntactic derivation. The unaccusative *happen* in (3b) originally has an underlying object *the accident* as an internal argument, thus assuming the participant role THEME/PATIENT, but is deprived of an underlying subject (Jackendoff, 1974). Not only do unaccusative verbs have an external argument, but they also lack the ability to assign accusative Case (see Burzio, 1986). As a result, the underlying object *the accident* (the internal argument of *happen*) moves to a subject position to serve as a surface subject and receives nominative Case in this position.

3. Rationale behind the selection of the unergative *live*

Selection of the unergative *live* to extract types of its posterior elements is drawn from the list of 1,000 most frequently used verbs, as listed in Davies and Gardner's (2010) *A Frequency Dictionary of Contemporary American English: Word Sketches, Collocates, and Thematic Lists*, which has documented the 5,000 most frequently used words in American English, grouped in order of frequency and by part of speech. The unergative verb *live* ranks fourth among the most frequently used unergative verbs. Such frequency of occurrence can typically serve as an indication of patterns of a word, a phrase, or an expression with regard to standards of usage (Tognini-Bonelli, 2001). The selection of the unergative *live* based upon the 1,000 most frequently used verbs list can, as a result, shed different yet meaningful light on a wide range of interesting linguistic phenomena, which results in a clearer insight into how a linguistic pattern is found in the discourse construction (Baker, 2006).

4. Data elicitation

Posterior elements of the unergative *live* were extracted from the following web concordancer: Corpus of Contemporary American English (COCA: Davies, 2008-) which consists of more than 450 million words of text, equally divided across genres: spoken and written (fiction, magazines, newspapers, and academic texts). The COCA is the largest freely-available and balanced corpus of American English. Yearly added, the equally divided number of words across genres is a structural core of the design of the COCA corpus, thereby making it appropriate for looking at the most current uses of a given verb, those of an intransitive verb in particular, i.e. their patterns of occurrences with posterior elements, and that the number of words is distributed evenly makes the degree of generalizability of results likely to be higher because sentence tokens from the intransitive *live* would hardly be clustered heavily in one genre over another.

Subsequently, to elicit the unergative *live*'s co-occurring patterns with its posterior elements, queries specific to the COCA were utilized, such searching criteria pertinent to the COCA



that contain all the morphological forms of verbs were input as a query, namely [live].[v*], and a lemma occur with all possible morphological inflections was sorted out. As a result, there were 4 corresponding lemmas of *live*: *live*, *lives*, *living*, and *lived*. Then, the first three hundred instances of each inflected form of *live* were selected for a close examination of their posterior elements, so 1,200 sentence tokens in total were examined.

Posterior elements that co-occur with the unergative *live* were gleaned and categorized according to their syntactic forms, such as words, phrases, and clauses. When any of morphologically inflected forms of *live* functioned as words belonging to other grammatical categories, it was simply excluded. For example, the *-ing* lemma of *live*— *living* (as in *living animals*)— functions as an attributive and prenominal adjective that resembles the present-participle form of the verb, thereby being ruled out from the token list, and the succeeding concordance line was automatically taken into consideration.

Afterwards, data of posterior elements of the unergative *live* obtained from the corpora was taken to examine their senses, in tandem with definitions, according to the classes to which they belong by using the Oxford Dictionary of English (2010), which is intended for native speakers rather than learners with a myriad of example sentences provided, thereby extensively covering both existing and newly-entered usages with rich definitional details. This dictionary was used as a tool to ensure that each selected verb behaves intransitively, that multi-word lexical verb *live* (e.g. *live up to*), or catenated uses of *live* in combination with particles (such as *live on*, *live by*, *live off*, *live with*, *live for*), and that conventionalized expressions (e.g. *live rough*) headed by *live* were also all excluded. The same practice was persisted to ensure consistency of the intransitivity of *live* until 1,200 instances of posterior elements of the intransitive *live* from each lemma were met.

5. Results and discussion

All instances containing the unergative *live* can be categorized into two broad types: those without posterior elements (\emptyset) and those with posterior elements. Of all 1,200 sentence tokens, only 21 sentence instances were found without posterior elements, which account for exactly 1.75 percent, which contributes to only a slight proportion of the total posterior elements. The symbol \emptyset is used specifically to signify no elements at all following the intransitive *live*, as commonly observed in traditional grammar, as in (3).

- (3) a. Our son died as he *lived*.
b. It would be a better way to *live*.

In addition to the unergative *live* with no posterior elements, the verb found with the presence of posterior elements is the other type. The unergative *live* with posterior element occurs significantly more frequently than that without ones (1,179 out of 1,200 instances), which is equal to 98.25 percent, as portrayed in Figure 1. The posterior elements that are found to co-occur with *live* in this study vary in forms and can be further categorized into two broad types: adverbials and non-adverbials. Adverbials become the focal center of posterior elements because of their multifarious linguistic natures and a tendency to occur postverbally more frequently than any other posterior elements. Postverbal adverbials in this study are found to be the substantial majority of all posterior elements. To put it mathematically, 1,141 out of 1,200 instances are identified as adverbials, which are equal to 95.08 percent.

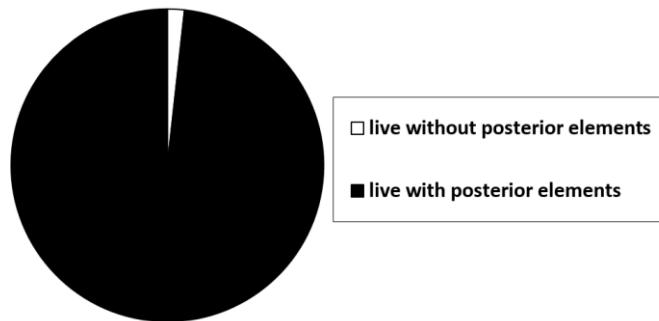


Figure 1. The proportion of zero posterior elements and posterior elements of the unergative *live*

Postverbal adverbials entail wide-ranging functions, one of which is provide additional information that expands on what is already supplied by the verb; therefore, an adverbial is deemed the constituent semantically related to the verb. Quirk *et al.*, (1985), Biber *et al.*, (2002), and Huddleston & Pullum, (2002) give an overarching account of adverbials regarding what they function as in a clause and how they surface in a clause. Adverbials serve an array of functions, semantic and syntactic. They normally add the circumstances associated with the clause, such extra information as when, where, how an activity, or a state, denoted by a verb, takes place. Adverbials also provide a wide range of information which in general expresses location, time, frequency, direction, reason, attitude, manner, agency, concession, respect, etc.

Adverbials can occur in a clause in terms of numbers and positions to an extensively varying degree. In other words, there is a highly customary nature of adverbials that more than one of them can occur in an individual clause, and they are practically loosely attached to other clausal elements. This, too, amounts to the way adverbials display a substantial degree of optionality when they occur in a clause, with exceptions to when some adverbials act as a clausal required constituent and specify the degree of obligatoriness. Obligatory adverbial complementation is prone to take place in the clause-final position, either right after verbs or following direct objects. In this study, the clause-final position means exclusively to Biber *et al.*, (2002) suggest that such obligatory adverbials typically express location and direction, with the possibly lesser extent of their expressing manner and time.

Adverbials can surface in 5 different syntactic forms: 1) prepositional phrases or PPs (954 instances or 83.61%), as in (4a); 2) adverbs or adverb phrases (149 instances or 12.42%), as in (4b); 3) adverbial clauses (11 instances or 0.91%); 4) bare-NP adverbs (18 instances or 1.5%); and 5) *to*-phrases (9 instances or 0.75%). Examples of postverbal adverbials of the unergative *live* are shown in the followings, respectively.

- (4) a. I've lived *in the Bay Area* [...]
- b. He lives *alone* in his own home with his dog.
- c. They lived *as if the "nifty fifties" were happening all over again*.
- d. I retired at 65, but I could live *another 18, 20 years*.
- e. [...] a tree [...] had lived *to love another day*.



All of the 5 syntactic forms of adverbials found in this study can be categorized, based on semantic grounds, into as follows:

- Time: *lived in a digital age, live beyond 85, live another 20 or 30 years*
- Place²: *lived elsewhere, within 10 miles of The Woodlands, living in the UK*
- Manner: *live independently, lived in a state of perpetual amazement, lives in danger*
- Purpose: *lives to protect against attacks, lived to see his parents' divorce, living to work*
- Degree: *lived longer, live better than their parents*

Place adverbials as posterior elements are found with the highest frequency, considerably more frequently occurring than any other four adverbial types (904 instances or 79.22%). The second highest frequently used posterior adverbials indicate manner of living, which stand at 15.51% (177 instances), and next in a consecutive order of frequency are time posterior adverbials (3.42% or 39 instances) and degree posterior adverbials (1.05% or 12 instances). And adverbials indicating purpose ranks the least frequently found postverbally (0.80% or 9 instances).

Most frequently found by far are the adverbial PPs as posterior elements, both within the posterior adverbial subcategory and all other posterior elements, the overwhelming majority of which denote place to live (e.g. *lived in Washington*), duration of living (e.g. *lived for a while*), and manner of living (e.g. *lived under the fear of deportation*), among which are the place adverbial PPs most frequently found.

Non-adverbials is the other major types of posterior elements found in this study. Compared to adverbials, non-adverbials make up a relatively small percentage of posterior elements, that is, there are 38 instances of non-adverbials out of 1,200 sentence tokens. Non-adverbials in this study are of 3 types: NPs (36 instances or 3%), as in (5); adjectives/adjective phrases (1 instance or 0.08%), and participial phrases, -ing participles and -ed participles, (1 instance or 0.08%). The last two types of postverbal non-adverbials occur so highly scarcely that the need is felt on the basis of practicality to exclude two of them from the investigation and analysis of this study since they are considered statistically insignificant.

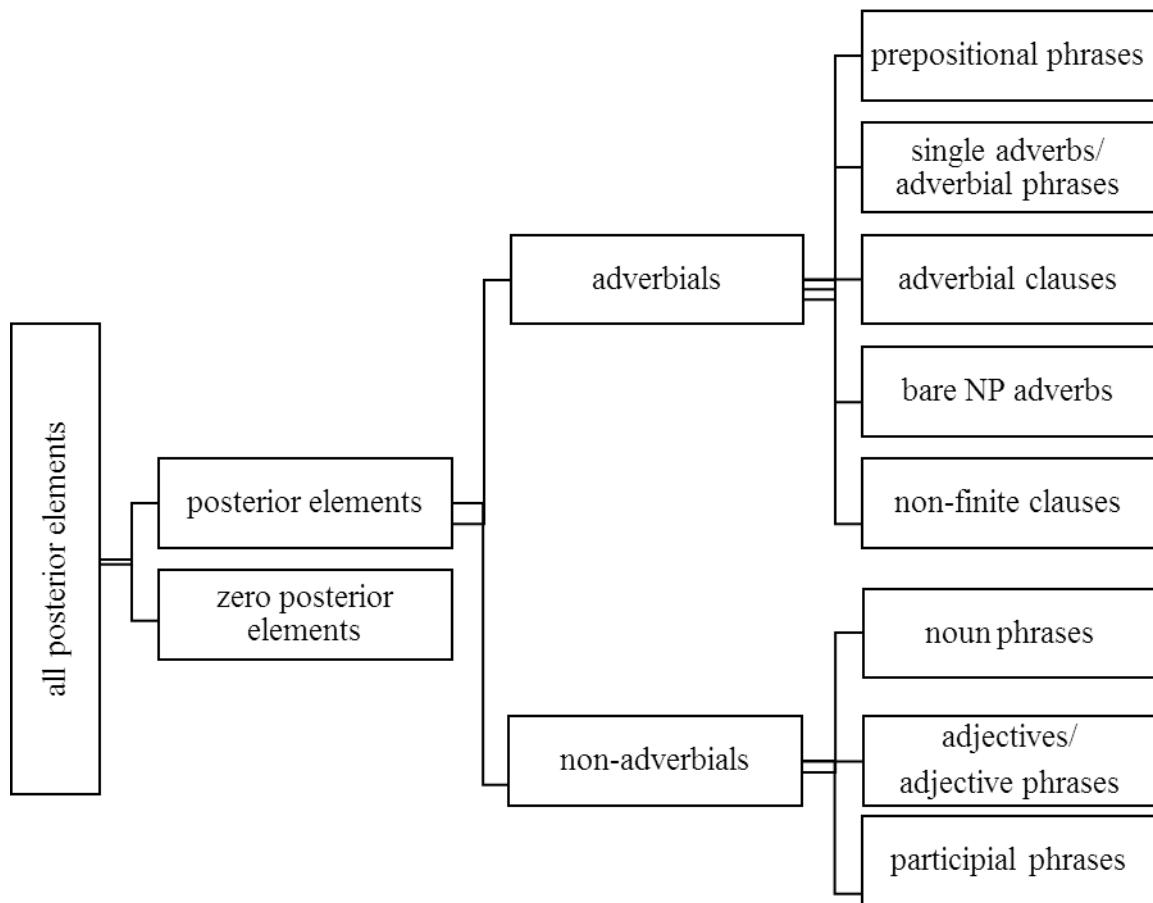
- (5) a. [...] kids will build on in the future to live healthier lives.
b. [...] and live the debt-free, low-cost lifestyle.
c. Paul can live a normal life.

In this present study, posterior elements are mainly classified into two types: *live* with posterior elements and *live* without posterior elements. The latter is further decomposed into two subcategories: 'adverbials' and 'non-adverbials.' This proposed categories entirely based on the structure of constituents that immediately follow the intransitive verbs in question. All types of the posterior elements found in this study can be illustrated in (6).

² Please note that the term 'place' that is used to signify one of the adverbial types that falls under the superordinate term 'space,' or space adverbials to be more precise. This term refers broadly to location or setting in which the action denoted by the verb takes place.



(6)



The following section attempts to show the two major types of postverbal elements in the intransitive clause. Let us observe the definition of *live* provided in OEDCE (1999), which provides usage information about adverbials but gives no notion regarding the transitivity/intransitive demarcation and defines the verb *live* as:

- live** /liv/ ► 1 [no object] remain alive: *the doctors said she had only six months to live* || *both cats lived to a ripe age*.
 ■ [with adverbial] be alive at a specified time: *he lived four centuries ago*.
 ■ [with adverbial] spend one's life in a particular way or under particular circumstances: *people are living in fear in the wake of the shootings*. [.....]
 2 [no obj., with adverbial] make one's home in a particular place and with a particular person: *I've lived in the Easy all my life* || *they lived with his grandparents*.

5.1 Zero posterior elements

Of all 1,200 instances, only 21 instances (1.75%) come with zero posterior elements, all of which have a stative reading, meaning 'to remain alive,' (Dowty, 1979: 66; Levin, 1993: 249) as in the first meaning found in OEDCE (1999), as in the following sentence from COCA.

- (7) a. I will never use makeup as long as I live.
 b. With or without parole, he said, you will live.



As seen, (7a) can be paraphrased as *I will never use makeup as long as I remain alive* or *I will never use makeup as long as my life remains*. Such reading can also be applied to (7b). The first sense of *live* is found to coincide with Levin (1993) that catalogues semantic properties of the unergative *live*, with their corresponding, as well as possible, realizations in a clause, and categorizes it as ‘verb of existence’ which is considered an stative verb. Therefore, when the unergative *live* has a stative reading, it can occur with no necessary adverbials after it. Unlike dynamic unergative verbs, like *sleep*, *walk*, *run*, the unergative *live* with a stative reading would sound aberrant when expressed progressively, used imperatively and with certain adverbs, that is, *deliberately* (Jackendoff, 1972), as in (8).

- (8) a. ??Our son died as he was living.
b. ??It would be a better way to be living.
c. ??Live!
d. ??I will never use makeup as long as I live deliberately.
e. ??With or without parole, he said, you will live deliberately.

The uses of unergative *live* without posterior elements exist because the verb’s content is semantically rich enough to make a sentence self-contained and can be carried over to the hearer with no much reliance on context for further meaning calculation. The channel³ of such usage is limited, and the *live* + zero posterior element compound can be vigorously used interchangeably with other morphologically and semantically related variants, like *remain/BE alive*, *BE breathing*, *BE not dead*, etc. The markedly low frequency of the combination is presumably because of this.

Levin (1993) points out that this types of reading is also compatible with the cognate object construction⁴ with no prenominal adjectival modification, and the *live* + cognate object construction is also attested in COCA.

- (9) a. *I live my life* moving forward on rails that I lay myself.
b. He’s *lived a life* and traveled the world lifting people’s spirits, sights, motivation.

5.2 Pragmatic justification of posterior adverbials

The presence of posterior elements in the intransitive construction is not obligatory required syntactically; however, results from this study prove otherwise in that posterior elements are found substantially more frequently than zero posterior elements, i.e. 98.25% and 1.75%, respectively. Therefore, it is logical to assume that such a high degree of co-occurrences is pragmatically induced. In pragmatically analyzing the co-occurrence of the intransitive *live* and its posterior elements, this study makes use of two conventional principles: Grice’s theory of Cooperative Principle and Horn’s Q- and R-principles.

5.2.1 Grice’s Cooperative Principle

Grice (1975) stipulates ‘the Cooperative Principle’ on the basis that, in any speech event, interlocutors conform to a general principle of rationality in order to have their communicative needs met. When they conduct normal verbal transactions, they must

³ See 5.2 for further discussion centering around this point.

⁴ See 5.3 for further discuss correlating with cognate NPs as posterior elements



cooperate in order to accomplish the core intent of communication. Speakers of a given language generates, or perceives, an utterance, in general, with the assumption, which lies subconsciously, that they are expected to provide a needed and satisfactory amount of information (Quantity), to produce only texts or speeches considered truthful (Quality), to communicate in a pertinent manner (Relation), and to express themselves in a lucid manner (Manner). Without such an assumption, an investment of time, effort, and energy on the interpretation of what is intended by the speaker becomes nothing more than a vain attempt. Grice (1975) regards the four assumptions mentioned above as maxims which must always be understood and observed, subconsciously as well as consciously, by all involved participants in a conversation. The maxim of quantity is of pivotal focus in this study.

5.2.2 Horn's principles

Capturing Grice's intuitions, Horn (1984) maintains that they should be reduced to two fundamental principles: the quantity (Q-) and the relation (R-) principles, the former of which is oriented towards the hearer, and the latter towards the speaker. Horn's Q-principle stipulates that any contribution by the speaker must be sufficient and no less. Horn's R-principle specifies that, in any speech event, the speaker's contribution should be necessary and no more (Horn, 1984: p. 12). The principles are intended to steer clear from causing confusion on the hearer's part by making the contribution either under-informative or over-informative.

Levin (1993) categorizes the unergative verb *live* as 'lodge verb' which denotes one's living circumstances, conditions, and situations, and thus has an activity reading. This category is compatible with definition's nuances in OEDCE (1999) with 'adverbials' that normally occur postverbally. This substantially manifests itself in the results from COCA. All posterior elements found to co-occur with the verb *live* are 1,141 instances out of 1,200 which are equal to 95.08 percent. Of 1,141 instances, 857 postverbal elements (or 75.11%) signify places or spatial locations in which the subject entity lives, such as prepositional phrases (headed by *in*, *outside*, *on*, *near*, *between*, *at*, etc.) and adverbs of place (*here*, *there*, *nearby*, *outside*, *elsewhere*, etc.), two of which are collectively called place or locative adverbials. Besides, the vast majority of posterior elements that signify places are in the form of PPs headed by *in* (640 out of 1200 instances or 53.33%). But all the *in* PPs do not solely signify a place or location and can be divided into: 1) a very large number of the *in* PPs that inherently indicate place-- or, in other words, place/spatial adverbials-- (as in 12a-c); and 2) a few other *in* PPs which describe manner of living-- or, in other words, manner adverbials-- (as in 12d-f). Let us observe tokens from COCA.

- (10) a. Approximately a million Palestinian refugees live in Syria and Lebanon.
- b. Over half of the world's human population lives in cities.
- c. All participants lived in a large city in the upper Midwest.
- d. A young woman lives in a state of fear.
- e. One out of six black children lives in poverty.
- f. The Muslims, Christians and Jews all lived in harmony.

Directly licensed by the verb *live* which is, by semantic nature, an agentive verb, the *in* PPs in (10a-c) describe location or place in which subject entities, typically animate, live.



Such interpretation on the verb itself involves, as Levin (1993) calls, protagonist control⁵ in the sense that there is no external force—like gravity. This means if the *in* PPs are not present, when uttered in a neutral or undifferentiated context, readings of (10a-c) become infelicitous, as in (13).

- (11) a. #Approximately a million Palestinian refugees live.
b. #Over half of the world's human population lives.
c. #All participants lived.

The respective *in* PPs in (11a-c) are required when the verb *live* has an activity reading; otherwise, (13a-c) will automatically not informative and incomplete in a neutral context in the sense that the Gricean maxim of quantity is violated, thereby rendering themselves, when uttered without the *in* PPs denoting location, and, possibly, all adverbials, diametrically different from (11a-c). Flouting the maxim of quantity by producing less informative utterances possibly gives rise to communication clash and miscommunication. From (11a-c), it can be presupposed that there exist a very great number, approximately a million, of subject referents referred to by 'Palestinian refugees.' Therefore, the meaning of (11a) is what needs not to be the case in order for (11a) to be truth-conditionally true because nothing informative is being said, even when calculated in combination with the meaning of the verb *live*, because the presupposition is readily accessible to the hearer (Goldberg, 2004; Goldberg & Ackerman, 2001). No normal speaker would not bother to deliver uninformative utterances, especially when they are already retrieved by the hearer, simply because no obvious inferences can directly be drawn from the fact that an innumerable multitude of individuals congregating in a country not of their own are alive unless some sort of adverbial modification is added (Goldberg, 2004).

Another sense of the verb *live* addressed by Levin (1993) is 'lodge verb' indicating living conditions, which is consistent with OEDCE (1999), which defines live as 'spend one's life in a particular way.' The verb *live* in this sense is considered an atelic activity verb (Dowty, 1979: 66; Levin, 1993: 249). Such sense can be exemplified in (10d-f). All of the sentences contain the *in* PPs, but they do not indicate where but instead how. The *in* PPs in (10d-f) are considered manner adverbials. By the definition of 'manner adverbial,' this study follows Hasselgård (2010), i.e. one that specifies manner or quality and encompasses the classes of means, instruments, comparison, attire, accomplishment, and role/capacity. Manner adverbials simply answer the question how and in what way; they tend to be realized as one-word adverbs and prepositional phrases (Quirk *et al.*, 1985: 460). One-word manner adverbs, normally ending in the suffix *-ly*, can commonly be paraphrased by prepositional phrases like *in a* (ADJECTIVE) manner (as in *in an independent manner*), *in a* (ADJECTIVE) way (as in *in a careless way*), or with + NOUN (as in *with enthusiasm*). Unlike the *in* PPs in (10a-c), all the *in* PPs in (10d-f) describe in what ways the subject entities live. One question arises as to whether this type of *in* PPs can be taken away with no effect on overall meaning or not. Let us observe the following sentences.

⁵ Verbs that express protagonist control denote the action that spontaneously happens, like *run*, *walk*, *whistle*, etc. Verbs of such type are said to distinguish from verbs whose actions are instigated by external force or agent, like *roll*, *arrive*, etc. For example, as in *The ball rolled into the street* (LDCE), the action of rolling denoted by the verb is not necessarily involved with any agents that exert volitional force but possibly caused by an external force, like gravity, strong wind, and suchlike.



- (12) a. #A young woman lives.
 b. #One out of six black children lives.
 c. #The Muslims, Christians and Jews all lived.

When the *in* PPs are removed, the meanings of (10d-f) result in being different; this, in turn, makes the presence of the manner adverbials obligatory. It can be assumed that the *in* prepositions for locative adverbials license an activity reading because in (12a-c), when delivered in a neutral context, there seems to be something more to be said; or else, the sentences sound incomplete as well as uninformative, thereby, to a great degree, violating the Gricean maxim of quantity because (12a-c) are uttered less than required or demand more information to make a communicative intent met. Thus, the presence of the *in* PPs, presumably including other types of locative adverbials, is necessary for clauses with their predicates headed by the unergative *live* in them to be acceptable and satisfied in terms of meaning.

Like *live* in (10a-c) which has an activity reading, the unergative *live* appears to license manner adverbials to render (10d-f) acceptable. When the action of living is performed, there must be the involvement of protagonist control which instigates the action denoted by the verb to happen without force and voluntarily. However, the verb *live* alone does not typically provide enough lexical load to appear in the utterances independently (Ernst, 1984). The *in* PPs, i.e. manner adverbial, are present merely to make available the acceptability of the utterances. For instance, (14a) appears to sound downright incomplete, if not infelicitous, without the PP *in a state of fear*. With the same PP left unsaid, there would be no reason to utter (10d) at all.

However, Goldberg (2004) suggests that a contrastive sentence stress can help rescue the infelicity and unacceptability of (11) and (12). Since English is a stress-timed language, stress patterns play a critical role in causing a shift in meaning. Stress is represented in two different levels: word stress and sentence stress. Word stress refers to syllable prominence which is louder, longer, and in higher pitch than neighboring syllables (Roach, 1991) while sentence stress oftentimes tend to modify the normal pattern of word stress by, say, dropping some of it, when articulated in sentence (Ladefoged, 2006: 115). Sentence stress occurs because it may sound unnatural if every word is assigned as much stress when pronounced in a sentence boundary as in isolation. Sentence stress in special speech occasions can thus give rise to emphasis and contrast in the meaning when normal stress is shifted from one place to another. This is known as 'contrastive stress' whereby the contrasted word should make sense to any interlocutors involved at the location and time of speaking.

Through this perspective, if contrastive stress is placed on the verb *live* in (11) and (12), they could, in a narrowest, if not strictest, sense, automatically become acceptable yet counter-intuitive to a varying degree, as in (13).

- (13) a. ?Approximately a million Palestinian refugees LIVE.
 b. ?Over half of the world's human population LIVES.
 c. ?All participants LIVED.
 d. ?A young woman LIVES.
 e. ?One out of six black children LIVES.
 f. ?The Muslims, Christians and Jews all LIVED.



Each contrastive stress on the verb *live* in (13a-f) provides a meaningful assertion and causes a change in meaning. It is highly likely that a different shade of meaning can take place when such sentences are uttered in a special context in which a matter of being ‘alive’ is entered into consideration. For example, when (13a) is uttered in isolation, it has to be no more than ‘all participants were not dead or still alive.’ Since PPs or adverbials, place as well as manner, are absent, accurate interpretations of the (13a-f) are, admittedly, heavily context-dependent, which must be accessible to all interlocutors involved to mutually arrive at them. In (13a – f), a sharp distinction in meaning many be provided, out of necessity, to all participants involved in the respective speech events if the meaning of ‘not dead’ is contrastively intended in response, presumably, to the beliefs that the entities are/were mistaken to be dead, in which case the utterances meet Horn’s R-principle but not suffice to fulfil Horn’s Q-principle. Another problem arises as to whether the different inflected forms of verb and the subject NPs play a critical part in the interpretations when postverbal adverbials are denuded of the original sentences. Notice that (13c) and (13f) are semantically sufficient to be paraphrased as *All participants did not die* and *The Muslims, Christians and Jews all did not die*, respectively, in which case the acceptability lies in such interpretations. In (13e), the 3rd present-singular-present-tense form of verb is used, thereby making it possible to interpret as ‘out of every six black children, one survives’ as far as the context of, say, the child birth rate is concerned. It can thus be reasonably assumed that all the utterances cannot be delivered, in all possible world, in a neutral context that comes equipped with the habitual reading. However, very few instance found in COCA survive the habitual reading and can be felicitously uttered in a neutral context is in (14).

- (14) a. Marx is dead and Jesus lives.
b. The King lives.

5.3 Semantic justification of posterior elements

This section is specifically dedicated to the use of cognate NPs as posterior elements of the unergative *live*. Cognate NPs occurring postverbally in this study are classified under the big umbrella label ‘non-adverbials’ solely based on syntactic means.

Most unergative verbs, including *live*, permit the object position to be occupied by a derivative nominal,⁶ and it has been proposed that those unergative verbs that co-occur with cognate objects with adjectival modification are semantically synonymous to those followed by manner adverbs (see Nakajima, 2006; Kuno & Takami, 2004; Huddleston & Pullum, 2002; Levin & Rappaport Hovav, 1995; Jones, 1988; Quirk *et al.*, 1985), as in (15), (16) and (17).

- (15) a. He grinned a *wicked* grin.
b. He grinned *wickedly*.
(16) a. She laughed a *sarcastic* laugh.
b. She laughed *sarcastically*.
(17) a. Bill sighed a *weary* sigh.
b. Bill sighed *wearily*.

(LDCE⁷)

⁶ Herein means a non-inflectional derivational noun.

⁷ Longman Dictionary of Contemporary English



The sentences (15), (16), and (17) demonstrate a number of counterpart relationships. First, (15a), (16a) and (17a) are mutual paraphrases of (15b), (16b) and (17b), respectively, and vice versa. In other words, all of the sentence pairs above are equivalent in meaning. Second, one of the sentence pair entails the other, which means ‘if Bill sighed a weary sigh, it entails that Bill sighed wearily,’ and the reverse would still hold the same entailment relation. Lastly, the insertions of adverbs with the suffix *-ly* which are bound to modify the unergative verbs, not the whole clause, in (15b), (16b) and (17b) correspond to the insertions of adjectives in their respective counterparts in (15a), (16a) and (17a). Such insertions keep the entailment and the paraphrase relations in an essentially unaltered manner (Huddleston & Pullum, 2002; Macfarland, 1995).

Levin (1993: 96) points out that the meaning nuance of the intransitive *live* in OEDCE (1999), that is, *remain alive* (sense 1) has a stative reading which normally denotes existence in undefined duration and does not come compatible with the progressive verb form (*-ing*). This type of reading exclusively accords with a cognate object with no adjectival modifier. In (9a), the phrase *live my life* simply describes a state of affairs of living which is rather unchanging or static throughout a specific course of time. It is simply because when an adjectival modifier is used and placed before the corresponding noun *life*, it results in subtleties in meaning which can cause a shift in reading from stative to dynamic.

- (18) a. [...] you are going to have to figure out how to *live your own miserable life*.
 b. [...] your family member will be encouraged to *live a stimulating and active life* [...]

In (18a), the adjective *miserable* denote a specific condition of living, which gives rise to a stative reading; however, in (18b), the unergative *live* straddles the line between a stative reading and a dynamic reading. This is in part because in (18b) the cognate NP *a stimulating and active life* can denote a specific activity in life, which in turn makes the life appear to have a certain quality. This kind of reading is also compatible with the verb *lead*, as in *lead a stimulating and active life*, whose reading spontaneously shifts to dynamic. This is also justifiable via the paraphrase test, as observed in (15), (16), and (17). The *live* + cognate object combination in (18b) can be paraphrasable to *live stimulatingly and actively*, which is rendered dynamic in reading. One particular insight garnered from cognate objects functioning as posterior elements of the unergative *live* is that it can cause a shift in reading, from stative to dynamic.

5.3.1 EVENT/RESULT as a rationale for the presence of posterior cognate NPs

According to Höche (2009), the cognate objects *a life* in *live a life*, as found in (9b), frames the event designated by the verbs and is uttered, despite repeating the meaning of the verb, to express both the result of the action and the event itself. In other words, the cognate object noun *a life* can denote either the events of living or the results thereof. This cognate object construction depicts an ‘intensified action.’ This technical term *intensified action* is used in the same sense as when the meaning of *to shatter*— to break suddenly and violently into pieces (OEDCE, 1999) — is more semantically intensified than that of *to break* (to separate into pieces as a result of a blow, shock, or strain— OEDCE (1999); the similar vein is also applied to such following pairs of verbs , whereby the second denotes more intensified action than does the first, *to kill* and *to slaughter*; *to cut* and *to chop up*; and *to look* and *to*



gaze (Höche, 2009). Therefore, *to live a life* is said to be more intensified in action than to *live* without a posterior cognate NP.

This is because it is directly connected with the AGENT that instigates the action expressed in the form of the verb + its nominal variant as a cognate object. Höche (2009) maintains that this specific scenario that comes equipped with the cognate object construction *live a life* portrays the way in which a given AGENT devotes his/her energy into an action (*to live*) and creates an event expressed by the cognate object (*a life*). Cognate objects derived from corresponding verbs are thus employed to describe what is produced by such an action denoted by the verb, representing the result of the action (or event) indicated by the verb itself (Kuno & Takami, 2004). For example, through the act of living, the AGENT excises his/her volition in creating *a life* simultaneously; to put it more simply, the AGENT is a creator of *a life* which, in turn, becomes the result of such creation. Hence, *a life*, herein, is also considered ‘resultant objects’ or what the AGENT has created (Quirk *et al.*, 1985; Höche, 2009). Results from this study show that not only are this interpretation given by the cognate object construction of the unergative *live* give, but it is also felicitously suited with the noun *lifestyle*, the lexical compound variant of the unergative *live*, as in *live their lifestyle* and *live the rural lifestyle*. The events of living denoted by the intransitive *live* is originated from the exertion of energy (by the AGENT) which, in turn, is carried over to produce the resultant state *their lifestyle* and *the rural lifestyle*, respectively.

5.3.2 Posterior elements as rendering a shift in event structure

It has been put forward by a number of linguists (Felser & Wanner, 2001; Levin & Rappaport, 1995; Macfarland, 1995, among others) that the semantic contrast between using intransitive verbs with no posterior elements or using a construction with a cognate NP can, in many cases, be conceptualized in terms of *aktionsart* or lexical aspect—first introduced by Comrie (1976)—i.e. aspectual properties which may be lexicalized or characterized by derivational morphology, or which are sometimes not characterized morphologically at all, either of which deals with inherent meaning expressed by the verb. To put it more simply, the term *aktionsart* refers to the internal temporal structure of events, or the way the lexical gradience of the predicate (or verb phrase) inherently represents the situation (Rothstein, 2004). Vendler (1957) proposes the classification of events into the four aspectual classes as indicated by predicates as follows:

- (19) a. **States** denoting actions lasting for a period of time, e.g.
know, believe, love, exist, like, have
- b. **Achievements** denoting instantaneous event, e.g.
learn, die, arrive, notice, find, cough, break (intransitive)
- c. **Accomplishments** denoting events with duration, e.g.
teach, kill, walk to the park, learn Thai, break the window, eat the spaghetti, run for an hour, make a decision, build
- d. **Activities** which denote processes, e.g.
walk, run, cough all the time, eat spaghetti, drive a car, dance, swim



These aspectual classes of verbs can also be grouped on the basis of telicity/atelicity. Achievements and accomplishments have an inherent endpoint, and thus such classes of verbs are regarded as ‘telic’, while states and activities have duration without specifying an endpoint, which is known as ‘atelic’. The notion of telicity is a property of the *situation type* depicted by the lexical verb and its complement, which means if a situation is telic, it has a natural completion or endpoint born out of the meaning of the verb. If not, it is atelic. For instance, unergatives are typically activities (open-ended processes) such as *run*, *dance*, *speak*, *play*, *fight*, *grin*, *walk*, *yawn*, *sleep*, *frown*, *bark*, *hobble*, etc, whereas unaccusatives are achievements (point events which end as soon as they start) such as *happen*, *arise*, *fall*, *thrive*, *(dis)appear*, *blush*, *elapse*, *die*, *emerge*, *vanish*, *wilt*, *occur*, *collapse*, etc.

Krifka (1998: p. 207) proposes that telicity is inextricably intertwined with the presence of posterior elements. It can be a warped reflection of understanding when a given event denoted by an intransitive verb can be designated ‘telic’ or ‘atelic’ since the event of running represented by the unergative *run* which is realized with no natural end point and called atelic whereas the same event of running denoted by the unergative *run* co-occurring with such posterior element as *a 6-minute mile*, as in *run a 6-minute mile*, being identified as telic because such event comes with an inherent termination point.

Intransitive verbs with AGENT subjects, such as *walk*, *run*, *live*, tend to denote a continuous unbounded⁸ activity. The unergatives *run* and *walk* denote events with the implication of directed motion, or a stretch of process of indeterminate length, while the unergative *live* is involved with no motion. However, the common ground among these unergative verbs is that they denote events with no clear endpoint; in other words, there is no information with respect to the temporal extent of the activity (Vendler, 1967; Dowty, 1979). However, when the posterior adverbial PP is attached to the verb, as instantiated in (20) from COCA, the process of walking has reached the culmination point, and the act of walking becomes terminated at this point.

(20) Wyatt walked [to the forest]PP. (COCA)

Some constraints are imposed upon the interpretation of meaning of the verb. That is to say, the activity with indefinite duration denoted by the verb become bounded with the locative PP *to the forest* (Rothstein, 2004; Verkuyl, 1972). Therefore, (20) can be interpreted as ‘Wyatt terminated his activity of walking to the forest despite no temporal information added to the locative PP, and when the activity is brought to the culmination, Wyatt is at the forest. The event structure of the unergative *walk* shifts from activity with no specific endpoint to bounded process. The information expressed by the locative PP *to the forest* helps conceptualize the termination of walking at some point although there is no mentioning about duration of time at all. It can thus be concluded that posterior adverbial PPs can add the information about a temporal terminal point to the situation in question. To follow Jackendoff (1990)’s and Tenny (1994)’s terminology, the PP *to the forest* serves to delimit the event denoted by the verb *walk*. The eventuality denoted by the directed motion verb *walk* is delimited with the duration by the obligatory locative PP which triggers an aspectual shift from the activity/process eventuality to accomplishment.

⁸ The bounded/unbounded contrast is taken to be different from the telic/atelic one in that boundedness lies within temporal aspect of a verb. For example, the event of building, as in *built the house*, is bounded, but if the progressive aspect is used instead of the past tense one, as in *building the house*, the event becomes unbounded (Declerck, 2006).



Let us observe the case of the unergative *live*. The event represented by *live* without the presence of any posterior adverbial shifts, in particular a durational adverbial PP, from atelic interpretation to atelic one, as in (21).

- (21) a. [...] the writer lived for 2 and a half years.
b. Sophocles lived between 496 and 406 BC.
c. [...] some have lived for decades [...]

The event structure represented by the unergative *live* has select an atelic interpretation which is normally unbounded, but by adding a posterior adverbial PP expressing a duration, as in (21a-c), the atelic reading with the event that is unbounded in a neutral context shifts to telic interpretation because the posterior durational PPs *for 2 and a half years*, *between 496 and 406 BC*, and *for decades*, respectively in (21a-c), serve to delimit the state of living to within a specific period of time (Jackendoff, 1972). With the durational phrases added postverbally, the events in (21a-c) necessitate the interpretations with a point of culmination, thus becoming automatically bounded.

6. Concluding remarks

Whether or not a given intransitive verb licenses an element following it is directly related to lexical properties which come endowed with the verb itself. For that reason, an intransitive verb exhibit nonconformity with respect to how it co-occurs with posterior elements. In particular, the intransitive verb *live*, more precisely unergative, displays systemically deferring patterns with respect to the presence/absence of adverbial modification. When *live* allows for a stative reading, no obligatory adverbials are needed. This kind of reading scarcely crops up in the corpus, which coincides with the *live* + zero posterior element amalgam, whereby *live* is customarily placed at the end of a clause or a sentence. This only sense of *live* appears to be consistent with the rigid, traditional view of grammar, which postulates that intransitive verbs only select one NP subject and do not take any overt complements, thus displaying pure and non-fluid intransitivity. This distinct collocational pattern of *live* followed by zero posterior elements can thus throw some light on the finer-detailed lexicographical practices as to the way more grammatical description--*with no adverbials*-- within one of the senses of *live* indicating *remain not dead*, *stay or BE able to stay alive*, or *BE alive*, and the like, should be added to it so as to match precisely naturally occurring collocational patterns which, theoretically are dynamic and changing over time.

A shift in meaning subtleties occurs when *live* receives an activity reading, the adverbial modification become accordingly compulsory, without which it results in unacceptability and infelicity. Given all the instances regarding the combination of the verb *live* with adverbials, this type of reading comes up as the largest majority in the corpus-driven results. Posterior elements-- particularly herein the case of adverbials-- of the intransitive verb *live* appear to be obligatory, and zero elements occurring postverbally are statistically insubstantial from the corpus. This comes to function as corpus-based evidence that is in conflict with Biber *et al.*, (2002)'s definition of an intransitive verb, which says "intransitive verbs occur with no obligatory elements following the verb." One of the specific results of posterior elements from one intransitive verb is attempted to shed compelling light on the properties of its syntactic behaviors with reference to its ability to command adverbials and to recapture, if not revisit, its dictionary senses with the intent to obtain finer-grained information about its usages and to keep pace with ever-changing intransitive verb usages in English.



Posterior adverbials of the unergative *live* are required owing to pragmatic constraints because they become an integral part of the meaning of the verb, as in (22).

- (22) a. Approximately a million Palestinian refugees *live in Syria and Lebanon*.
 b. #Approximately a million Palestinian refugees *live*.

When the posterior PP is stripped off from (22a), resulting in (22b), it is spontaneous for the hearer in his/her right mind to interpret that there are more or less a million refugees whose nationality is Palestinian, and they are still alive, which is taken to be diametrically different from (22a). However, this is said to violate Gricean maxim of quantity and Horn's R-principle since, in a neutral, the speaker of (22a) appears to be uninformative and says less than required, thereby rendering (22b) *infelicitous*. By saying "*There are approximately a million Palestinian refugees*," it would make more sense because new information is presented to the hearer. But the prominent stress the verb *live* in (22b) can rescue the infelicity.

The co-occurring of the unergative *live* and posterior elements can also be accounted for on the semantic basis. Posterior adverbial PPs denoting a duration when added to the unergative *live* can cause a shift in eventuality, that is to say, the *for*-phrase as a posterior adverbial PP of *live* results in a telic effect, thus making the event denoted by the verb bounded.

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