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For my son Adam

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List of abbreviations

AP	Adjective Phrase
BC	Blocking Category
BNC	British National Corpus
BNP	Binominal Noun Phrase
CG	Cognitive Grammar
CP	Complementizer Phrase
COCA	Corpus of Contemporary American English
DP	Determiner Phrase
IP	Inflection Phrase
GG	Generative Grammar

IS	Immediate Scope
lm	Landmark
L-marked	Lexically marked
MP	Modifier Phrase
MS	Maximal Scope
NP	Noun Phrase
PP	Prepositional Phrase
QP	Quantifier Phrase
R	Reference
S	Sentence
tr	Trajector
VP	Verb Phrase

Introduction

The aim of this study is to investigate cognitive factors that license the occurrence of complements away from their nominal and verbal heads. Previous studies have investigated the so-called syntactic alternations, where heads and their complements have the luxury to be adjacent or remote from each other without producing ungrammatical constructions; that is to say, where syntactic alternations are possible and where the decisive factors are, for instance, syntactic *complexity* or pragmatic factors such as *new* and *given* information (cf. Hawkins 1994; Guéron 1980). This will not be the topic of this study. Instead, this study focuses on cases where the occurrence of complements away from their heads yields ungrammatical constructions due to a violation of syntactic or syntactic-semantic constraints. These complements include PPs, complement NPs embedded within complement PPs, and infinitival clauses. Three types of dislocation will be analyzed: *of*-phrases that are separated from their nominal head through intervening PPs and VPs, complement NPs within complement PPs that occur in the topic position of questions, and infinitival clauses that occur in the topic position of sentences. The examples below illustrate the three types of dislocation, respectively:

(1) **a student came to see me* [*of physics*] (Radford 1988: 191)
(2) **What did you hear those jokes about?*(Davies and Dubinsky 2003: 23)
(3) **To annoy his mother he tried* (Langacker 2008: 204)

In the generative literature, such dislocations are referred to respectively as *extraposition*, *wh-extraction* and *topicalization* and are assumed to involve constituent movement (Chomsky 1986; Haegeman and Guéron1999; Radford 1988; Akmajian 1975).

A cognitive account of these phenomena seeks to provide some evidence that would add to the body of literature which demonstrates that syntax is in fact *not* autonomous. For this purpose, the study reviews a range of constraints on *syntactic movement* grounded in the theory of Generative Grammar. Then, the study analyzes the extent to which these studies are able to account for the aforementioned syntactic phenomena, on the basis of examples of written and spoken texts from two corpora of the English language: the *British National Corpus* (BNC) and the *Corpus of Contemporary American English* (COCA).

For some generative linguists, the possibility of a particular constituent to move to a position in a phrase or a sentence that is distant from its head is governed by syntactic constraints (Radford 1988; Chomsky 1986; Akmajian 1975), whereas others include semantic factors as well (Davies and Dubinsky 2003). Based on syntactic constraints on *movement*, generative linguists claim that they can distinguish between constituents that function as complements and those that function as modifiers (e.g. through *extraposition* and *wh-extraction*). The syntactic definition of complements and modifiers will be explored to find out whether syntax is independent in the production and processing of complements and modifiers or whether it is influenced by cognitive factors.

The constructions discussed in this paper are partly a combination of examples provided in the literature and examples collected from corpora. The aim is to find out whether the examples used in the literature review by generative linguists to argue for the ungrammaticality/ unacceptability of certain constructions and that have been regarded as ungrammatical/ unacceptable can perhaps still be found in the two corpora. Obviously, the absence of such examples from these corpora cannot be interpreted as a further evidence of their ungrammaticality/ unacceptability, but their presence, however, would falsify their hypotheses. Additionally, I have devised other examples based on the cognitive patterns inferred from the literature review. The resulting set of constructions is further tested by having twenty-seven native speakers of English rate them in terms of their grammaticality/ acceptability.

This paper is comprised of seven chapters. Chapter 1 offers a brief overview of the basic assumptions of Generative Grammar and Cognitive Grammar as well as relevant concepts and terminology that will be used to discuss constraints on word order (e.g. ***barriers*** and ***cycles*** in Generative Grammar, and ***levels of specificity*** and ***construal*** in Cognitive Grammar). Chapter 2 compares the similarities and differences between the two theories in their definition of *headedness* and their distinction between *complements* and *modifiers*. Furthermore, a brief outline is provided of the shortcomings of the syntactic tests that have been offered in the generative literature to distinguish between complements and modifiers. This distinction is discussed in more details in chapter 3. Additionally, this chapter presents and compares the analyses that the two theories provide of the three forms of constituent displacement, namely *extraposition*, *extraction* and *topicalization*, and discusses

the observed inadequacy of syntactic criteria in predicting the positions where constituents may or may not occur in a given construction.

Chapter 4 provides an outline of the research design. It starts with a description of the process of data collection and moves on to explain how quantitative data (i.e. respondents' ratings) are calculated and analyzed in terms of the notion of *central tendency*. Additionally, the visual representation of the analyzed data is provided. The chapter offers also a rationale for the data collection method as well as the means of calculation and analysis of the ratings.

Chapter 5 presents respondents' rating of each construction in terms of central tendency (i.e. the mean and the mode) as well as the visualization of the ratings in the form of histograms. The goal is to see how convergent or divergent respondents' grammaticality judgment is. Chapter 6 is a discussion of the findings based on the theoretical inferences made in chapters 1, 2 and 3. It is also an opportunity to discuss any unexpected results and the implications they might have for the theoretical part. Finally, chapter 7 summarizes the findings of this paper and the implications they have for grammatical theory.

1. Dimensions of imagery and the symbolic nature of language in CG

1.1. The development of CG as a reaction to GG

Generative Grammar (henceforth GG) was developed by Noam Chomsky in the late 1950s as a critique of behaviorism. Behaviorists claimed that the study of cognitive or psychological phenomena is unscientific. Thus, the scientist's focus should be rather on observable facts, as in the relationship between *stimulus* and *response*. The study of social or cognitive phenomena shows that one can observe that a particular event A (i.e. the stimulus) triggers event B (i.e. the response).According to behaviorists, speculations about the psychological mechanisms underlying stimulus and response are to be avoided by social scientists, including linguists (cf. Skinner 1957; Watson 1924).

Chomsky (1959) rejected the behaviorist idea that linguistic behavior is a matter of stimulus and response because the linguistic data that children are exposed to are not sufficient enough to infer grammatical rules. As a result, children would not be able to distinguish between sentences and non-sentences or comprehend new sentences. He suggested instead that humans share an innate grammatical knowledge that helps us acquire language; he refers to this kind of knowledge as *universal grammar*. The language environment only shapes the language we ultimately acquire (Chomsky 1986b). Chomsky's approach to the study of language is cognitive, although he does not describe it as *cognitive*. But like cognitive linguists, Chomsky and other generative linguists are interested in the psychological/ cognitive foundations of language. So what is the difference between GG and Cognitive Grammar (henceforth CG)?

CG was developed by Ronald Langacker in the mid 1970s as a reaction to Chomsky's GG, which considers syntax to be *autonomous* in generating the structures of language. Langacker does not agree with Chomsky's assertion that "grammar is best formulated as a self-contained study **independent of semantics**" (Chomsky 1957: 106) [emphasis added]. Instead, Langacker (1987: 1) insists on "the inseparability of syntax and semantics" given that meaning is "what language is all about" (Langacker 1987: 12).

CG defines *meaning* as "a conceptual phenomenon (based on cognitive processing)". The meaning of an expression is not reduced to "truth conditions, objective characteristics of the

situation described, or even conceptual content". Meaning is formed by the various ways this content is "structured and portrayed for linguistic purposes" (Langacker 1989: 65). Langacker uses the term *imagery* to refer to our ability to "construe a conceived situation in alternate ways". He claims that linguistic units, both *lexical* items and *grammatical* elements, embody a particular way of *structuring* and *construing* conceptual content, which is essential to the semantic value of linguistic units. This is referred to as *conventional imagery*. Langacker distinguishes various dimensions of imagery, including the level of specificity at which a situation is described, the perspective from which it is viewed, and the relative prominence imposed on its substructures. Before we delve into CG's claim about ***the*** *symbolic nature of language* as an alternative to GG's *autonomy of syntax thesis*, five dimensions of imagery and the concepts they entail will be presented. Then, we will explore the impact of the symbolic alternative on CG's definition of *headedness* and its distinction between *complements* and *modifiers* and compare these concepts with those employed in the generative account.

1.2. Dimensions of imagery in CG

1.2.1. The profile

The first dimension of imagery is the ***profile*** (Langacker 1990: 5). An essential concept in understanding this dimension is ***domain***. According to Langacker (1987: 147), domains are cognitive entities constituted by mental experiences, representational spaces, concepts, or conceptual complexes. Domains are divided into two types: ***basic*** and ***non-basic*** domains.

A basic domain is "cognitively irreducible, neither derivable from nor analyzable into other conceptions". Examples of basic domains are *space*, *time*, *color space*, *pitch*, *temperature*, *taste* and *smell*. Basic domains are "not concepts or conceptualizations". Rather, they are "realms of experiential potential, within which conceptualization can occur and specific concepts can emerge". For example, the color space represents the range of possible color sensations; this is not the same as "any particular color experience on a particular occasion (a kind of conceptualization), nor is it a color concept (e.g. RED)". Instead, the color space and other basic domains are "the spatial and temporal extensionality in which configurations are manifested and change unfolds" (Langacker 2008: 45).

Non-basic domains include immediate sensory, emotive, and motor/kinesthetic experience such as the sensation of wetness, of being afraid, or of blowing up a balloon, and also the products of intellectual processes like JUSTICE and BATTING AVERAGE. Non-basic domains include also elaborate scenarios that "we can only conceptualize stage by stage through processing time" as in the case of the successive steps involved in a complicated recipe (Langacker 2008: 45). Langacker notes that it is not required that non-basic domains "be fixed, established or conventionally recognized". Interestingly, understanding the ***situational context*** "qualifies as a cognitive domain" (Langacker 2008: 45).

Non-basic domains vary in terms of conceptual complexity. They run the gamut from minimal concepts (e.g. RED), to more elaborate conceptions (e.g. the configuration of the human body), to an entire system of knowledge (e.g. everything we know about baseball) (Langacker 2008: 45). Non-basic domains arrange themselves hierarchically because the characterization of a conception at a particular level presupposes and incorporates one or more lower level-conceptions. Thus, the concept APPLE incorporates RED, NECK invokes the overall body, and BATTING AVERAGE presupposes some knowledge of arithmetic and baseball. Because a particular conception presupposes another for its characterization, it is argued that they occupy higher and lower ***levels of conceptual organization***.

Langacker (2008: 47) refers to the set of domains invoked by an expression as a conceptual ***matrix***. When multiple domains are involved, the matrix is considered ***complex***. Listing the domains that constitute an expression's matrix is not enough for its characterization. An equally important dimension of linguistic meaning is how these domains relate to each other and how they are mentally accessed. For instance, an expression such as ***glass*** invokes many cognitive domains: space (a basic domain), shape (a non-basic domain that presupposes space for its conception), typical orientation in space, primary function (container for liquid), secondary function (role in the process of drinking), material, size etc. Langacker (1990: 4) observes that these domains are ***not equally central***. That is to say, they differ in terms of "the likelihood of their activation **on a given occasion** of the expression's use" [emphasis added]. Certain domains are so central in the case of a particular expression that we can hardly use it "without evoking them, some are activated less consistently, and others are so peripheral that we invoke them only in special circumstances when they happen to be relevant" (Langacker 2008: 48) ". Thus, the ***relative centrality*** of constitutive domains is

considered to be a "facet of linguistic meaning" that is crucial for the characterization of lexical items (Langacker 2008: 48).In a similar vein, Croft (2006: 282) observes how the predicate *heavy* makes the physical object domain, which is one of the domains that characterize the noun *book*, more central (e.g. *This book is heavy*), whereas the content domain is invoked more prominently when *book* is ***combined with*** the predicate *be a history of Iraq* (e.g. *This book is a history of Iraq*). This is referred to as ***domain highlighting***.

The way an expression gives access to a set of domains preferentially, *without the intervention of context*, which results in activating some more strongly than others, is part of the expression's *conventional* semantic value. Notice that the semantic contrast between two expressions such as ***knife*** and ***dagger*** is not a matter of the inventory of accessible domains but of their degree of accessibility. In other words, even though both can be used for stabbing, this function is much more central to the meaning of ***dagger***. Another example is the semantic contrast between ***snail*** and ***escargot***. Although we know that they both refer to the same creature, and that this creature can be cooked and eaten (based on our encyclopedic knowledge of snails), how they rank their constitutive domains (i.e. their degree of centrality) produces the semantic contrast. In the case of escargot, the domain of fancy cuisine is quite central making it more accessible than other domains such as garden pests. In the case of snail, the domain of fancy cuisine is "peripheral but fairly accessible". As a result, it is natural to say *The snails were delicious*, but saying **My garden is crawling with escargots* would sound unusual (Langacker 2008: 48-49).

Because of the preferential access given by an expression to particular domains, it is considered to incorporate "conventional ways of accessing a certain range of encyclopedic knowledge" (Langacker 2008: 49). Nevertheless, a lexical meaning is not completely fixed or invariable due to the fact that the degree of domain centrality is continuously altered by context and use. Contextual factors are capable of focusing one's attention on a domain that is inaccessible or receives a lower level of activation. As a consequence, the activation level of an otherwise salient (i.e. central) domain is decreased. For example, recall that two of the central domains evoked by the expression *glass* are its shape and material; however, in the sentence *Plastic wine glasses are hard to wash*, the expressions *wine* and *plastic* overshadow the conventional specifications with respect to shape and material. Furthermore, the collocation of *wine* and *plastic* with the expression glass "occurs so commonly these days

that the default status of these specifications may well be diminished". Thus, usage can either reinforce the centrality/ activation of particular domains or adjust it (Langacker 2008: 50).

Langacker (1999: 17) also notes the important role of *contextual meaning* in assigning *conventional meaning* to linguistic expressions. Through repeated occurrence of an expression's contextual meaning with some degree of schematicity, this meaning becomes conventional and achieves the status of a ***unit*** (Langacker 1987: 158). By way of illustration, for speakers of English, the meaning of the composite expression ***pencil sharpener*** is more specific than the meaning derived from its component structures (i.e. its compositional meaning). In Langacker's words "a pencil sharpener is not simply 'something that sharpens pencils'" (Langacker1999: 17). In other words, the thing being referred to is associated with a prototypical object whose characterization involves specific domains related to the material the object is made of, its size, shape etc. Before becoming conventional, the contextual meaning had to occur repeatedly.

An example of a more complex expression is *The cat is on the mat*. Langacker (1987: 158) argues that in a context where someone is watching a wrestler defeat a tiger in a fight, it is easier to "**interpret** this sentence as meaning that the wrestler is pinning his adversary" [emphasis added]. Again, as in the case of *pencil sharpener*, this interpretation is more specific than the one provided by the lexical items, "singly or in combination". Langacker imagines a situation where this contextual meaning would become conventional, hence a unit. In this imaginary case, the sport of tiger-wrestling becomes popular and sports commentators start using the expression *The cat is on the mat* as a cliché to describe the wrestler's victory over the tiger. Thus, this expression becomes a conventional unit of English, which refers semantically to "an act of tiger-pinning in the overall context of a tiger-wrestling event" (Langacker 1987: 158).

Now that the concept of ***domains*** has been laid out, the first dimension of imagery, a ***profile***, can be presented. A profile is "a substructure elevated to a special level of prominence within the base". The base of an expression refers to its domain or each domain within a complex matrix. The substructure that becomes prominent through profiling is what the

expression ***designates*** (Langacker 1990: 5). The substructure is ***singled out*** "as a kind of focus of attention" (Langacker 2009: 7).

An expression can profile either a ***thing*** or a ***relationship***. According to Langacker (1987: 189), a thing is a region in some domain; every nominal predication designates a region. An expression that profiles a thing can also invoke a relationship that constitutes its conceptual content. For example, the expression *aunt* invokes the kinship relation between a female and a reference individual, R (e.g. *John's aunt*). This is illustrated in Figure 1:

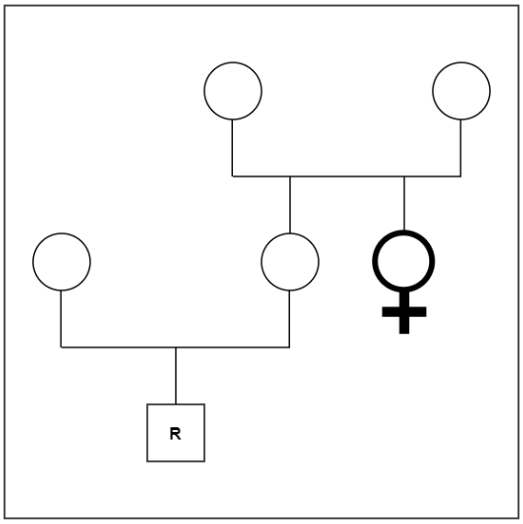

Figure 1. aunt (Langacker 2008: 67)

This relationship is considered central to the characterization of *aunt*. *Aunt* evokes this relation, but it does *not* profile it. The relationship is not marked in bold in Figure 1 so as to reflect the fact that it remains in the background. What *aunt* profiles is the female that the expression serves to identify. In other words, its referent is a person, not a relationship. The profiled person is marked in bold in Figure 1 (Langacker 2008: 67).

The same holds true for the expressions ***parent*** and ***child***. They both profile a person, not a relationship, but they do invoke a nuclear kin relation that constitutes their base. Their semantic contrast resides in imposing different profiles on this common base, such that when *parent* is profiled, *child* plays the role of a reference individual (R) as illustrated in Figure 2a. Conversely, when *child* is profiled, *parent* plays the role of R as shown in Figure 2b.

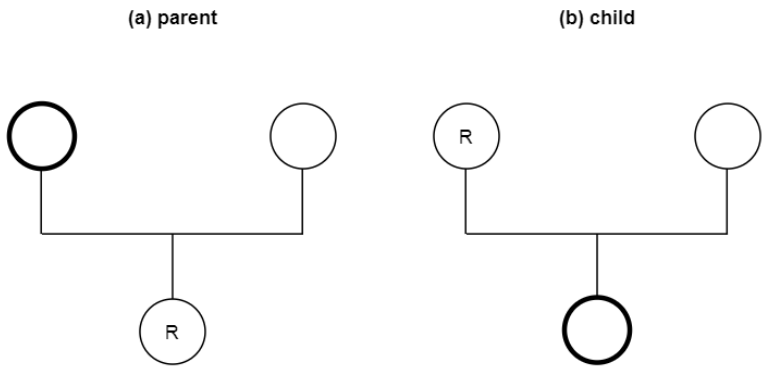

Figure 2. parent/ child (Langacker 2008: 68)

The relationship between parent and child can be profiled, however, through the composite expressions *have a parent* and *have a child*. They both profile the same relationship, which is viewed as a stable situation continuing through time (Langacker 2008: 68). Their semantic contrast emanates from their opposite ***trajector* (tr)**/ ***landmark* (lm)** alignments. Langacker (2008: 72) defines trajector and landmark in terms of primary and secondary ***focal prominence***. In the case of *have a parent*, a child is being described. *Child* occupies the trajector position as it receives primary focal prominence (Figure 3a). The opposite holds for *have a child* (Figure 3a).

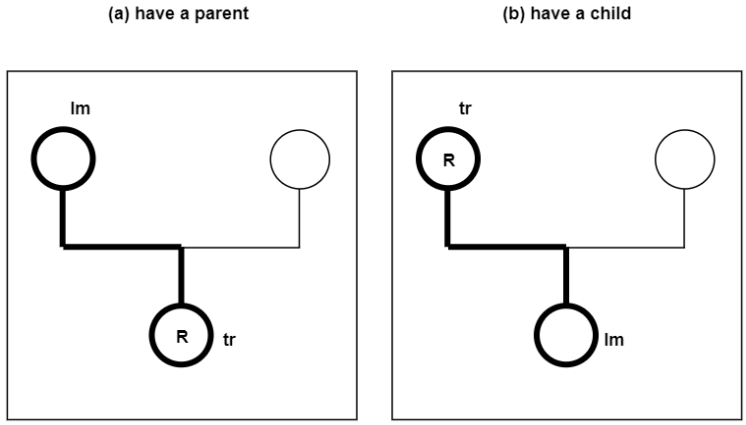

Figure 3. have a parent/ have a child (Langacker 2008: 68)

Adjectives also profile relationships because they involve a trajector and a landmark. For example, the adjective *red* has a thing for both its trajector and landmark (the landmark being the area in color space which is designated by the nominal *red*), but this landmark is not expressed (Langacker 1987: 219).

As it was mentioned above, in addition to things, expressions in CG profile relations. They are divided into ***process*** and ***non-processual*** types. A process relation develops through

time. Therefore, there is a focus on its temporal evolution. Finite verbs profile this type. A verb is said to profile a relation because it also involves a trajector and a landmark. Sometimes a verb may prefigure a ***secondary landmark***. Evans (2007: 190) defines the secondary landmark as ***the least salient participant*** in a relationship that has two landmarks. In Langacker's terms (2008: 72), the participant with ***the least focal prominence***. For example in *Max kicked the ball towards the goal*, *the ball* is the primary landmark and *the goal* is the secondary one (Evans 2007: 190). In the sentence *I will give these books to my brother*, Langacker (2008: 393) considers the noun *these books* to be the primary landmark and the PP *to my brother* the secondary landmark.

A relationship is said to be non-processual when its evolution through time is "not essential to its characterization or recognition" although it may last for a long time. For example, in *She is sitting **on** the roof*, the preposition *on* describes a single configuration through time. Non-processual relationships are also designated by adjectives, adverbs, infinitives and participles (Langacker 2008: 99-100). Adverbs, adjectives and prepositions differ in terms of the nature of their trajector and what they give focal prominence to. For instance, adverbs designate a relationship where the trajector is a relationship (e.g *work **fast***), whereas in the case of adjectives the trajector is a thing (e.g ***fast** worker*). Therefore, an adverb focuses on the designated process, while an adjective gives more prominence to the thing (i.e. the *actor* in the case of *worker*). With regard to prepositions either a relationship or a thing can function as a trajector. The same preposition can have an adjectival use (e.g. ***the last weekend** in August*) and an adverbial use (e.g. ***They got married** in August*) depending on whether the trajector is a thing or a relation. Prepositions also differ from adjectives and adverbs in that they give *secondary focal prominence* to a thing (i.e. a landmark). This landmark is explicitly mentioned through a prepositional object (e.g. *in **August**, under **the bed**, with **a screwdriver***) (Langacker 2008: 116-117).

1.2.2. The level of specificity

The second dimension of imagery is the ***level of specificity*** whereby a situation is construed. The same situation can be described with varying levels of specificity:

(4) a. *That player is tall.*

b. *That defensive player is over 6' tall.*

c. *That line backer is about 6' 5'' tall.*

d. *That middle linebacker is precisely 6' 5'' tall* (Langacker 1990: 7).

Each of the sentences above is considered to be schematic for the one that follows insofar as it elaborates the specifications of the preceding sentence and narrows down its values. The level of specificity applies also to lexical items. For example, Langacker (2008: 17) argues that *ring* has a basic sense, that is a "circular piece of jewelry worn on the finger". This sense is ***schematic*** in comparison to *specific rings* in *specific contexts*. This means that the rings will vary in size, material, identity of the wearer and so on, depending on the context where they are mentioned. Langacker adds that *ring* can be made ***more schematic*** given that it can be worn on other parts of the body than fingers. Thus, a more schematic value would be a "circular adornment worn on the body" (Langacker 2008: 17). Langacker considers the phrase a "circular piece of jewelry worn on the finger" to be an elaboration or specific ***instantiation*** of *ring*.

Another example of schematicity and elaboration is what Langacker (1987: 61) refers to as the ***type*** (*mammal*), the ***subtype*** (*cat*) and the ***instance*** (*Metathesis*). The relations between type/ subtype and subtype/ instance specify a thing with more precision/ specificity. The difference between the two relations is more evident when we consider the extreme diversity underlying subtypes of a type (e.g. *cat*, *human*, *whale* being subtypes of *mammal*) in comparison to a type and its instance (e.g. *dog* and *Fido*). Additionally, instances of a type stand for distinct individuals rather than open-ended classes, and they bear more similarity to one another than do subtypes (e.g. *Fido* and *Rover* compared to a *dog* and a *whale*) (Langacker 1987: 61).

In conceptual terms, instances of a type are thought of as occupying a particular location in a central domain; hence, when we imagine two rocks, we conceptualize them as being in two different locations. This domain is referred to as the ***domain of instantiation***(Langacker 2008: 134); in the case of *events*, the domain of instantiation is time, but in the case of *material substance/ things* it is commonly space that serves as a domain of instantiation (Langacker 1987: 56; Langacker 2009: 86; Achard 1998: 48).

A type conception differs in that it is schematic in comparison to its instances, and it "abstracts away from the notion of being anchored to a particular location" (Langacker 2009:

86). The specification of the relation between the type and subtype is referred to as ***elaboration***, whereas the specification of the relation between the subtype and instance is termed ***instantiation*** (Langacker 1987: 61). However, Langacker observes that the semantic value of an instance of a city, such as *New York*, evokes more specific information including relative size, geographical location, economic importance, and so on. Thus, the instantiation provided by the instance conception is just one of the many ways whereby the type conception is elaborated (Langacker 1987: 61).

To reiterate, *Fido* is an instance of the subtype *dog*, and it is a proper name like Joyce Jones, Norway etc. A proper name implies a type specification (i.e. human female, pet dog, nation) and is "construed as designating a single instance of that type". Furthermore, a name is definite and hence grounded (Langacker 1987: 148). ***Grounding*** refers to a form of conceptual organization that serves to qualify an expression as a nominal or a finite clause (Langacker 2008: 272). Grounding specifies the epistemic status of a thing or a process in relation to the ***ground*** (i.e. the speech event and its participants). By means of grounding, the speaker and hearer are able to "coordinate their mental reference to things and events in a discourse" (Langacker 2009: 86). Grounding elements are analyzed as profiling "a thing characterized only schematically". They put this thing "onstage as focus of attention within the immediate scope" (or IS for brevity) (Langacker 2008: 275). In other words, the profiled thing is semantically schematic but contextually specific (i.e. the ground shared by the speaker and hearer limits the candidate(s) that represent(s) the schematic thing).[1] Because a noun profiles a thing, it elaborates the schematic type specification [THING] prefigured by the grounding elements. This is illustrated in Figure 4:[2]

[1] The type specification equivalent to [THING], which symbolizes semantically the noun-class schema (Langacker 1987: 59; Langacker 2008: 286)

[2] One concrete example provided by Langacker (2008: 508) where the noun elaborates the schematic type invoked by the grounding element is *Zelda's quilt*. Thus, he maintains that "*quilt* elaborates T to specify the type of the grounded instance" (T is an abbreviation of type). Also, the profiles of the specified type and the grounding element correspond because "neither stands out as profile determinant".

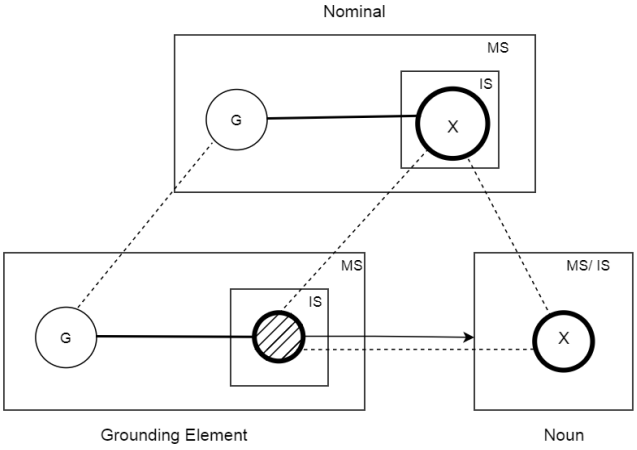

Figure 4. The noun X elaborates the schematic thing prefigured by the grounding element G (Langacker 2008: 276)

As the figure shows, when a grounding element is combined with a noun "the schematic and specific things profiled by the two component structures" are identified (Langacker 2008: 275). As a result, at the composite structure level, the schematic type within the grounding element, represented by the striped circle, is elaborated by the semantic properties of the noun. The grounding element reduces the scope of the noun from maximal scope (MS) (i.e. the type profiled by the noun) to IS (i.e. the singled out instance of the type).The result is a grounded entity, a nominal, which instantiates the type (Langacker 2008: 275).

Grounding elements can be ***covert***, ***intrinsic***, ***indirect*** or ***overt***. Zero grounding (symbolized Ø) is an instance of covert grounding, which is frequent with English mass nouns (e.g. *They drank {the/ some/ Ø} beer*). Proper names, as it was discussed earlier, and personal pronouns (we, you, they etc) are examples of intrinsic grounding. The reason they do not need a separate grounding element is that their meanings "imply the identifiability of their referents" (Langacker 2008: 272).[3] Possessives are also used for grounding as in *Sheila's camera*. This type of grounding is considered indirect because of the indirect link between the profiled instance *camera* and the ground. To establish mental contact with the instance

[3]Langacker (2017: 324) concedes that proper names can be grounded such as in *Are you thé Hillary Clinton*? (the accent on the letter e stands for stress). He argues that this is possible when you meet somebody with this name and "there are multiple people, potentially, with the same name, but only one of them has the cultural salience to stand out as being unique".

of the camera, the intrinsic grounding element *Sheila* is used. Articles (the, a) and demonstratives (this, that, these, those) are instances of overt grounding elements.[4]

Grounding through indefinite articles selects an instance of the type specified by the head noun and indicates it was not previously accessible in discourse as the unique instance of this type (Langacker 2009: 74). The indefinite article does not always mean that the type instance is specific (Langacker 1991: 103). For example, in *Ollie hopes to marry a blonde* the indefinite article may have "a **specific** and a **non-specific** interpretation". It could be interpreted either as Ollie having a particular blonde in mind that he wishes to marry or not having a particular one. However, the insertion of *certain* induces the specific interpretation; saying *Ollie wants to marry a certain blonde* symbolizes the fact that "he must have a particular person in mind" (Langacker 1991: 103-104).

With regard to definite grounding elements, Langacker (2008: 286) considers demonstratives with pointing as *the strongest form of specifying a* ***type instance*** and the definite article *the* as *the weakest form* because it cannot "point, either physically or through the proximal/ distal distinction". It relies rather on the fact that its referent is "the only evident instance of the specified type" in the current discourse context/ space.[5]However, in the absence of contextual support, *the* can also have a non-specific interpretation, just like the indefinite articles. For example, in *The/ A spider has eight legs* the definite article or the indefinite article is used to refer to spiders in general. The reason is that any specific instantiation of a class invokes the whole class. This is referred to as ***specific for generic metonymy***. This metonymic relationship is clear in our interpretation of proverbs. The proverb *Blind blames the ditch* describes a specific situation, but at the same time it communicates a general understanding (Radden and Kövecses 1999: 34). Langacker (2008: 328) observes also in the following example the referential weakness of the definite article which is compensated by a restrictive relative clause:

(5) *The candidate who really deserves to win ran a positive campaign*.

[4]Grounding elements include also certain quantifiers (e.g. all, most, some, no, every, each, any). They specify an instance with reference to a more inclusive class (Langacker 2008: 272; Langacker 1987: 96).

[5]Langacker (2008: 59) defines current discourse space as "a mental space comprising everything presumed to be shared by the speaker and hearer as basis for discourse at a given moment".

The restrictive relative clause "serves to limit the pool of eligible candidates, restricting it to a subset of the basic type's maximal extension - the specified property (i.e. really deserving to win) limits the pool to a single candidate, as required by the definite article" (Langacker 2008: 328). By contrast, the information supplied by a non-restrictive relative clause fails to do that. Here is an example:

(6) *The candidate, who really deserves to win, ran a positive campaign*.

In this case, the specified instance of *candidate* is "contextually identified independently of deserving to win (rather than on the basis of that property)" (Langacker 2008: 328). The distinction between these two types of relative clauses resides in the fact that restrictive relative clauses are construed as being part of the specified instance, whereas the non-restrictive ones are construed as being external to it (Langacker 2008: 328; Deane 1992: 104-105). The external and internal distinction is supported by the pauses indicated by the ***comma intonation*** in the case of non-restrictive relatives. However, Langacker (2008: 328) observed that this ***structural difference*** is not enough to explain the semantic contrast. To prove his point, he shows that modifying adjectives, which like relative clauses can be used restrictively and non-restrictively, do not exhibit any difference in constituency. Consider the following examples:

(7) a. *In the cage she saw a big mouse and a tiny mouse. The tiny mouse was shaking*.

b. *In the cage she saw a mouse. The tiny mouse was shaking*.

The adjective *tiny* has the same meaning in both constructions whether it is used restrictively or non-restrictively, and so does the composite expression *tiny mouse*. The semantic contrast arises from "how this composite expression is integrated with the definite article at a higher level of grammatical organization". What the article does is that it "profiles an instance of some type and indicates its discourse status", but does not answer the question, "which type?". The schematic type prefigured by the definite article is represented in Figures 5 (a,b) by the circle in bold with dots inside:

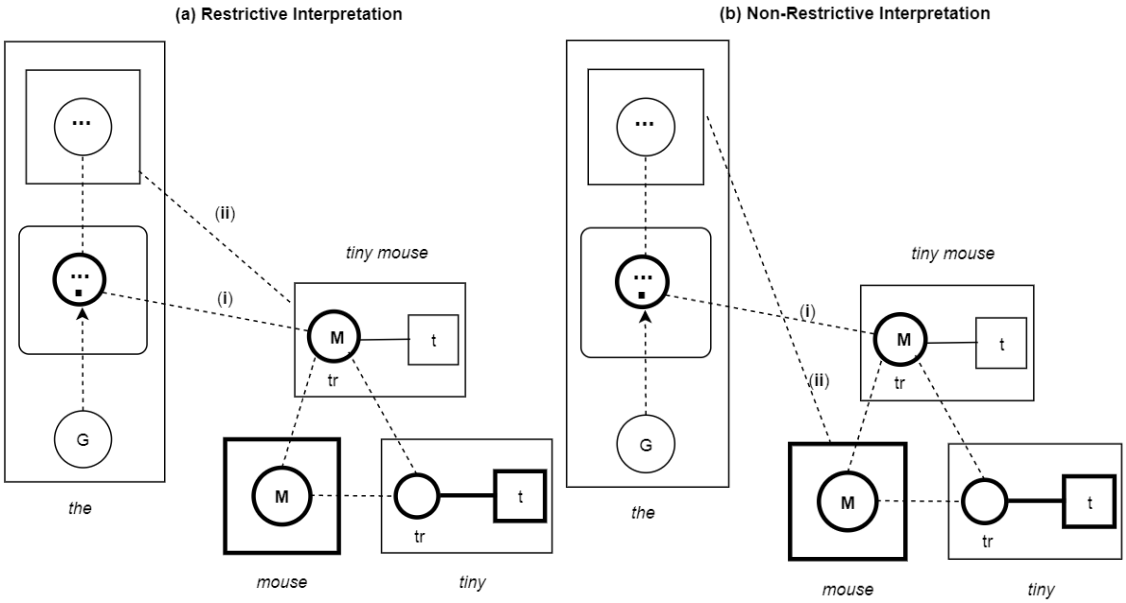

Figure 5. Restrictive and non-restrictive interpretation of tiny mouse (Langacker 2008: 329)

Tiny mouse incorporates two types of a thing; one is elaborated by *mouse* and the other one by *tiny mouse*. Whether this expression will have "a restrictive" or "a non-restrictive interpretation" is contingent on whether it is the specified type (i.e. mouse) or the more specific type (i.e. mouse that is tiny/ tiny mouse) that gets invoked in the higher level construction, within "the context of the discourse" (Langacker 2008: 328). Let us see how this works.

Like all grounding constructions, the integration of the definite article with *tiny mouse* requires a correspondence between their profiles; that is to say, the profiles of the grounding and the grounded structures. Through this basic correspondence (i), the specified type *mouse* in *tiny mouse* elaborates the schematic type invoked by the definite article. Note, however, that this correspondence exists in the restrictive and non-restrictive interpretations. The difference is in the second correspondence (ii). This latter is established between the article's schematic type and the more specific type "inherent in the grounded structure" (i.e. *tiny mouse*). This elaborates the article's schematic type more narrowly. The result is a restrictive interpretation because "the adjectival property figures in the referent's identification". By contrast, in the non-restrictive reading, the article's schematic type is elaborated by the less specific type only (i.e. mouse) since "the adjectival property does not figure in the grounding". This is represented in Figure 5b by correspondence (ii) established between the schematic type that requires more specific elaboration and the noun *mouse*, instead of *tiny mouse* (Langacker 2008: 340).

In contrast to the definite article, if there is more than one candidate, demonstratives are used to point to the intended referent. Thus, demonstratives are tolerant of multiple instances of a type in the current discourse space, whereas the definite article "lacks such tolerance precisely because it is more schematic semantically and cannot be used for pointing"(Langacker 1991: 103). This is evident in the fact that, unlike demonstratives, the definite article cannot stand alone as a nominal (e.g. *I like {this/ *the}*). The difference in the degree of specificity resides in demonstratives "incorporating the meaning of *the* together with certain gestural components, which permit the selection of the intended referent from multiple instances" of the type (Langacker 1987: 103).

When demonstratives are not accompanied by physical pointing, the target does not need to be physically present. If it has been mentioned in the prior discourse, it is often present only mentally. In this case, demonstratives are said to have an ***anaphoric*** use. Like anaphoric pronouns, demonstratives "refer back to something previously mentioned" (Langacker 2008: 284). Here is an example:

(8) *We've started **a major research project**. The goal of **this project** is to prove the existence of phlogiston*.

Here, the listener is not asked to locate a new discourse referent. Instead, he or she is "merely instructed to redirect attention to one already singled out, in a prior episode of nominal grounding" (Langacker 2008: 284). [6]

Specificity and schematicity underlie verbs too. For example, the predicate *break* makes schematic reference to two central participants (i.e. a trajector and a landmark). *Break* can be combined with *the cup*, for instance, through a correspondence between the second participant (i.e. the landmark) and the entity profiled by *the cup* which serves to specify it (Langacker 1990: 7). However, participants do not require to be always stated explicitly. Consider the examples in (9a-c):

(9) a. *David read a new book*.

b. *David is reading*.

[6]Beside the deictic (i.e. gestural) and anaphoric uses of demonstratives, there is yet another use that symbolizes shared knowledge when the referent is *not* in the context. The referent appears only in the joint memory of the speaker and the hearer (e.g. *My friend didn't like that when I was playing with that at his party*) (West 2014: 27).

c. *The best way to learn is to read* (Langacker 1990: 10).

In these examples, the verb *read* has a trajector and a landmark in all sentences, although only the first sentence mentions both explicitly.

1.2.3. The scope

The third dimension of imagery is the ***scope*** of an expression. The scope of an expression is "the extent of its coverage in relevant domains". It is not always delineated or overtly mentioned, but it has significant semantic and structural implications. The body functions as the domain and immediate scope of predication for the characterization of terms like *head*, *arm*, and leg. These latter function also as an immediate scope of predication for other body-part terms on a smaller scale; for example *hand*, *elbow* and *forearm* in the case of arm. *Hand* provides in turn an immediate scope of predication for *palm*, *thumb* and *finger*, and so does *finger* for *knuckle*, *fingertip*, and *fingernail*. Scope has an ***impact on structure*** as the following examples display:

(10) a. *A finger has 3 knuckles and 1 nail*.

b. ??*An arm has 14 knuckles and 1 nail*.

c. ???*a body has 56 knuckles and 1 nail*.

Thus, only when the subject designates the immediate scope predication for the object can the sentence be considered felicitous.

1.2.4. Relative salience

The fourth dimension of imagery is the ***relative salience*** of an expression's substructures. One factor that engenders salience is the special prominence that profiling provides, as we saw earlier in the case of *snail* and *escargot*. Other factors include the relative salience of relational participants. The way relational participants are presented is asymmetrical. This asymmetry is observable even with expressions that designate symmetrical relationships. For example, *X resembles Y* and *Y resembles X* are semantically distinct; the former describes X with reference to Y and the latter describes Y with reference to X. Also, *X is above Y* or *Y is below X* can be both used to describe exactly the same situation. In the former case, Y

functions as a point of reference (i.e. a kind of landmark) for locating X. The roles are reversed in the latter case (Langacker 1990: 9).

This inherent asymmetry is attributed to figure/ ground organization. A relational predication assigns one of its participants more focal prominence than the other. In other words, it achieves the status of ***figure*** (Langacker 1990: 9). Langacker (1991: 323) distinguishes between two types of figure: the primary figure which is equivalent to the trajector (i.e. the highest-ranking participant) and the secondary figure, which corresponds to the landmark. Langacker defines this latter as some entity that is "an especially salient facet of the ground", but which "stands out from the remainder of the ground". The hierarchy that Langacker suggests is as follows: *primary figure>secondary figure>ground*. Talmy (2000: 311) describes the cognitive functions of *figure* and *ground* in terms of the concepts that need to be anchored and the concepts that do the anchoring. The two concepts may represent two objects that share a spatial relationship (e.g. in an event of motion or location), and that the concepts are "represented by nominals in a single clause" as in *The bike is near the house* (Talmy 2000: 314). Additionally, the two concepts can be two events that share a temporal, causal or other type of situational relationship, and are "represented by the main and subordinate clauses of a complex sentence". For instance *He dreamed while he slept* (Talmy 2000: 324).

Action verb relations represent a prototypical case of the trajector/ landmark alignment because the trajector is "usually the initial or primary mover" (Langacker 1990: 10). However, this conceptual alignment is not restricted to motion. Rather, it applies to any relational expression.

1.2.5. Construal

The fifth dimension of imagery is ***construal*****,** that is our ability to construe the same situation in alternate ways (Langacker 1987: 138). This is the outcome of different and intricate ways of focusing attention on conceptual content (Evans and Green 2006: 536-537).The grammatical import of construal is reflected in Langacker's (2008: 95) remark that a *verb* and a *noun* can both refer to the same event and thereby invoke the same conceptual content; nevertheless, they differ semantically by virtue of how they construe the same event. More specifically, a verb such as *explode* is a reflection of the event's processual nature. By

contrast, the noun *explosion* "construes it as an abstract thing derived by conceptual reification"; that is to say, by our "conceptual capacity for construing events as abstract objects". *Explosion* is an example of deverbal nominalization that results from construing a an event through ***summary scanning***; in other words, viewing a situation, which incorporates many component states, holistically rather than mentally tracking the event as it "unfolds through time". This latter is referred to as ***sequential scanning***, and it is used in the case of finite verbs (Langacker 2008: 111-112). Thus, although the content is the same, the event can be construed either as a process or a non-processual relationship (Langacker 2008: 112).

Deverbal nominalizations are considered to have a process as their base, and like their concrete counterparts they can be bounded or unbounded (i.e. count/ mass-nouns). To put it differently, they can be construed either as a single episode that is bounded in time (e.g. *His first jump was impressive*) or generically because of not being bounded in time (e.g. *Jumping is good for the leg muscles*) (Langacker 1987: 207-208).By virtue of the conceptual contrast between process relationships and their nominalizations, they are assigned to different grammatical categories(i.e. a verb and a noun respectively) (Langacker 2008: 95).

Because of our ability to construe a particular situation in multiple ways and assign it a linguistic form accordingly, CG proclaims ***the symbolic nature of language***, which "extends beyond lexicon to grammar" (Langacker 1987: 12). Thus, beside lexical items, morphological and syntactic structures are themselves inherently symbolic. The symbolic nature of language is the focus of the next section.

1.3. The symbolic nature of language

Langacker (2008: 5) defines a ***symbol*** as "the pairing between a semantic structure and a phonological structure". For example, a simple lexical item like *skunk* is symbolic because it consists of the pairing between a *meaning* and a *phonological form* (i.e. a semantic and a phonological pole) - hence the *bipolar* nature of a symbolic structure.

To exemplify the symbolic relationship at the morphological level, let us consider the plural noun *walls*. At the phonological level, the two phonological poles are integrated by the suffixation of *-s* to *wall*. This process involves "the appropriate temporal sequencing, syllabic

organization, and minor phonetic adjustments". The suffixation of-*s* to *wall*, instead of some other noun stem, symbolizes that the plurality expressed by-*s* is related to the notion *wall* rather than something else designated by some other noun in the sentence. In other words, the symbolic association in this case does not hold specifically between a semantic and a phonological structure (i.e. as in the case of *skunk*); rather, the symbolic association symbolizes the relationships between the two semantic and phonological structures of the morphemes *wall* and *-s* (Langacker 1990: 24).

At the syntactic level, Langacker (2008: 213-214) shows how different groupings of the same words within a clause symbolize different conceptualizations. Consider the following sentences:

(11) a. ***The package*** [***that I was expecting***] *arrived*.

b. ***The package*** *arrived* [***that I was expecting***] [original emphasis].

The two clauses "represent natural conceptual groupings" (Langacker 2008: 213). When *the package* is integrated with *that I was expecting* in (11a), they symbolize a conceptual group because they both specify *the central clausal participant* (i.e. *the package*). By contrast, when *the package* is integrated first with *arrived* in (11b), and then with *that I was expecting* at a higher level of organization, the symbolic import of *the package* and *arrived* is that they both specify *the profiled event*.[7] Therefore, it depends on what is being primarily specified. Langacker (2008: 330) observes that what is in question here is "how the main clause (*the package arrived*) and the relative clause (*that I was expecting)* are **integrated**" [emphasis added]. He argues that *semantically*, the relative clause modifies *package*, "whose profile corresponds to its landmark". However, *grammatically*, the relative clause "combines with the main clause as a whole for which *the package* functions as one component structure". Among the reasons why this construction is non-canonical is "because the element elaborated usually corresponds to the elaborating structure's entire profile (not just a subpart)". Thus, in (11b) the landmark of the relative clause corresponds only to *package*. The two patterns of integration serve to symbolize what is being exactly specified; either an instance of a *package* or an instance of *arriving*. The two sentences are *semantically* identical but *conceptually* different (Langacker 2008: 214). Note that only one conceptual

[7] With regard to *integration*, Langacker (1999: 78) argues that it is "always effected by correspondences established between subparts of the component structures".

grouping can be symbolized at a time, the other one "remains implicit". (Langacker 2008: 214). For example, in (11b) *package* and *that I was expecting* form "a conceptual constituent"; however, according to Langacker (2008:341-342), this is an "unsymbolized constituent" because it "fails to be symbolized by any phonological grouping". As a result, the nominal and the relative clause do not form a grammatical constituent. The symbolic representation of these conceptual groupings will be discussed in more details in section 3.1 on *extraposition*.

There are, therefore, only *three* basic types of units in CG: *phonological*, *semantic* and *symbolic* units. Langacker (1990: 16) maintains that "grammatical morphemes, categories, and constructions all take the form of symbolic units, and that nothing else is required for the description of grammatical structure". Because all units of language are symbolic, there are no meaningless elements in language. This is contrary to GG, which posits the existence of semantically empty elements. For example, Chomsky (1986b: 192) analyzes the preposition *of* in (12b) as "a semantically empty Case-marker":

(12) a. *the* [*destruction* [*the city*]]

b. *the* [*destruction* [*of the city*]]

Chomsky (1986b: 192) argues that nouns have the same complement structure as verbs which is reflected in (12a). He continues that Case theory requires case-marking in structures such as (12a). One way to achieve this is to insert the preposition *of* whereby case is assigned to the object *the city*.

Langacker (1999: 76) takes a different stance towards the preposition *of*. He analyzed various constructions that contain this preposition and observed that it exhibits various uses and specific senses. Consider the following examples:

(13) *the {bottom/?label/?lid} of the jar*.

(14) a. *the chirping of birds*; *the consumption of alcohol*; *the destruction of the Iraqi army*

b. *a ring of gold; a book of matches; a man of integrity*

c. *the state of California, the crime of shoplifting; a distance of 10 miles*

d. *an acquaintance of Bill; the chief of this tribe; the father of the bride*

(Langacker 1999: 74-76)

The preposition *of* introduces a relationship between two entities in such a way that one of them represents "*an inherent and restricted subpart* of the other" (Langacker 1999: 74). This is considered to be its ***prototypical sense***(Langacker 1999: 77). This latter is represented in Figure 6a where the double line stands for an *intrinsic* relationship.

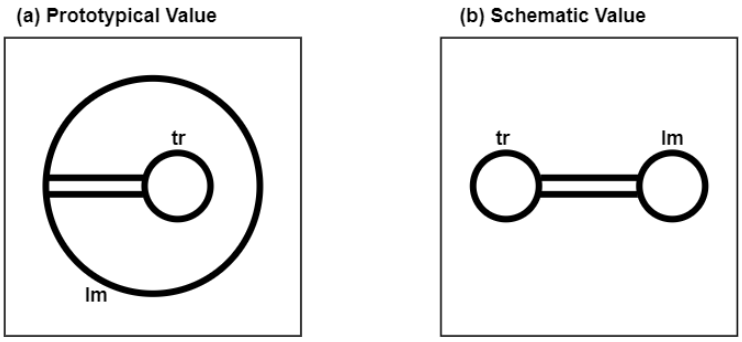

Figure 6. The prototypical and schematic values of the preposition *of* (Langacker 1999: 77)

The expression *the bottom of the jar* in example (13) fits this characterization because the *bottom* of a jar constitutes an inherent and restricted subpart of the jar. Conversely, *label* and *lid* are more extrinsic. Therefore, *bottom* is considered to be more felicitous in the context of example (13) (Langacker 1999: 74).

In (14a), the arguments of the nominalized verbs are introduced periphrastically through the preposition *of*. This serves to establish a relationship between an event and its participants. However, Langacker notes that the prototypical sense of the preposition cannot be extended to the event and its participants. The reason is that the participant, which corresponds to *of*'s object, is identified as the part, whereas the event represents the whole. Also, the prototypical relationship is "rather dubious" in (14b) and "clearly inappropriate" in (14c,d). Instead of the part-whole relation, in (14b), *of*'s object represents "the source material or an essential quality" of the head noun (i.e. *ring*, *book* and *man*). In (14c) the two entities related by the preposition *of* are considered to be the same. The head noun (e.g. *state*) is characterized schematically, whereas the prepositional object (*California*) serves to make it more specific. Finally, in (14d) the head noun is "merely associated" with the prepositional object (Langacker 1999: 76).

These various senses of the preposition *of* (i.e. part/ whole relationship, the source material of an object, identical entities, simple associations) led Langacker (1999: 76) to conclude that

it "must therefore be regarded as polysemous" (i.e. it has different meanings). Then, he wondered whether there is "a schematic value" that all its senses can possibly share. His answer was that they all designate "an intrinsic relationship of some kind between the two participants in the relationship". The intrinsic, though not necessarily part/ whole, relationship, that the preposition of can profile is sketched in Figure 6b.

In (14a), the arguments of the nominalized verbs are introduced periphrastically through the preposition *of*. This serves to establish a relationship between an event and its participants. Langacker (1999: 77) observes that although "participants may not, strictly speaking, be subparts of an event, they are clearly intrinsic to it" since they are "natural *reference points* for purposes of **conceiving** and **distinguishing** events" (Langacker 1999: 83-84) [original italics/ emphasis added]. In (14b), the material from which an entity is made is also essential qualities to it, compared to accidental ones. In (14c) it is hard to imagine an entity not being intrinsic to itself. In (14d), the heads in all the expressions are relational, although they profile a thing.[8] What makes a father qualify as a father is the relationship it bears to another referent entity, which is made specific by the landmark of this relationship. Therefore, it is argued that this relationship is "intrinsic to the head's characterization" (Langacker 1999: 77).

Consequently, CG rejects the claim that *of* is a purely grammatical element that is meaningless, and suggests instead that its meaning is "simply abstract" (Langacker 2008: 343). Langacker (1999: 77) juxtaposes the *schematic sense* of the preposition *of* with the sense of other prepositions, such as *under* and observes a difference in terms of the intrinsic and non-intrinsic relationships they profile. This leads us now to the discussion of headedness and complement/ modifier distinction as defined by CG and GG.

2. Heads, complements and modifiers in CG and GG

Langacker (2008: 193) observes that the ***profile determinant*** of a construction is "roughly equivalent to what is traditionally called a **head**" [original emphasis]. Within the framework of CG, the ***profile determinant*** is "the component structure whose profile is inherited at the

[8]Recall the example of *aunt*, which profiles a thing but evokes a relationship at the same time (see section 1.1).

composite structure level". This determines the grammatical category of the composite structure.

The adjective *smart*, for instance, profiles a non-processual relationship, whereas the noun *woman* profiles a thing. In the composite structure *smart woman*, the profile determinant is *woman* because "*smart woman* designates the woman, not the relationship of being smart" (Langacker 2009: 13). The next composite structure that can be integrated with *smart woman* is *with a PhD*. Before its integration, the preposition *with* has an elaborated landmark (i.e. *a PhD*) but a schematic trajector. The profile determinant of this structure is *with*, not *a PhD*, because the composite structure profiles a possessive relationship, not the academic degree. This relationship has a schematic trajector that corresponds to the profile of *smart woman*. This latter elaborates the trajector and "imposes its own profile on the higher-level composite structure" (Langacker 2009: 15). As a result, the overall construction designates the woman (i.e. *smart woman with a PhD*).

As Langacker has noted, the concept of profile determinant is similar to the generative definition of the head. In GG the head is defined as "a key word in the phrase whose nature determines the properties of the overall phrase". For example, the head in *students of philosophy* is *students*, not *philosophy* since the phrase "denotes kinds of students, not kinds of philosophy" (Radford 2004: 19).

However, as we have seen, in CG expressions can profile either a thing or a relation and are symbolic units that have a semantic and a phonological pole. It was shown that the semantic pole comprises more than the conceptual content of the expression because it is also about how that content is conceptualized. Thus, whereas *explode* and *explosion* invoke the same conceptual content they are conceptualized differently. *Explode* profiles a relationship symbolized phonologically and semantically as [EXPLODE/explode]. It was mentioned that processual relationships distinguish verbs from nouns, which profile a thing. Verbs are symbolized schematically as [PROCESS/...].By contrast, nouns be they concrete or abstract are symbolized by the schema [THING/ ...]. Therefore, *explosion* is an elaboration of the process schema and is symbolized as [EXPLOSION/ explosion].

We have also seen that in CG even *grounding elements* profile "a thing characterized only schematically", which they put "onstage as focus of attention within the immediate scope"

(Langacker 2008: 275). This is not the case in GG. Here, grounding elements are analyzed as functional elements because they do not add to the descriptive content of the expression. They are the opposite of lexical elements such as nouns and verbs because these do contribute to the content of the expression (Haegeman and Guéron 1999: 138). These different analyses have an impact on the head/ profile determinant distinction. To give an example, a determiner such as *the*, *this* and *that* is functional within GG because it is used to modify a noun, but "has no descriptive content on its own" (Radford 2004: 447). Thus, it is postulated that there is a functional projection beside the projection of the head noun (i.e. the Noun Phrase (NP). The functional projection is referred to as a Determiner Phrase (DP) headed by a determiner (D) (Haegeman and Guéron1999: 138). This culminates in two heads, a functional and a lexical one. Conversely, in GG the profiles of the grounding element and the noun *correspond*; therefore, neither stands out as a profile determinant (Langacker 2008: 275).

The distinction between complements and modifiers is acknowledged both in GG and CG. The difference resides in their definition of these concepts by resorting to autonomous syntactic constraints in the case of GG, or to cognitive constraints in CG.

In CG, the distinction between complements and modifiers is based on conceptual dependence:

> A complement is a component structure that **elaborates** a salient substructure of thehead. The head is thus dependent, and the complement is autonomous. Conversely, a modifier is a component structure that contains a salient substructure **elaborated by** the head. In this case the head is autonomous, and the modifier is dependent (Langacker 2008: 203) [original emphasis].

This definition can be related back to what has been discussed so far about the centrality of certain domains such as *kin relation* to the characterization of a particular entity like *father*, to the extent that they are naturally and readily evoked by this expression. This intrinsic relationship is profiled by the preposition *of* by virtue of its schematic value such as in *the father of the bride*. The integration of the expression *of the bride*, which specifies a relationship (i.e. an intrinsic/ kinship relation vis-à-vis the head) and a participant (i.e. *the father*), serves "merely to characterize in more specific detail notions that the head itself introduces in schematic terms" (Langacker 1999: 78). This is thought of as a ***scene*** that is evoked by the head, specified, but not expanded by the *of*-phrase. Conversely, the noun

bench does not evoke the relation *under the tree* in *the bench under the tree*. Instead, the relation "expands the scene to encompass new elements not prefigured by the head" (Langacker 1999: 78).

Based on CG's definition of complements and modifiers above, it is argued that *under the tree* in *bench under the tree* is a modifier of the head noun *bench*. The reason is that the head *bench* elaborates the trajector of the relation, which is a salient substructure of it (this is referred to ***as elaboration site*** or ***e-site*** for short). On the other hand, *the tree* is analyzed as a complement in *under the tree* since it elaborates the landmark of the prepositional head *under* (Langacker 1999: 80).

What about the relation *of the bride*? Does the definition of a modifier apply to it? Yes, it does. The reason is that "its schematic trajector is elaborated by the head" *father* (Langacker 1999: 80). In other words, the head is more specific than the *of*-phrase with respect to the kin-relation (Langacker 1999: 82). However, as it was previously noted, there is a grammatical difference insofar as the relation profiled by the preposition *under* is not evoked by the head noun *bench*, whereas the kin-relation profiled by the preposition *of* is activated by the head noun *father*. Since the *of*-relation, beside being elaborated by the head *father*, elaborates itself "a central and salient facet of the head" it is considered to be a complement. That is to say, with respect to the reference individual (i.e. *the child*), the head *father* is "wholly schematic and the *of*-phrase is quite specific" (Langacker 1999: 82). Accordingly, complement status and modifier status "need not be incompatible with one another", which is not the case in the generative account. In CG the status of a relation depends on its centrality and salience vis-à-vis the head (Langacker 1999: 81).

The assumption in GG that syntax is independent from semantics appears to have a different effect on its definition of the head and consequently ***complements*** and ***modifiers***. For example, it is claimed that a property of the head is that it is locally related to its complement. To represent it in purely syntactic terms, it is argued that complements are sisters to a head X (e.g. a head noun N) whereas adjuncts/modifiers are sisters of an X-bar (e.g. a construction that is neither a noun nor an NP- hence N') (Haegeman and Guéron 1999; Radford 1988; Aarts 2001). The figure below illustrates the syntactic relation between the head and its complement according to Generative Grammar:

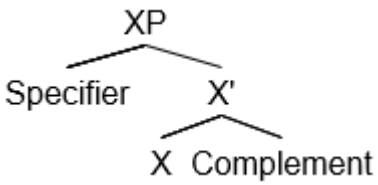

Figure 7. X-bar format for projections (Haegeman and Guéron 1999: 139)

Many tests have been offered within the framework of GG to determine whether a constituent is a sister to a head X (i.e. a complement) or to an X-bar (i.e. an adjunct). Our focus will be only on two of these tests, namely ***extraposition*** and ***extraction***, given their relevance to the topic of this paper in terms of the distance allowed between the head and the string of words that may have either the complement or the modifier status. Additionally, ***topicalization***, which is used in GG to identify constituents (i.e. phrases regardless of their status as complements or modifiers), *not* to distinguish them as either complements or modifiers (Carnie 2012: 464; Haegeman and Guéron 1999: 225; Aarts 2001: 195), will be also dealt with, given Langacker's (2008: 204) claim that the status of infinitival clauses as either complements or modifiers manifests itself in word order. The following examples illustrate ***extraposition*** (15a,b), ***extraction*** (16a,b) and ***topicalization*** (17a,b)[9]respectively:

(15) a. *a student came to see me yesterday* [*with long hair*]

b. **a student came to see me yesterday* [*of physics*](Radford 1988: 191)

(16) a. [*What branch of physics*] *are you a student of*?

b. *[*What kind of hair*] *are you a student with*? (Radford 1988: 191)

(17) a. **To annoy his mother he tried*. [preposed complement]

b. *To annoy his mother he cried*. [preposed modifier] (Langacker 2008: 204)

With regard to extraposition, Radford (1988: 191) argues that "PP Adjuncts can be *extraposed* from their heads (i.e. separated from their heads and moved to the end of their clause) more freely than PP complements" [original italics]. This means that PP complements can still be extraposed. Radford (1988: 449) shows through example (18b) the possibility of extraposing PP complements:

[9] Langacker (2008: 204; 2009: 251) refers to *topicalization* as *preposing*.

(18) a. *A BAN on/ *at/ *to foreign imports has just been announced*.

b. *A BAN has just been announced on/ *at/ *to foreign imports has just been announced* [original capitals].

So, in the end, extraposition does not seem to be a reliable test for the identification of the status of PPs either as a complement or a modifier. To solve this problem, Radford resorts to another type of syntactic restriction. This is referred to as ***subcategorization restrictions***. That is to say, "the range of *categories* which a given item permits or requires as its Complement" [original italics] (Radford 1988: 369). More specifically, the head noun selects a particular category as its complement, such as PPs, and within this category it selects a specific head preposition. By way of illustration, a noun such as ***ban*** in example (18a) subcategorizes PPs headed by the preposition ***on***, not ***at*** or ***to*** (Radford 1988: 499).

Notice that the deverbal noun *ban* rejects *complement* PPs headed by *at* or *to*, but if these PPs are *adjuncts*, they should not be problematic. The problem with the *subcategorization restrictions* argument seems to be that it does not really tell us why the PPs headed by *on* should be regarded as complements of the head noun *ban*, whereas those headed by the prepositions *at* and *to* should not. Moreover, assuming that different nouns select PPs headed by particular prepositions as their complements is not enough. The reason is that although a noun may subcategorize an *of*-PP complement, the noun within this PP cannot be any noun. Thus, the noun *lid* cannot figure within the PP complement when the nominal head is *bottle*; hence the oddity of *the bottle of the lid*. Radford (1988: 370) is aware, however, of the insufficiency of the subcategorization restrictions, which he illustrates with the verb *convince*. This verb requires an NP complement, but not any NP complement given the oddity of the sentence *You have convinced* [*my birth*]. Consequently, Radford (1988: 370) admits that semantic restrictions also help identify complements and refers to them as ***selection restrictions***. For example, a verb such as *murder* incorporates the following syntactic and semantic information:

(19) *murder*: CATEGORIAL FEATURES: [+V, - N]
SUBCATEGORIZATION FRAME: [NP]
SELECTION RESTRICTIONS: <HUMAN - HUMAN>

The last line says that the NP preceding murder (i.e. subject) and the one that follows it (i.e. object) "denote a human being" (Radford 1988: 372). As such, we understand that

Kambomambo and *Zombalomba* are human beings when we read the sentence *Kambomambo murdered Zombalomba*.

In contrast to extraposition, Radford (1988: 191) maintains that for an NP to be *preposed*/ *extracted*[10], it should be the object of a preposition heading a *complement* PP. Such NPs "can be preposed more freely than an NP which is the Object of a Preposition heading an Adjunct PP". But once again, he does not explain why some complements resist extraction as in the following example:

(20) *Who did you tell*/**hear those jokes about*? (Davies and Dubinsky 2003: 23)

In this case, whether extraction from the PP complement of the head noun *jokes* is possible or not depends also on the head of the Verb Phrase (VP) where the NP is embedded (Davies and Dubinsky 2003: 23). This constraint, among others, will be discussed in more details in section 3.2.

As for topicalization, GG does not claim that it can be used as a test to distinguish between complements and modifiers. Rather, the idea is that if a string of words can be topicalized, then that string must be a constituent (i.e. a phrase headed by X), whether it is a modifier or a complement (Carnie 2012: 464; Haegeman and Guéron 1999: 225; Aarts 2001: 195).

By contrast, in CG, it is claimed that *infinitival clauses* can function either as complements or modifiers, and that this is evident in word order. As modifiers, infinitival clauses "can readily occur in sentence initial position" as in (17b). This is, however, not allowed when they function as complements as in (17a) (Langacker 2008: 204). Therefore, topicalization serves in the case of infinitival clauses to identify their status as complements or modifiers.

Notice, however, that this structural manifestation does not apply to other types of constituents such as NPs and PPs despite their complement status in the construction. Therefore, it is important to find the reason why the constraint on word order is restricted to complement infinitival clauses. The next section attempts to give a more detailed account of extraposition, extraction and topicalization within the framework of GG and CG and discuss

[10] This is also referred to as extraction (Chomsky 1986b: 14)

examples that seem to challenge the assumptions underlying the three forms of displacement.

3. Displacement of constituents in GG and CG

3.1. Extraposition

Within GG, the fact that PP complements can still be extraposed, but less freely than PP modifiers, as observed by Radford (1988: 191), is denied altogether by Napoli (1989: 221). Napoli maintains that "PP extraposition from NP cannot apply to arguments of the head N". This is illustrated in (21d). Napoli uses this constraint to argue that because "*by* does not introduce an argument of the head N", *by*-phrases can be extraposed as in (21b):

(21) a. *John read a book by Chomsky over the summer*.

b. *John read a book over the summer by Chomsky*.

c. *John analyzed the destruction of the city over the summer*.

d. **John analyzed the destruction over the summer of the city*.

Examples from the BNC and the COCA where PP complements are separated from their head nouns, even from the head noun *destruction* (21d), indicate that Napoli's (1989: 221) claim that "PP extraposition from NP cannot apply to arguments of the head noun" is far too strong. Consider (22a-i), where the underlined deverbal nouns *are* separated from the complement *of*-phrase:

(22) a. *The dominant Fianna Fail long ago gave up any pretence of offering Ireland a coherent vision for the future -- a failure epitomised, for many, by <u>the wanton destruction</u> over the past 20 years* [*of Georgian Dublin*]*, once one of Europe's finest cities (BNC: WEB).*

b. *Richard Sennet in THE CULTURE OF NEW CAPITALISM reflects upon the reactionary extirpation over the past three decades* [*of the Western social capitalist state*] (COCA: WEB).

c. *<u>The destruction</u> in 1980* [*of Iraq's two Gulf terminals*] (BNC: HRE).

d. *<u>The destruction</u> in Oklahoma City* [*of a nine-story government building*] *was a Rembrandt, it was a masterpiece of science and art put together (COCA: SPOK).*

e. *The new popularity of psychopharmacological agents is tied to* <u>*the development*</u> *over the past two decades* [*of a class of antidepressants known as selective serotonin re-uptake inhibitors, or SSRIs*] *(COCA: NEWS).*

f. *He is lumping together* <u>*the assassination*</u> *in Turkey* [*of the Russian ambassador*] *and the terrible incident in Berlin with the truck driving into a crowd in a Christmas market* (COCA: SPOK).

g. *Beginning with* <u>*the assassination*</u> *in 1951* [*of Riad as-Sulh*]*, a prominent Sunni politician and cofounder of independent Lebanon, Sunnis searched for leadership outside the territorial boundaries of the fledging state* (COCA: ACAD)

h. <u>*the assassination*</u> *in February 1975 in Sidon* [*of a prominent left-wing politician*] (BNC: HLA)

i. *No-one could say that our news programmes, for example, have been weak-kneed in their* <u>*coverage*</u> *over the past eighteen months* [*of the NHS*] *or* [*the recession in the UK economy*] (BNC: W_misc)

Contrary to Napoli's (1989: 221) prediction, The deverbal nouns in these examples do allow the complement *of-phrase* to be extraposed. Some might argue that the difference between Napoli's example in (21d) and the corpus examples in (22a-i) is that the intervening PP in (21d) is a clausal modifier, whereas in (22a-i) the PPs are phrasal (NP) modifiers. In that case we would be dealing with a syntactic constraint. Corpus data indicate that this cannot be a syntactic constraint because even when the PP is a clausal modifier extraposition is still possible. Consider the following examples:

(23) a. *They were making movies in Hollywood* [*of shoot-'em-up Indians*]*, you know* (COCA: SPOK)

b. *Well, I had certainly read stories over the years* [*of some people feeling like the portrayal of African-Americans in this country and some people in other countries wasn't balanced*] (COCA: SPOK)

In (23a,b) the intervening PPs *in Hollywood* and *over the years* are clausal modifiers. That is to say, in syntactic terms, they modify the whole clause, not just the NP. Yet, separating the *of*-phrase from the head noun *movies* and *stories* is acceptable. This points to the fact that regardless of whether the intervening PP is a phrasal or a clausal modifier, the *of*-phrase can still occur away from its head. Therefore, it seems fair to ask whether the possibility of such occurrence is motivated by cognitive factors rather than syntactic ones.

Beside Radford (1988; 2004), other linguists within the framework of GG admit that PP complements *can* be extraposed from the head, such as Aarts (2001) and Akmajian (1975). Thus, in addition to PPs being the intervening material between the head and its PP complement, they observe that a VP can also come in between. Consider the following examples:

(24) a. *A review was published of books by David Lodge* (Aarts 2001: 265)
b. *A review has just appeared of my latest book* (Radford 1988: 448)
c. *A review will appear shortly of this book* (Akmajian 1975: 116).

Aarts (2001: 265) notes that moving the *of*-PP to the right of the head noun *review* in passive sentences "causes no problems". Similarly, Radford (1988: 448) argues that through extraposition, the complement PP in (24b) can be moved from an NP to the end of the sentence containing it. Akmajian (1975:116) describes the movement of PP meticulously by building on Chomsky's (1977: 73) notion of *cyclic nodes*. In relation to extraposition, cyclic nodes are phrasal nodes (e.g. NP and Sentence (S)) that constrain/ bound the movement of a constituent. More precisely, the moved constituent is allowed to cross a single cyclic node, which is the maximum. This constraint is referred to as the ***subjacency condition***. Here is how Chomsky (1977: 73) defines it in formal terms. Note that ***α (Alpha)***, ***β (Beta)*** are Greek letters used to represent cyclic nodes:

> I will understand the subjacency condition as holding that cyclic rule cannot move a phrase from position Y to position X (or conversely) in:
> ... X ... [$_{\alpha}$...[$_{\beta}$ ... Y ...] ...] ... X ..., where α, β are cyclic nodes.[11]
> For the present I will take cyclic nodes to be S and NP.

Let us now examine a concrete example:

(25) *John believes [$_{\beta}$ that [$_{\alpha}$ a man ___] was there ...] despite the evidence to the contrary* ***who comes from Philadelphia*** [emphasis added] (Chomsky 1973: 271)

Chomsky (1973: 271) explains that ___ in (25) stands for the position from which the phrase in bold is "extracted by extraposition", and that ... indicates the position to

[11] Chomsky (1973: 271) mentions the Greek lettersα and β in the subjacency constraint in the reversed order: [$_{\beta}$...[$_{\alpha}$ ... Y ...$_{\alpha}$] ...$_{\beta}$] ... x ... . But either way α and β represent cyclic nodes, which impose the subjacency condition on moved constituents.

which the phrase in bold can be moved. This phrase was moved to the position X on the right, which is represented in the subjacency condition above. Consequently, it was moved "illegitimately from the position Y marked by ___".

Akmajian (1975: 116) also assumes that beside the node S, NPs are also "cyclic nodes". In Akmajian's words "each NP in a tree structure defines a distinct cycle". As a consequence, not only S but also NPs restrict the movement/ climbing of embedded-PPs up the cycle. This constraint is expressed as follows:

(26) No element may be extraposed more than one cycle up from the cycle containing it.

So in the case of (27a) the PP *of a new book about French cooking* is contained inside the NP^1 cycle. The next immediate cycle to the NP^1 cycle is the topmost S cycle. Given that there is just one cycle between the PP *of a new book about French cooking* (i.e. NP^1) and the cycle to whose end this PP is moved (i.e. S), the transformation produces a grammatical sentence. Conversely, in (27b) PP^2*about French cooking* is contained by NP^2*a new book*. The immediate cycle above NP^2 is *not* S as in (27a), but rather NP^1. This means that there are two cycles above PP^2. So, if one tries to move it to the end of S, two cycles will be crossed, which violates the constraint in (26):

(27) a. *A review came out yesterday <u>of a new book about French cooking</u>.*

b. **A review <u>of a new book</u> came out yesterday <u>about French cooking</u>.*

Akmajian (1975: 118) mentioned that the example in (27b) is unacceptable "for all speakers, under the **interpretation** where *about French cooking* is supposed to modify *book*" [emphasis added/ original italics]. At the same time, he observed that for "some speakers" (27b) is acceptable when they interpret it "to be about French cooking, and the topic of the book is unspecified". Akmajian provides a further example in (28) to show that in the case of some head nouns such as *photograph*, the interpretation of the PP *about French cooking* as its modifier is impossible:

(28) **A photograph of a book was published last year about French cooking* (Akmajian 1975: 118).

Akmajian states that as far as he knows, "there is no reading under which" example (28) "is acceptable". Thus, it appears that even within the framework of GG the effect of

interpretation on grammaticality is sometimes acknowledged. But the question that remains unanswered is: why do head nouns such as *review* allow such interpretation whereas others such as *photograph* do not?

Moreover, notice that the PP complement in (15b) (i.e. *of physics*) does not cross more than one cycle (i.e. the NP *a student* in which the PP is embedded), yet this yields an ungrammatical construction, contrary to what (26) predicts. Consequently, it is worth asking whether the ungrammaticality of (15b) has a cognitive rather than a purely syntactic basis.

The CG account of extraposition was brought up in section 1.3 in relation to the symbolic nature of language. Recall that Langacker (2008: 213-214) used examples (11a,b) to illustrate two possible positions of a restrictive clause within a sentence; either next to the noun it specifies or next to the main verb of the sentence. Langacker argued that these alternations do not change the meaning of the words, but they serve to symbolize different conceptualizations. They are two conceptual groupings.

Accordingly, the integration of the nominal *the package* with the restrictive relative clause *that I was expecting* serves to specify the central clausal participant (i.e. *the package*) (Figure 8). This integration is effected by a correspondence between the profile of *the package* and the landmark of *I was expecting*. The relative clause *that I was expecting* represents a "mental relationship" represented by the dashed arrow. Its trajector is the speaker (S) and its schematic landmark is elaborated by *the package*. At the higher level of composite structure, this complex nominal elaborates the trajector of *arrived*, being its subject. At this level *arrived* is the profile determinant because (11a) designates an instance of arriving. It does not designate a package or an instance of expecting.[12]

[12]Langacker (2008: 212) draws the reader's attention to the fact that irrelevant details such as tense, the definite article, progressive aspect, and the subordinator that are not included in Figures 8 and 9. With regard to the relative clause, only the composite structure is represented.

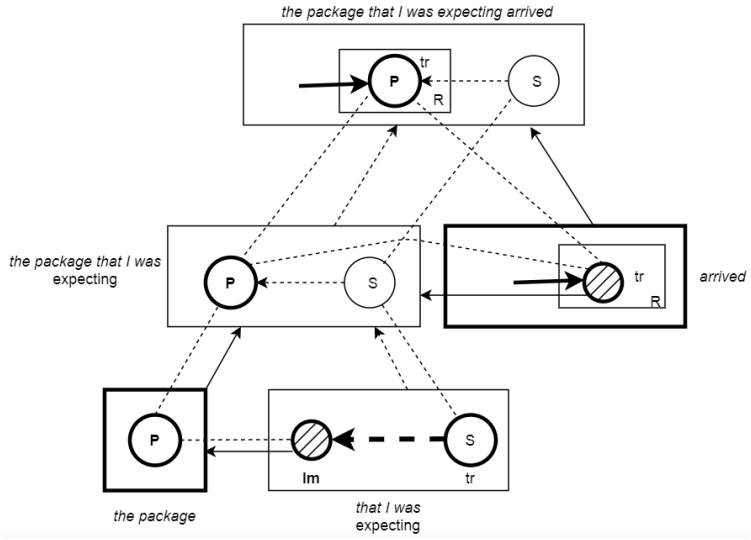

Figure 8. Representation of the conceptual grouping that serves to specify the central clausal participant (the package) (Langacker 2008: 213)

Conversely to specify the profiled event (i.e. *arrived*) in (11b), *the package* and *arrived* are integrated first (Figure 9). The integration is effected by a correspondence between the profile of *the package* and the schematic trajector of *arrived*. Thus, the package functions as the subject of *arrived*. At the higher level of composite structure, *the package arrived* is integrated with *that I was expecting* through a correspondence between the event's trajector and the schematic landmark of the relative clause. This correspondence results in *the package* being "understood semantically as the object of the relative clause" (Langacker 2008: 213). Example (11b) is "not a classic relative clause construction" because *the package* is not integrated directly with the relative clause to form the complex nominal. Nevertheless, both assemblies in Figures 8 and 9 provide "all the essential semantic and grammatical information". However, as it was mentioned, whereas the two sentences are semantically identical they are conceptually different (Langacker 2008: 214).

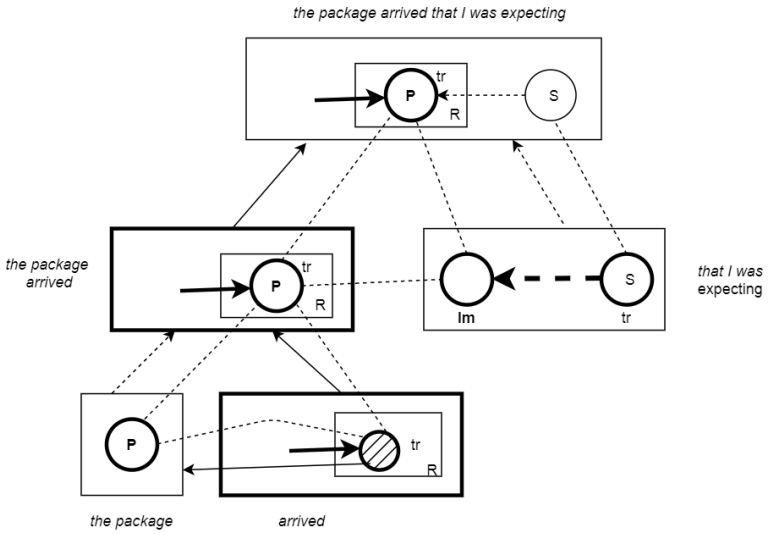

Figure 9. Representation of the conceptual grouping that serves to specify the profiled event (arrived) (Langacker 2008: 213)

This account explains what the alternations symbolize cognitively, but it does not answer the main question of this paper: why do some heads allow such alternations to happen at all, whereas others do not, as in example (15b)? Moreover, Langacker's account of extraposition is limited to head nouns and their restrictive relative clauses. However, the distance between head nouns and embedded PPs caused by intervening PPs or VPs, is also of paramount importance in this paper.

3.2. Extraction

Within the framework of CG we have seen that according to Radford (1988) the possibility of extraction from PP complements within NPs is considered to be less constrained than from PP adjuncts within NPs. On the other hand, according to Chomsky (1986b: 14), only complement phrases can be extracted from; extraction from modifier phrases is not permitted. He illustrates the possibility/impossibility of extraction with examples (31a,b). In (31a), he considers the clause that is embedded within the NP *a child* a modifier. Therefore, extraction is not licensed. Conversely, in (31b), he analyzes the clause within the NP *a rumor* as a complement. As a result, the embedded phrase lends itself to extraction.

The possibility of extraction from a particular phrase requires that it be a sister of a lexical head noun, hence ***lexically marked*** (or ***L-marked***) by the head noun (i.e. it has to be a lexical head). This idea is essential to understand how Chomsky analyzes extraposition in terms of a syntactic constraint that he refers to as *syntactic barriers*. In the definition below, he uses

again Greek letters to represent syntactic constituents: ***γ (Gamma)***, ***β (Beta)*** and ***δ (Delta)***. ***IP*** stands for ***Inflection Phrases,*** that is phrases headed by the functional head ***I*** to mark tense or agreement (Aarts 2001: 291). ***BC*** is an abbreviation for a ***Blocking Category*** defined below along with ***Barriers*** in Chomsky (1986: 14):

(29) γ is a BC for β iff γ is not L-marked and γ dominates β.
(30) γ is a barrier for β iff (a) or (b):
  a. γ immediately dominates δ, δ a BC for β;
  b. γ a BC for β, γ ≠ IP

Thus, according to this constraint, a particular constituent such as a *Complementizer Phrase* (CP) (γ) (i.e. a phrase headed by a complementizer such as *that*, *if* or *for*) (Radford 2004: 442) is considered to be a BC for another constituent (β) (e.g. NP) if the CP (γ) is not a sister of a lexical head and that CP (γ) has the NP (β) embedded inside of it. On the other hand, a constituent (γ) (e.g. NP)is considered a barrier for a particular constituent (β) (e.g. NP) if a) that NP (γ)has a constituent (δ) (e.g. CP) embedded inside of it and connected immediately to its head noun, and the CP (δ) is a BC for the NP (β), or b) if a constituent (γ) (e.g. CP) is a BC for another constituent (β) (e.g. NP). Let us see how these constraints apply concretely to the following examples:

(31) a. **Which book did John meet [$_{NP}$ a child [$_{CP}$ who read t]]*
  b. *Which book did John hear [$_{NP}$ a rumor [$_{CP}$ that you had read t]]*
  (Chomsky 1986: 34-35)

Chomsky (1986: 34-35) observes that in example (31a) the relative clause CP is a BC and a barrier since it is not L-marked by the noun *child*. In addition, the NP, though it is not a BC because it is L-marked by the verb *meet,* inherits barrierhood from CP. So, in this case, two barriers are crossed (i.e. CP and NP). Consequently, extraction is not possible. Conversely, there are no barriers in example (31b) because CP is L-marked by the noun *rumor*; therefore, it is not a BC and does not transfer barrierhood to the complex NP. This latter is also not a BC because it is L-marked by the verb *hear*. Thus, extraction is allowed.

However, den Dikken (2018: 117) demonstrates through the examples below that even when a CP is L-marked (32b) extraction can still yield ungrammatical results:

(32) a. **who$_i$ did you dispute [$_{DP}$ the claim [$_{CP}$Op$_k$ that Bill had made ec$_k$ to ec$_i$]]*?

b. *who_i *did you dispute [$_{DP}$ the claim [$_{CP}$ that Bill had talked to ec_i]]*?

In (32a), the verb *claim* does not L-mark the relative CP. Therefore, the CP becomes a BC and a barrier for the NP in the gap ec_i. Moreover, the DP *the claim* immediately dominates CP, and CP is a BC for ec_i. Thus, DP becomes a barrier for ec_i through CP. This means that there are two barriers between the gap and its antecedent, who_i. This makes the sentence unacceptable.The author, who works himself within the generative paradigm, notes that in (32b) "the Barriers theory does not fare quite so well" (den Dikken 2018: 117). The CP in this case is the internal argument of the head noun. And since this CP is L-marked, it should not be a BC. Also, given that the only way to inherit barrierhood is through a BC, the DP *the claim* will be prevented from such inheritance because CP is L-marked. Thus, (32b) should be acceptable, but it is not.

It appears then that neither the complement/ modifier distinction nor the barriers theory can adequately describe the constraints underlying extraction. Beside this syntactic distinction, Davies and Dubinsky (2003) observe another syntactic constraint, which they refer to as *definiteness* of the complex NP complement and other semantic restrictions at the level of the clausal main verb and its nominal complement. These should also be taken into consideration when dealing with extraction. Davies and Dubinsky (2003: 24) observe that "definiteness does indeed block *wh*-extraction generally, and that this effect is syntactic". They distinguish between definite (strong) determiners, which they consider to be D-heads, and indefinite (weak) determiners, which do not have the status of D-heads.

As a matter of fact, Radford (2009: 133) also acknowledges the effect of definiteness on extraction from complement PPs, which he observes in the following examples:

(33) a. *Who didn't he want [a/ any picture of]*?

b. **Who didn't he want [the/ this picture of]*?

Radford (2009: 133) argued that the *wh*-pronoun is the complement of the preposition *of*. He attributes the acceptability of extraction in (33a) to the NP between brackets being a Quantifier Phrase (QP) (i.e. a phrase headed by a quantifier) and its unacceptability in (33b) to the fact that it is a DP. Notice, however, that this purely syntactic distinction fails to explain why extraction from DPs becomes acceptable as in the examples below:

(34) a. *Who did you tell/*hear those jokes about*?

b. *Who did you tell/hear jokes about*? (Davies and Dubinsky 2003: 23)

Notice that in example (34a) even though extraction occurs at the level of a complement PP, and even though there are no barriers, extraction may still be unacceptable depending on the type of the main verb of the construction, the type of the nominal complement and whether it is definite or not. With regard to verbs Davies and Dubinsky (2003: 3) distinguish between two types: verbs of ***creation*** (e.g. *tell*, *write*, *paint*) and verbs of ***use*** (e.g. *hear*, *read*). As for nouns, Davies and Dubinsky (2003: 14-17) mention three types distinguished by by Grimshaw (1990):

a) **complex event nominals** (e.g. *production*/ *examination*): they refer to events, have overt argument participants, and can be modified by the adjective *frequent*;

b) **result nominals** (e.g. *victory*/ result reading of *examination*/ informational reading of *book*): they refer to the outcome of an event, not the event itself; therefore, they have non-argument participants; and

c) **concrete nominals** (e.g. *dog*/ physical reading of *book*) have no participants.

The difference between these nominals manifests itself in extraction. In examples (34a,b) above the noun *joke* is a result nominal. For such nominals, extraction is "generally allowed" as long as the NP is *not* definite as illustrated in (34b). However, "definiteness effects can in fact be overridden for result nominals when they are complements of verbs of creation" (Davies and Dubinsky 2003: 23). By contrast, complex event nominals "freely allow extraction" of their complements without being restricted by definiteness or verb type (Davies and Dubinsky 2003: 15). Here are some examples:

(35) a. *What did they observe/ hear about/ remember/ decry the production of*?

b. *Which patient did the med students participate in/ observe/ miss the operation on*?

In contrast to result and complex event nominals, Davies and Dubinsky (2003: 15) argue that concrete nominals "do not allow extraction at all, either of possessive/ descriptive complements or of modifiers". Consider the example below:

(36) **Which neighbor did she chain* [*some dogs of*] *to a tree*?

Deane (1991: 16) uses CG concepts to identify the cognitive factors that motivate extraction. His example below supports the fact that concrete nominals can be extracted from, contrary to Davies and Dubinsky's (2003: 15) expectation:

(37) *Which apartments do we have security keys to*?

Deane (1991: 15-16) observed a relation between Langacker's cognitive domains (1987: 147), which were presented in section 1.2, the concepts related to a particular domain (which Deane terms ***attributes***), and the possibility of extraction. Thus, in example (37), the noun *keys* is an attribute of the domain *apartments*. This relation facilitates extraction. Deane (1991: 17) argues that if this relation is reversed, extraction becomes unacceptable:

(38) **What sort of security keys do you have an apartment with*?

According to Deane (1991: 17), apartment is not an attribute of keys; therefore, extraction is unacceptable. He observes that it is tempting to describe this situation in structural terms and argue that in the case of attribute-domain relation, the PP that is extracted from is a complement, and in the reversed other, it is rather a modifier. But then he notes that extraction is possible even from what would be considered a modifier PP when it profiles what he refers to as the attribute-domain relation. Deane substantiates his claim with example (39):

(39) *Which store did you buy* [*the furniture in*]?

He puts the NP between brackets to emphasize that the PP headed by *in* is a modifier of the NP *the furniture*. This is attributed to the fact that "furniture may plausibly be viewed as an attribute of the store in which it is located" (Deane 1991: 15). But does the PP headed by *in* really modify exclusively the NP *the furniture* as Deane claims? This may be the case in the affirmative form *You bought the furniture in this store* where the PP *in this store* can either anchor the whole event, or impose an immediate scope on the referent of furniture only - hence a restrictive interpretation of furniture as in example (7a) with *tiny mouse*.

Conversely, the position of the *wh*-NP in (39) cannot be interpreted as a request to modify the NP *the furniture* only, or in Langacker's terms to impose an immediate scope on the referent of *the furniture* exclusively, such that *the furniture* is interpreted restrictively. As Langacker (2009: 255-256) observes, what *wh*-words serve in content questions such as (40) is the function of a clausal anchor, which is "an instruction to interpret the clausal proposition with respect to a certain aspect of the situation described". Consider the example below:

(40) *Where is she waiting for us*? (Langacker 2009: 256)

Langacker (2009: 255-256) observes that in this construction, the clausal proposition is "viewed in relation to the event's location and is interpreted as a request to specify that location". Similarly, in Deane's (1991: 15) example (39), the occurrence of the *wh*-NP (i.e. *which store*) in the anchor position requires the specification of the location where the buying of the furniture took place. Thus, the PP imposes immediate scope on the whole event, not just the furniture. Therefore, contrary to what Deane (1991:15) claims, including the PP between brackets in (39) such that it is embedded within the NP *the furniture* (i.e. as an NP modifier) cannot produce a grammatical construction.

With regard to result nominals, Davies and Dubinsky (2003: 23) do not explain why verbs of creation override the definiteness effect to allow extraction from definite nominals, whereas verbs of use do not. The question that begs itself is whether there are cognitive factors, rather than a semantic distinction, that govern extraction in these cases.

3.3. Topicalization

It was mentioned that topicalization within GG is used to distinguish constituents and non-constituents(Carnie 2012: 464; Haegeman and Guéron 1999: 225; Aarts 2001: 195). Thus, if a string of words lends itself to topicalization, then it must be a constituent; that is to say, a particular phrase, including NPs, Adjective Phrases (APs), PPs, and VPs (Aarts 2001: 196). Notice that Aarts does not mention what licenses the topicalization of certain constituents only. In his account of Binominal Noun Phrases (BNPs), that is, constructions consisting of two nominals which assume the structure Det^1 N^1 *of* Det^2 N^2, as in *a monster of an exam*, Aarts (1998: 134-136) uses topicalization to show that the string *of an exam* does not form a PP, nor does the string *a monster* form an NP. This he demonstrates through topicalization:

(41) a. *[*of a machine*]$_i$, *it was*[*a monster* t$_i$]

b. *They didn't send us a copy of the exam REGULATIONS*, *but* [*of the exam PAPER*]$_i$, *they did send us a copy* t$_i$

Example (41b) is also a BNP, but it is different from (41a) in that the *of*-string does not resist topicalization. Therefore, Aarts (1998: 136) concludes that it is a constituent; a PP complement of the head noun *copy*, which is N^1. Conversely in example (41a) the whole sequence N^1*of* Det^2 (*i.e. monster of a*) is no more than an adjunct to N^2(*machine*). He refers to this adjunct as a Modifier Phrase (MP) (Aarts 1998: 141-142). Aarts observed a similarity between MP and adjectival modifiers as in *a* ***hellish*** *movie* and *a* ***hell of a*** *movie*. This parallelism, he argues, is further supported through the fact that topicalizing the noun *movie* in a ***hellish*** *movie* is also not possible (Aarts 1998: 136):

(42) *[*Movie*]$_i$, *we saw a hellish* t_i.

Notice that although MPs form a constituent, they cannot be topicalized. Aarts does not explain why. Additionally, the analysis he (2001: 264) offers of the string *a lot of* based on topicalization to see whether the *of*-phrase forms a constituent or not contradicts with the one provided by Langacker (2009: 63). Let us have a look at the two examples and their analyses:

(43) a. *[*Of books*] *we buy a lot* ___ (Aarts 2001: 264).

b. *Of that I have a lot* (Langacker 2009: 63).

Aarts (2001: 266) argues that *of books* "is not a constituent"; the constituent is rather the string *a lot of*. He corroborates his analysis with the fact that one "can substitute *many* for *a lot of*".

Langacker (2009: 62) offers a different analysis of the string *a lot of*. He does not deny that *a lot of* can be analyzed as a *monomorphemic quantifier*. However, he adds that evidence shows that there is a coexisting analysis whereby *a*, *lot*, and *of* "retain their identities as article, noun and preposition". In example (43b), where the *of*-phrase is topicalized, Langacker (2006: 63) considers the *of*-phrase to be a constituent.

Furthermore, Langacker (2009: 63) draws attention to the fact that *a lot of* cannot be analyzed as a monomorphemic quantifier when the noun embedded in the *of*-phrase is definite:

(44) *a lot of them* (**many them*)

We have seen that Aarts (2001) claims that if the topicalization of a string of words occurs at all, then that string must be a constituent, whether it is a complement or a modifier. However, in CG, Langacker (2008: 204) maintains that topicalization can be used to distinguish between complement and modifier infinitival clauses. He illustrates his argument with examples (17a,b) repeated below for convenience:

(45) a. *He tried to annoy his mother* [complement construction]

b. *He cried to annoy his mother* [modifier construction] (Langacker 2008: 204)

In (45a), the infinitival clause *to annoy his mother* functions as a complement of *try* but as a modifier of *cry* in (45b). As a complement of *try*, it "specifies a schematic activity essential to the meaning of this verb, the target toward which the subject's effort is directed". Conversely, as an adverbial modifier, it specifies that action. More precisely, Langacker argues that the infinitival clause shows indeed that the crying is intended to annoy the mother; however, this "does not reflect the meaning of the verb" because the conscious attempt to achieve something is not inherent in the meaning of *cry*. Langacker continues that the complement/ modifier distinction has an impact on word order in that as a modifier, the infinitival clause can be easily preposed, but "hardly as a complement" (Langacker 2008: 204). Consider the ungrammaticality of (46a) below:

(46) a. **To annoy his mother he tried*. [preposed complement]

b. *To annoy his mother he cried*. [preposed modifier] (Langacker 2008: 204)

However, it appears that Langacker (2009: 251) does not exclude the possibility of NP complements within VPs to be topicalized. Here are some examples:

(47) a. ***Easter eggs**, she was painting them last night*.

b. ***Her sister** she was waiting for all morning*. [original emphasis]

Langacker (2009: 251) considers both preposed NPs as participant anchors. The first example represents a ***clause-external*** topic construction, whereas the second example represents a ***clause-internal*** topic construction (Langacker 2009: 250-251). The roles of these anchors is to frame the clausal proposition such that it is interpreted according to "a particular domain of knowledge or a certain aspect of the situation described". As we have seen, Langacker (2008: 203) argues that a complement is "a component structure that elaborates a salient substructure of the head. The head is thus dependent, and the complement is autonomous". Based on this definition of complements, it is not clear why the infinitival clause in (46a) cannot be preposed, whereas both types of participant anchors can, although they all function as complements of the verb. It appears, therefore, that the complement/ modifier distinction may not be enough to account for this phenomenon.

In fact, corpus data show that topicalization is not resisted by complement PPs, which like infinitival clauses also specify a schematic entity prefigured by a schematic verb, such as the PPs between brackets in(48a-d), which elaborate the e-sites of the schematic verbs *concur, belong, appeal and lie*. Consider the following examples:

(48) a. *To compound the matter, the experts don't agree on what constitutes adequate daily exercise. But* [***on one point***] ***they do concur****: some form of daily physical activity is essential to good health* (COCA: NEWS).

b. *He bites people when they sleep! He comes when nobody's lookin' and poisons decent people*. [***In the garbage***] ***he belongs*** (BNC: KA1).

c. *One night we had a spectacular meal*, [***To all of my senses***] ***it did appeal*** (COCA: NEWS).

d. [***To the neighbors and all other inquisitive folk***], ***he did lie*** (COCA: FIC).

In CG terms, it appears that the preposed PP in (48a) serves to provide a different ***instance*** of the landmark of the verb *concur*, which has already been evoked through its synonym *agree*. The PPs elaborate the landmark of the verb *agree* (i.e. *on* ***what constitutes adequate daily exercise***) and the landmark of *concur* using a different instance (i.e. *on* ***one point: some form of daily physical :activity is essential to good health***) in the topicalized version.

Another important point is that, unlike in Langacker's *try*/ *cry* example, the verb *concur* does not represent new information in the discourse space. As it was argued, its synonym *agree*

has already been mentioned in the previous sentence and by implication the object of agreement. Therefore, it seems that this verb, which has a network of possible relations (*concur* ***with***, ***in***, ***on***), profiles a ***type*** of a process, and that this type requires a relational phrase on its first mention in discourse to specify its ***subtype*** (i.e. *concur on something*). The second mention of the relational phrase (i.e. the PP) serves to elaborate the landmark of the PP through a different instance. ***Elaboration of the landmark of the evoked relation through a different instance*** (i.e. *concur on one point that is some form of daily physical activity is essential to good health*) is used in this example to establish ***contrast*** between what experts do not agree on and what they do agree on. For the different elaboration of the subtype's landmark to occur, the subtype had to be evoked first. Notice that in using the auxiliary verb *do*, the speaker does not intend to draw the hearer's attention to the clausal proposition. On the use of *do*, Langacker (2009: 233) argues that it "indicates that existence (occurrence of the profiled relationship) is somehow **being negotiated**" [original emphasis]. He adds that the profiled relationship is compared to other options instead of "just being presented".

Example (48b) is a sentence from Arthur Miller's *A View from the Bridge*. The subtype of the process type ***belong*** has already been specified in the sentence "*He belongs in the sewer*!". Bear in mind that the PP "*in the sewer*", which helps such specification has not been topicalized. Later on in the dialog, the same speaker elaborates the subtype's landmark differently and makes it prominent through topicalization to express where that person rather belongs: "In the garbage he belongs!". In this example, the subtype is not evoked (e.g. through a synonym as in example (48a)); it is simply re-stated given that the same verb (i.e. *belong*) is used in the topicalized and non-topicalized constructions.

In example (48c) the profiled process type ***appeal*** was not specified into the subtype ***something appeals to someone*** previously in the discourse. But the speaker's mention of the nominal *a meal* and their description of it as *spectacular* seems to have activated a potential subtype of the process type ***appeal***. This is reminiscent of Langacker's (2008: 49-50) observation about the role of context in increasing the centrality of particular domains that characterize a concept at a point in discourse. In other words, through context, the relation *to someone* (as opposed to *against something* for instance) became more central to the process *appeal*. The use of the auxiliary *do* seems to indicate that the speaker's intention is not so much to focus the hearer's attention on the clausal proposition (i.e. that the meal

appeals to all of his or her senses) as to negotiate the existence of this relation. This is probably due to the fact that the speaker assumes that the *appeal*-relation is already active in the hearer's mind (i.e. familiarity with the relation). Therefore, the speaker goes on to negotiate the existence of this relation.

In example (48d), the profiled process type *lie* has already been specified a few sentences earlier in discourse into the subtype *someone lies* ***about something***. This specification evokes another relationship mentioned in the topicalized sentence later in the discourse in example (48d) (i.e. *someone lies* ***to someone***). Such relationships are, therefore, evocative of one another. Both relationships can be used in the same construction:

(49) *You lied* ***to*** *me* ***about*** *what the company was* (COCA: SPOK).

If a subtype does not evoke even remotely another relationship as in example (50), it is assumed that this is due to the fact that the verb profiles a different process (i.e. a different type, although it has the same phonological pole as other types (e.g. *x lies to y* **vs**. *x lies behind y*)):

(50) *Debbie lies on her side and* ***Jay lies behind her*** (COCA: FIC).

Once again, the topicalized phrase in example (48d) serves not to specify an inactive relation; rather, it serves to specify the landmark of a relation that has been evoked in the discourse space.

Although no example of complement infinitival clauses has been found in both corpora, it seems that once such cognitive criteria are fulfilled (i.e. *evoked relation whose landmark is specified another time using a different instance to express contrast*), topicalization of the infinitival clause might achieve a particular level of acceptability. This idea will be investigated in sections 5.3 and 6.3, which are dedicated to the presentation and discussion of the findings about which infinitival clauses can occur in the topic position of a sentence. Let us now move on to the empirical part.

4. Methodology

A questionnaire comprising 13 constructions was devised to test the grammaticality/ acceptability effect of the three types of constituent grouping discussed in the literature review (i.e. extraposition, *wh*-extraction, and topicalization). The constructions include:

1. examples collected from the BNC and the COCA; and
2. examples that I have constructed/ adapted from the literature to find out whether the inclusion of particular cognitive factors would improve their grammaticality/ acceptability.

The examples were collected/ constructed on the following basis:

1. *Of*-phrases separated from their nominal head through intervening PPs: deverbal head nouns occurring away from *of*-phrases that contain participants evoked by these nouns, where the distance is created by PPs that denote space and time.

2. NPs occurring in the topic position of a question: *wh*-words/ schematic NPs (occurring in the topic position of a question) which correspond to a landmark of a relation that a) elaborates a nominal only or b) instantiates the whole event in which this nominal is a landmark.

3. Infinitival clauses that occur in the topic position of a sentence, away from verbal heads that either prefigure or do not prefigure the infinitival clause as an e-site. These infinitival clauses occurring in the topic position of the sentence are either a) newly introduced in the discourse space (i.e. they introduce an instance of the relation for the first time) or b) have been already introduced in a non-topicalized sentence, which is followed by topicalized form. This latter serves to provide a different instance of the relation compared to the non-topicalized one.

Twenty-seven native speakers of English (British, American and Canadian English) were surveyed in order to elicit their grammaticality/ acceptability judgment of the construction. The respondents were informed about the purpose and the nature of the study and were ensured that their responses will remain anonymous. A table that summarizes each respondent's rating of the constructions, as well the number of respondents whose average

ratings deviate from the general grammaticality judgment of all the respondents (either as grammatical or ungrammatical) will be presented in the next section.

The respondents were also informed that the aim of the study is not to test out their grammatical knowledge (as many have expressed their concern about this matter), but to find out how acceptable the constructions would be rated from their perspective as native speakers of English, not as learners of English grammar.

The respondents were asked to read the constructions and try to rate their grammaticality/ acceptability on a scale from 1 to 10, where 10 indicates that the construction is fully grammatical and 1 indicates that it is fully ungrammatical. The rationale for using a scale is the perceived disagreement among linguists on whether a particular construction is grammatical at all and also on the extent to which it is acceptable. Therefore, it was inferred that grammaticality/ acceptability cannot be a binary phenomenon; rather, it appears to be a gradient one. Consequently, two questions are involved:

1. How much is the central tendency of the respondents' rating?
2. How can this tendency be expressed in cognitive terms?

The first question is *quantitative* because it deals with "how much" grammaticality/acceptability respondents attribute to the constructions under investigation, whereas the second question is *qualitative* since the focus is on "*how* something is" (Rasinger 2008: 10). For instance, we have seen that corpus data suggest that head nouns can be separated from their complement PP. Consequently, it was inferred that Napoli's (1989: 221) claim that "PP extraposition from NP cannot apply to arguments of the head N" is far too strong. Now, the quantitative question above seeks to find out the extent to which respondents support the criticism leveled at Napoli through their rating of her example of extraposition and similar constructions collected from corpora. So, the first question is whether the ratings support the possibility of separating PP complements from their nominal head and whether the nominal head and the intervening material make a difference. The next question is to explain how this is possible in cognitive terms. Respondents' ratings will be:

1. collected and collated in a Comma Separated Values file (CSV);

2. imported into R;[13]and
3. a summary description of the data will be provided by calculating the ***mean*** and the ***mode***.

The mean and the mode are measures of central tendency or average. The mean is "the sum of all values divided by the number of cases" (Brezina 2018: 10). For example, in our case, when the 27 surveys are completed, the mean of the ratings for a particular construction will be the sum of the ratings for that construction divided by the 27 respondents; the $\overline{X}$stands for the mean, and the Greek letter Σ indicates the sum of the ratings.

$$\overline{X} = \frac{\sum \text{ the ratings of the construction}}{N}$$

Rasinger (2008: 114) observes that the mean is suitable for calculating a *ratio scale* and that it is "the value that best represents all other values in the sample. Yet, not a single value is actually identical with the mean". Indeed, ***the purpose of calculating the mean*** in this study is to see ***whether or not there is a central tendency that points towards the grammaticality/ acceptability of a certain construction***.

In addition to the mean, ***the mode will be calculated to see which rating(s) is/are the most frequent and hence the most dominant*** (Riazi 2016: 195). Once again, given the fact that grammaticality/ acceptability is not a binary phenomenon, there might be two ratings that occur with the same frequency (i.e. two dominant modes). This is referred to as a *bimodal set of data*. If two modes appear on both extremes of the scale (i.e. above and under 5), this will be interpreted as a divide in the grammaticality judgment between the respondents in the sample (Rasinger 2008: 120). These measures serve to determine the frequency distribution of the ratings of each construction. The three types of frequency distribution will be explained below.

Histograms will be used to visualize the frequency of the distribution. Brezina (2018: 25) explains that histograms display "the shape of the observed distribution of the data". He shows for instance how, through a histogram, the relative frequency distribution of the f-word (fuck, fucked, fucking) per 1000 words is shown to be extremely skewed. This is attributed to the fact that "very few people in the corpus use the f-word at all".

[13]R is a free software used for statistical computing and graphics.

With regard to frequency distribution, two types are distinguished: positively and negatively skewed distributions. Riazi (2016: 242) explains that in a positively skewed distribution the tail of the distribution is extended towards the higher score of the graph, but when it is negatively skewed the tail of the distribution is extended towards the lowest score of the graph.

5. Presentation of the results

First, let us have a look at a summary of the respondents' ratings of the constructions, as well as the average of their ratings. The constructions in grey in Table 1 refer to ***ungrammatical constructions***. They are considered ungrammatical based on a) the arguments presented in the literature review and b) the general rating of the 27 respondents. The average ratings in grey in Table 2 refer to respondents' ratings that do not represent the general tendency in grammaticality judgment as shown by most respondents:

RESPONDENTS	RATINGS OF THE CONSTRUCTIONS												
	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13
1	9	1	7	10	10	1	9	1	9	8	1	1	1
2	8	9	7	3	8	4	5	6	10	10	10	2	2
3	8	5	8	6	7	2	7	1	3	7	5	7	7
4	8	8	7	8	10	5	10	4	10	5	5	5	8
5	8	5	5	5	5	1	8	1	8	8	8	3	3
6	8	10	3	5	1	8	9	1	8	7	4	5	2
7	7	7	7	9	9	6	5	9	5	7	7	5	5
8	6	7	3	7	7	4	3	6	6	9	6	2	2
9	5	7	7	8	8	4	5	3	7	4	3	5	5
10	4	6	10	10	8	6	2	3	3	2	2	2	2
11	3	3	3	5	5	1	5	3	8	9	1	1	1
12	3	3	2	4	5	3	4	4	6	9	1	4	4
13	3	2	3	3	1	1	1	1	1	3	2	1	1
14	2	3	9	1	9	8	5	3	9	3	2	2	2
15	2	6	4	7	8	5	1	1	6	5	5	1	1
16	2	1	1	6	6	1	2	9	8	1	1	1	1
17	10	10	10	5	10	1	2	1	10	10	1	1	1
18	10	10	10	10	5	1	5	10	10	7	7	3	2
19	10	10	9	8	8	6	5	6	10	8	9	8	7
20	10	7	4	9	10	1	4	4	10	10	10	1	6
21	10	10	10	10	10	1	1	1	1	9	9	9	9
22	10	9	9	7	10	3	4	8	8	9	9	9	9
23	10	7	7	1	10	1	5	10	6	10	1	1	2
24	10	10	5	10	10	3	5	3	4	10	1	1	1
25	1	2	2	1	3	1	1	1	1	1	1	1	1
26	1	3	3	1	2	1	2	1	2	1	1	1	1

27	1	9	5	6	3	2	5	7	7	9	8	10	8

Table 1. Respondents' ratings of the constructions according to their grammaticality

RESPONDENTS	AVERAGE RATING OF THE CONSTRUCTIONS	
	GRAMMATICAL	UNGRAMMATICAL
1	7,8	1
2	7,5	4,8
3	6,3	4,4
4	8,2	5,4
5	6,5	3,2
6	6,3	4
7	6,2	6,4
8	5,3	4
9	5,6	4
10	5	3
11	4,5	1,4
12	4	3,2
13	1,8	1,2
14	4,5	3,4
15	4,3	2,6
16	3	2,6
17	7,4	1
18	7,4	4,6
19	7,5	7,2
20	8	4,4
21	6,7	5,8
22	7,3	7,6
23	6,2	3
24	7,1	3
25	1,3	1
26	1,6	1
27	5	7

Table 2. The average of ratings according to the (un) grammaticality of the constructions

Based on the average ratings presented in the table above, 8 out of 27 respondents have rated the grammatical constructions as ungrammatical, and 6 out of 27 have rated the ungrammatical ones as grammatical. These ratings, which deviate from the general tendency displayed by most respondents, cannot be explained given that the respondents were not asked to justify their grammaticality judgment.[14] The next subsections present respondents' average ratings (i.e. the mean) as well as their dominant ratings (i.e. the mode) of each construction. These tendencies are visualized through histograms.

[14]Many of the respondents have expressed their fear of the grammaticality judgment task given that it was reminiscent of learning grammar at school. Thus, it was thought that including a section on the questionnaire for the justification of their ratings would exacerbate this task.

5.1. *Of*-phrases separated from their nominal head through intervening PPs

- **Construction 1**

Franjiyah claimed that Geaga had been responsible for ***the assassination [in 1978][1] of his father Tony Franjiyah*** (BNC: HLL).

Mean	Mode
6.25	10

Table 3. Measures of central tendency: Grammaticality/ Acceptability of con1

Construction 1 is an example from the BNC that shows the possibility of separating the head noun *assassination* from the complement *of*-phrase through a PP that expresses time. The number of intervening PPs here is 1. The value of the mode is higher than the mean, which indicates that respondents' rating of construction 1 is negatively skewed, as shown in Figure 10; the interval between the values on the x-axis (i.e. rating) is 1. Thus, each interval, represented by the 10 vertical bins, stands for one incremental value (i.e. 1, 2, 3 ...) on the scale of 1 to 10. For example the first bin on the far left stands for the value 1 and shows that 3 respondents have assigned this value to construction 1. The second bin stands for the value 2 and shows also that it was assigned by 3 respondents, and so on and so forth. The tallest bin on the far right represents the mode, which is the value 10 assigned by 8 respondents. The values of the mean and the mode indicate that more respondents have placed construction 1 along the grammatical/ acceptable end of the scale.

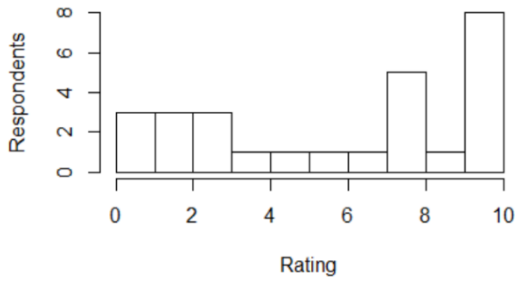

Figure 10. Grammaticality/ Acceptability of con1

- **Construction 2**

A number of crimes were not covered by the amnesty law. These included two of the incidents which were believed effectively to have triggered the civil war, namely ***the assassination [in February 1975][1] [in Sidon][2] of a prominent left-wing politician*** (BNC: HLA).

Mean	Mode
6.29	10

Table 4. Measures of central tendency: Grammaticality/ Acceptability of con2

Construction 2 is the second example from the BNC that shows the possibility of separating the head noun *assassination* from the complement *of*-phrase through a PP that expresses time and another one that expresses location. The number of intervening PPs here is 2. The rating is negatively skewed; this means that more respondents have placed construction 2 along the grammatical/ acceptable end of the scale, although the head was separated from the *of*-phrase by 2 PPs. Notice also that the mode (i.e. dominant rating) remains 10.

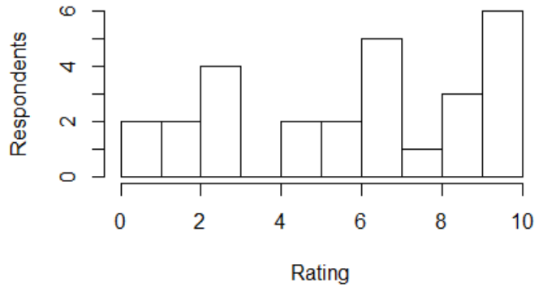

Figure 11. Grammaticality/ Acceptability of con2

- **Construction 3**

A court in Pune (Maharashtra) on Oct. 24 convicted and sentenced to death two militant Sikh separatists, Harjinda Singh and Sukhdev Singh, for ***the assassination [in Pune]^{1}[in August1986]^{2} of a former Army Chief of Staff Gen*** (BNC: HKS)

Mean	Mode
5.92	7

Table 5. Measures of central tendency: Grammaticality/ Acceptability of con3

Construction 3 is the third example from the BNC that supports the possibility of separating the nominal head from its complement *of*-phrase. Here, the noun *assassination* is again two PPs away from its complement, except that the order of the intervening material is reversed; that is to say, the spatial PP precedes the temporal one. Based on the two measures of central tendency, the grammaticality/ acceptability of the sentence has decreased, but not dramatically so. Whether or not it is due to the reversal of the order of the intervening PPs is hard to assert. The histogram below shows the decrease of the mode to 7 and the noticeable

increase of negative ratings compared to construction 2. Thus, next to dominant rating, that is to say the value 7 given by 6 respondents, 5 respondents have assigned this construction the negative value 3.

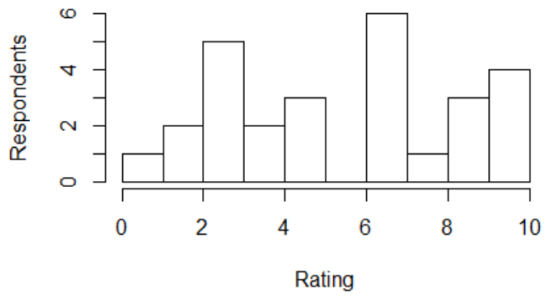

Figure 12. Grammaticality/ Acceptability of con3

- **Construction 4**

The destruction* [*in Oklahoma City*]**[1] ***of a nine-story government building *was a Rembrandt, it was a masterpiece of science and art put together* (COCA: SPOK).

Mean	Mode
6.11	10

Table 6.Measures of central tendency: Grammaticality/ Acceptability of con4

Construction 4 is an example from the COCA, which endorses the grammaticality/ acceptability of NPs where the nominal head (i.e. *destruction*) is one spatial PP away from the complement *of*-phrase. The two measures of central tendency corroborate this view. The histogram below shows more favorable ratings of the construction and represents the increase of the dominant rating in comparison to construction 3.

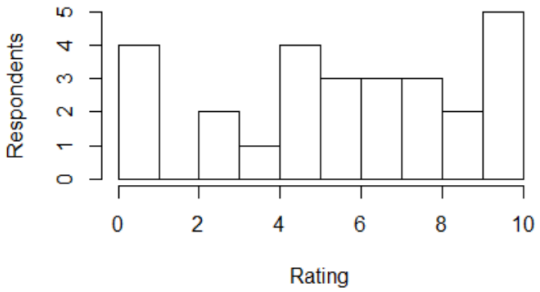

Figure 13. Grammaticality/ Acceptability of con4

- **Construction 5**

The dominant Fianna Fail long ago gave up any pretence of offering Ireland a coherent vision for the future -- a failure epitomised, for many, by ***the wanton destruction*** **[*over the past 20 years*]**[1] ***of Georgian Dublin****, once one of Europe's finest cities*(BNC: ABK).

Mean	Mode
6.96	10

Table 7. Measures of central tendency: Grammaticality/ Acceptability of con5

Construction 5 is another example from the BNC that questions Napoli's (1989: 221) claim that a head noun cannot occur in a construction away from its argument (i.e. what she refers to in generative terms as *extraposition*). The intervening material in this example is one temporal PP headed by the preposition *over*. The measures of central tendency above show that this construction was also rated as grammatical/ acceptable by most respondents; hence the negatively skewed distribution in Figure 14. Additionally, the dominant rating of the construction is 10 (i.e. a completely grammatical construction).

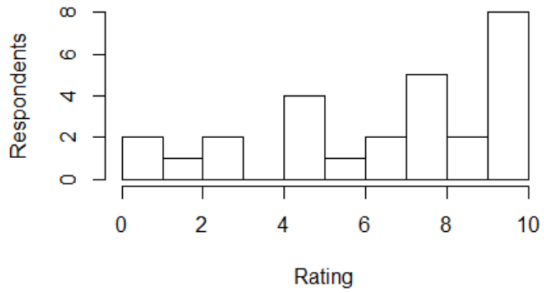

Figure 14. Grammaticality/ Acceptability of con5

- **Construction 6:**

The researchers analyzed ***the destruction*** **[*over the summer*]**[1] ***of the city****.*

Mean	Mode
3	1

Table 8. Measures of central tendency: Grammaticality/ Acceptability of con6

Construction 6 is adapted from Napoli's (1989: 221) example in (21d) - the only modification is the subject *John* which was replaced by *the researchers*. The grouping of the underlined NP constituents in construction 6 is the same as the grouping in construction 5: the nominal

head *destruction* and its complement *of*-phrase are split by a temporal PP headed by the preposition *over*. Yet, in this case, the measures of central tendency point to the fact that construction 6 is ill-formed. The distribution of the rating is sharply skewed to the right; this means that the construction was rated unfavorably by most of the respondents. Notice also that the dominant rating is 1 (i.e. completely ungrammatical/ unacceptable). This seems like a contradiction if we assume that the underlying problem is the syntactic distance between the head and its complement PP. We have seen that even in constructions where the syntactic distance was longer than in this case (i.e. two intervening PPs), the grammaticality/ acceptability of the constructions remained intact. So, why is this example an exception?[15]

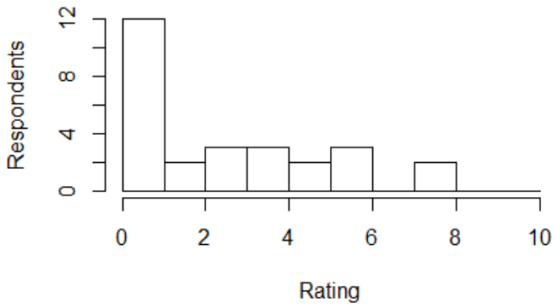

Figure 15. Grammaticality/ Acceptability of con6

5.2. NPs occurring in the topic position of a question

- **Construction 7**

Speaker A: *I'm going to sing a song, which I wrote myself.*

Speaker B: *Nice*! **[*Who*] *did you write that song about****?***

The underlined example with the bracketed *wh*-NP was constructed based on:

a. Davies and Dubinsky's (2003: 23) *semantic* distinction between verbs of creation (e.g. *write*/ *tell*) and verbs of use (e.g. *read*/ *hear*); and

b. the *syntactic* effect of definiteness on the eligibility of certain *wh*-NPs to appear in the topic position of a question (i.e. what is referred to in generative terms as *extraction*).

In this construction, both a verb of creation (i.e. *write*) and a definite NP (i.e. *that song*) are used. As we have seen, according to Davies and Dubinsky (2003), such a definite NP can be

[15]Some might claim that the difference between Napoli's example in (21d) and the corpus constructions in (22a-i) is that the intervening PP in (21d) is a clausal modifier, whereas in (22a-i) the PPs are phrasal (i.e. NP) modifiers. Therefore, this is a syntactic constraint. Corpus data indicate that this cannot be a syntactic constraint because even when the PP is a clausal modifier extraposition is still possible (see examples (23a,b)).

extracted from because it is the object of a verb of creation. Let us see then how the respondents have rated this construction:

Mean	Mode
4.44	5

Table 9. Measures of central tendency: Grammaticality/ Acceptability of con7

The mode indicates that the dominant rating is 5; Figure 16 shows that this value was assigned by 10 out 27 respondents. Additionally, 5 respondents have rated this construction above average. This means that 15 out of 27 respondents consider construction 7 to be grammatical. However, the mean is 4,44 given that 12 out of 27 respondents have rated this construction below average. Although they were not asked to justify their ratings, two respondents have hinted that the problem resides in the demonstrative *that*; one of them simply circled the demonstrative, whereas the other crossed it out and replaced it with the definite article *the*.

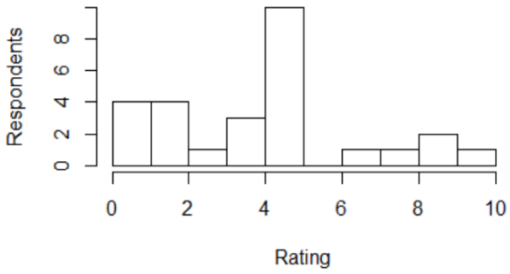

Figure 16. Grammaticality/ Acceptability of con7

- **Construction 8**

Speaker A: *I heard a beautiful story on the radio today*.

Speaker B: **[*Who*] *did you hear that story about***?

The underlined example with the bracketed *wh*-NP was constructed based on the semantic and syntactic constraints described above (i.e. verbs of creation/ use and the definiteness effect). The aim was to find out whether replacing a verb of creation (e.g. *write*) with a verb of use (e.g. *hear*) would yield an ill-formed construction as Davies and Dubinsky (2003: 23) claim. Here is the result of the rating:

Mean	Mode
4	1

Table 10. Measures of central tendency: Grammaticality/ Acceptability of con8

This construction was rated poorly. The mode is 1 and the distribution of the rating is positively skewed; this shows that the majority in the sample considers the construction to be ungrammatical/ unacceptable.

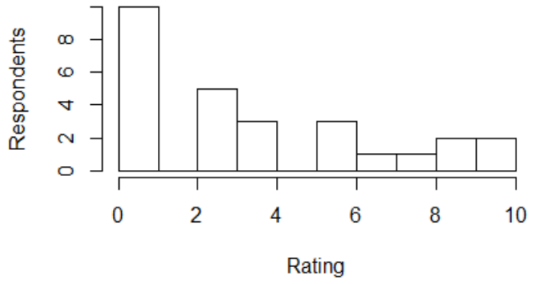

Figure 17. Grammaticality/ Acceptability of con8

- **Construction 9**

Speaker A: *The library building has been sinking for a number of years and it is aptly named the mud library. I've heard that very story about MIT and Brown university. Of course, I've heard it about other universities too*.

Speaker B: *Just out of curiosity*, **[which other universities]** ***have you heard that story about***?

The conversation constructed above was inspired by an example from the COCA. In this example, one of the speakers tells the interlocutors about the story of a library dubbed the "Mudd" library. Later in the discourse space, other speakers chime in. Consider the original dialog below:

Mr-MOELLER: *And the library was renowned, of course as is the college, for having, I think, over a million volumes. As a consequence, the building is sinking and has been sinking for a number of years, and it is aptly named the Mudd Library*.

CONAN: *M-U-D-D, I assume*.

RICHARD: *M-U-D-D, yes*.

Mr-MOELLER: *You know, sir, I have to say* ***I have heard [that very story about seven different university libraries]****, including my own alma mater, Tulane University. So I have to say I think that's something of an urban legend. I've heard it about MIT, Brown University, so many of them* (COCA: SPOK).

The underlined example contains a bracketed NP which is definite through the demonstrative *that*. In the dialog, the ***story*** has already been mentioned by **Mr-MOELLER**, which means it is accessible in the discourse space; hence the anaphoric use of the demonstrative ***that***. This definite NP is followed by a PP headed by the preposition *about*. The whole NP is a complement of the verb *heard*, which is a verb of use according to Davies and Dubinsky (2003: 23). This sentence has the two components which these authors have argued would prevent extraction from taking place:

a. *A definite result nominal:* ***that story***

b. *The nominal is an object of a verb of use:* ***hear***

Let us now see how the respondents have rated the question in construction 9 where, to use Davies and Dubinsky's terminology, the NP *which other universities* has been extracted from the complex definite NP ***that story*** and over a verb of use.

Mean	Mode
6.51	10

Table 11. Measures of central tendency: Grammaticality/ Acceptability of con9

Interestingly enough, based on the two measures of central tendency, the question in construction 9 is rated as grammatical/ acceptable. Moreover, the dominant rating is 10. This seems to show that there is more to the occurrence of *wh*-NPs in the topic position of questions than the syntactic and semantic constraints postulated by Davies and Dubinsky (2003). The histogram below indicates that the distribution of the rating is negatively skewed. This means that the majority considers the question to be grammatical/ acceptable.

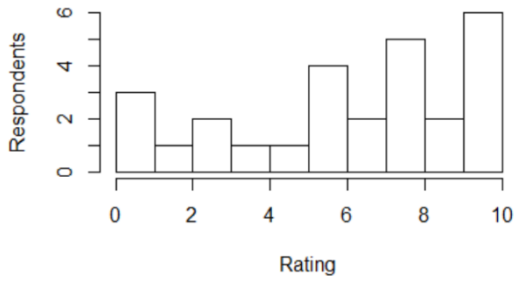

Figure 18. Grammaticality/ Acceptability of con9

5.3. Infinitival clauses that may occur in the topic position of a question

We have seen in 3.3 that Langacker (2008: 204) claims that infinitival clauses can function either as complements or modifiers, and that topicalization is restricted only to modifier infinitival clauses. However, it was observed that, like modifier infinitival clauses, NP and PP complements also lend themselves to occur in the topic position of a sentence. Thus, the question was: Why do complement infinitival clauses resist appearing in this position? Why do they not behave like NP and PP complements?

Consequently, it was suggested that the distinction between complements and modifiers might not be enough to explain this exception. The focus of this section is on the cognitive constraint that may explain why complement infinitival clauses, unlike NP and PP complements, cannot occur in the initial position of a sentence. To reiterate, it was suggested that its occurrence in this position may be motivated by the speaker's attempt to express contrast by ***instantiating differently*** the landmark of a relation that:

a) has already been mentioned in discourse (already accessible to the speaker and hearer); and
b) whose landmark has already been instantiated, and which the infinitival phrase in the topic position only serves to instantiate differently.

This account does not claim to be exhaustive of all the motivations that the speaker may have.

- **Construction 10**

To annoy his mother he cried.

This is Langacker's (2008: 204) example which he used to substantiate his claim that only modifier infinitival clauses can occur in the topic position of a sentence. Unlike the verb *try*, *cry* does not have an e-site. This turns the infinitival clause into a modifier. The respondents in this study have rated Langacker's construction as follows:

Mean	Mode
6.70	9

Table 12. Measures of central tendency: Grammaticality/ Acceptability of con10

As it was observed by Langacker (2008: 204),based on the measures of central tendency, this construction is well-formed. Consider the distribution of the rating in the histogram below:

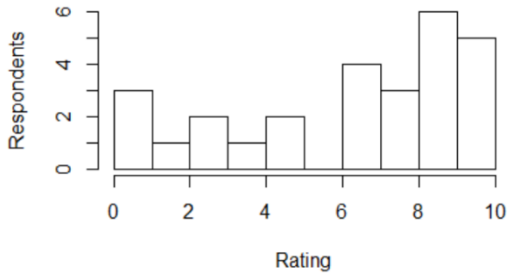

Figure 19. Grammaticality/ Acceptability of con10

The distribution of the rating is negatively skewed. The mode of this rating is 9. This points to a favorable rating of construction 10.

- **Construction 11**

To annoy his mother he tried.

According to Langacker (2008: 204) the ungrammaticality of construction 11 is due to the fact that the infinitival clause functions as a complement vis-à-vis the schematic verb *try*. Thus, the infinitival clause elaborates the e-site of the verb. In other words, the verb depends on it. It was discussed in section 3.3 that Langacker considers this dependence to be reflected in word order, such that infinitival clauses can occur readily in the topic position when they are modifiers, but "hardly as complements" (Langacker 2008: 204). This is how the respondents have rated construction 11:

Mean	Mode
4.44	1

Table 13. Measures of central tendency: Grammaticality/ Acceptability of con11

Indeed, the two measures of central tendency show that construction 11 is considered to be ill-formed. The dominant mode is the lowest on the rating scale. Below is the distribution of the rating:

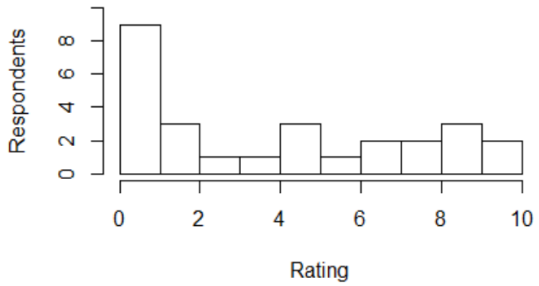

Figure 20. Grammaticality/ Acceptability of con11

The positively skewed distribution is a clear indication of the oddity of the construction from the point of view of the majority in the sample.

- **Constructions 12 & 13**

He didn't try to hurt his mother, but to annoy her he did try.

He didn't intend to hurt his mother, but to annoy her he did try.

In construction 12, the landmark of the verb *try* (i.e. the infinitival clause) is specified in the first sentence (i.e. *to* ***hurt*** *his mother*), whereas in the coordinate sentence the landmark is instantiated differently (i.e. *to* ***annoy*** *her*). Additionally, the existence of this relation is negotiated through the auxiliary verb *did*. The same holds true for construction 13, except that the relationship profiled by the verb *try* in the coordinate sentence has been evoked in the first sentence (i.e. through the verb *intend*). Here is how the respondents have rated these constructions:

Mean	Mode
3.40	1

Table 14. Measures of central tendency: Grammaticality/ Acceptability of con12

Mean	Mode
3.48	1

Table 15. Measures of central tendency: Grammaticality/ Acceptability of con13

Based on the values of the mean and the mode, constructions 12 and 13 are also very poorly rated. Consider the distribution of the rating in the histograms below:

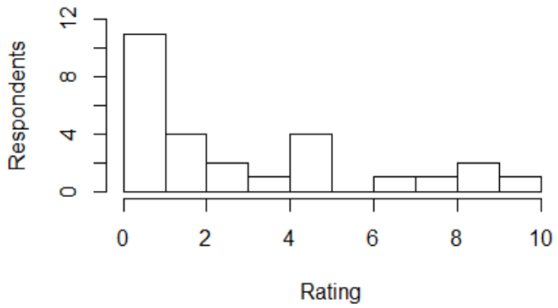

Figure 21. Grammaticality/ Acceptability of con12

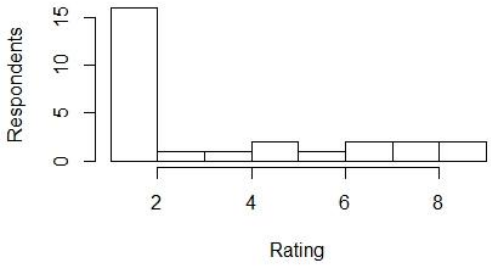

Figure 22. Grammaticality/ Acceptability of con13

Both histograms show a positively skewed distribution (*sharply skewed*), which is a clear indication of the ill-formedness of the constructions. Moreover, the dominant rating of both constructions is 1.

To sum up, the presentation of the findings shows that nominal heads separated from complement PPs by temporal/ spatial PPs *can* be judged as grammatical/ acceptable. This is the opposite of Napoli's (1989: 221) one-size-fits-all analysis of such constructions as ungrammatical structures. At the same time, it was demonstrated that her example (i.e. construction 6) was judged by most respondents as ungrammatical/unacceptable exactly as

she had expected, although the NPs in the corpus and Napoli's examples share the same kind of intervening material, that is a temporal PP. This indicates that there is more to the tolerated distance between nominal heads and their complement PPs than purely syntactic constraints.

Secondly, the presentation demonstrates that an NP can occur in the topic position of a question as a *wh*-word even if the landmark to which it corresponds is that of a relation whose trajector is a definite NP, and this whole relation is the landmark of a verb of *use*, in Davies and Dubinsky's (2003: 23) terminology (see construction 9). In other words, such constructions do not appear to be governed by purely syntactic or even semantic constraints as the authors claim (recall Davies and Dubinsky's claim about the impact of definiteness and verbs of creation/ use on extraction).

Thirdly, the presentation of the findings shows that the claim made in this paper about the cognitive constraint that might underlie the occurrence of complement infinitival clauses in the topic position of sentences seems inadequate. This is evident from most respondents' unfavorable judgment of the constructions devised for this purpose.

6. Discussion of the results

6.1. *Of*-phrases separated from their nominal head through intervening PPs

The results in section 5 suggest that complement *of*-phrases can occur away from their deverbal head nouns in a complex NP. This was illustrated by the fact that the corpus constructions (1-6) were judged as grammatical/ acceptable by most respondents. These constructions are repeated below as (51a-e) for convenience:

(51) a. *Franjiyah claimed that Geaga had been responsible for* ***the assassination [in 1978]^{1} of his father Tony Franjiyah*** (BNC: HLL).

b. *A number of crimes were not covered by the amnesty law. These included two of the incidents which were believed effectively to have triggered the civil war, namely* ***the assassination [in February 1975]^{1} [in Sidon]^{2} of a prominent left-wing politician*** (BNC: HLA).

c. *A court in Pune (Maharashtra) on Oct. 24 convicted and sentenced to death two militant Sikh separatists, Harjinda Singh and Sukhdev Singh, for* ***the assassination [in Pune]^{1}[in August1986]^{2} of a former Army Chief of Staff Gen*** (BNC: HKS).

d. ***The destruction* [*in Oklahoma City*]^{1} *of a nine-story government building*** *was a Rembrandt, it was a masterpiece of science and art put together* (COCA: SPOK).

e. *The dominant Fianna Fail long ago gave up any pretence of offering Ireland a coherent vision for the future - a failure epitomised, for many, by* ***the wanton destruction* [*over the past 20 years*]^{1} *of Georgian Dublin****, once one of Europe's finest cities*(BNC: ABK).

f. *The researchers analyzed* ***the destruction* [*over the summer*]^{1} *of the city*** (adapted from Napoli 1989: 221).

The intervening PP between the deverbal head noun and its complement *of*-phrase within the underlined NPs in (51a-e) are relations that profile spatial and temporal domains of instantiation. These PPs serve to anchor the events profiled by the head nouns (i.e. *assassination* and *destruction*) in a domain of instantiation (i.e. time or space/ or both) such that the events are distinct. For instance, *the assassination in Pune in August 1986* and *the assassination in February in 1975in Sidon* are clearly **two distinct events**.

Notice also that the landmarks of the *of*-phrases *(e.g. a prominent left-wing politician, a former Army Chief of Staff Gen, a nine-story government building*, *Georgian Dublin*) serve also to **distinguish the events from each other**. This is reminiscent of Langacker's claim that event participants are "natural *reference points* for purposes of **conceiving** and **distinguishing** events" (Langacker 1999: 83-84) [emphasis added]. The data suggests also that the anchoring PPs may differ in terms of specificity. For example *over the past 20 years* is less specific than *in August 1986* because it only specifies the duration. Nevertheless, such less specific PPs can also be used as anchors, as long as they can assign an event to a location in the time space, which would make it distinct from another event. In this case, the duration of the event (i.e. *over the past twenty years*) can distinguish an event from another based on their different time spans (e.g. *over the past three years*). Evidently, the distinctive aspect of the anchoring PPs is amplified also by the event's natural reference points, its participants.

Napoli's (1989: 221) adapted example in (51f), where only the subject was modified (i.e. *the researchers* instead of *John*), was judged ungrammatical/ unacceptable, as Napoli predicted, despite the fact that the complement *of*-phrase was separated from its nominal head by an anchoring PP (i.e. *over the summer*). It was argued in section 3.1 that some might argue that there is a syntactic difference that accounts for the ungrammaticality of Napoli's example.

According to this argument, unlike the anchoring PPs between brackets in the corpus examples (51a-e), the anchoring PP between brackets in Napoli's example 51 (f) modifies the whole clause (i.e. clausal modifier), not just the NP (i.e. phrasal modifier). Thus , when the PP is a clausal modifier, the distance between the nominal head and its complement *of*-phrase cannot be tolerated. To counter this argument, examples (23a,b) were provided, where this syntactic constraint does not appear to prevent the *of*-phrase from occurring away from its nominal head. These examples are repeated below as (52a,b) for the sake of convenience:

(52) a. *They were making movies in Hollywood* [*of shoot-'em-up Indians*], *you know* (COCA: SPOK).

b. *Well, I had certainly read stories over the years* [*of some people feeling like the portrayal of African-Americans in this country and some people in other countries wasn't balanced*] (COCA: SPOK).

Although the PPs *in Hollywood* and *over the years* are clausal modifiers (i.e. they anchor the whole event of making movies and reading stories), separating the head nouns *movies* and *stories* from their complement *of*-phrases does not produce ungrammatical/ unacceptable constructions. However, notice that there is a difference between the nominal heads in examples (52a,b) and the ones in (51a-e). Although they all profile a thing, the nominal heads in (51a-e) have a process as their base. We have discussed that in the case of such nouns (i.e. deverbal nominalizations) events are viewed holistically and can be construed as being bounded in time (i.e. a single episode) (Langacker 1987: 207-208). Napoli's example (51f) includes a) a processual relationship profiled by the verb *analyzed* (i.e. the profile determinant of the clause), and b)an event that is viewed holistically profiled by the noun *destruction*.

Now, given that (51f) includes two events, which one will be anchored by the temporal PP? They cannot be both construed as being anchored by *over the summer* at the same time. The reason is that the ***simultaneity*** of the ***event of analyzing*** and ***the event that is being analyzed*** does not figure as a central specification to the meaning of *analyze*. Thus, only one event can be anchored at a time. Also, only one construal seems to allow the occurrence of the complement *of*-phrase away from its nominal head *destruction*; namely, the construal of the temporal PP as an anchor of the event *destruction*. Beside *the summer*, the landmark of the *of*-phrase, *the city*, will then be construed as another reference point that distinguishes

the event *destruction* with greater specificity. Contextual support may be required for the construal of the PP as an anchor of the event (e.g. *destruction*) that functions as the landmark of the whole event (e.g. the whole event profiled by the verb *analyzed* in (51f)). Let us refer to them as the ***main event*** and the ***sub-event***. Here is an example that demonstrates the importance of context to such a construal:

(53) *Mrs. Ciller's critics have also **examined** the purchase* [*in 1992*] *of $1.5 million worth of properties in New Hampshire by an American company headed by her husband* (COCA: NEWS).

Based on the previous context, it is understood that Mrs. Ciller's critics started their examinations (i.e. the main event) *after* she had become a Prime Minister in 1993. This leads to the construal of the PP *in 1992* as an anchor of the sub-event profiled by the underlined noun *purchase* rather than main event profiled by the verb *examined* in bold. So, in this example, both the temporal PP (i.e. *in 1992*) and the natural reference point of the sub-event *purchase* (i.e. *$1.5 million worth of properties in New Hampshire by an American company headed by her husband*) distinguish this event with a greater level of specificity.

Conversely, if the temporal PP *in 1992* was construed as an anchor of the main event (i.e. *examined*), the natural reference point of *purchase* would be construed as irrelevant to this main event. In other words, the natural reference point of *purchase* would not serve to distinguish *examined* more specifically. Consequently, the occurrence of the *of*-phrase away from purchase would be considered ungrammatical/ unacceptable.

Such construal does not require the support of context when the **simultaneity of the main event and the sub-event is a central specification of the meaning of the verb that profiles the main event**. Consider the following examples:

(54) a. *Attorney General Edwin Meese **oversaw** the production*[*in 1986*] *of a report on obscenity and pornography that devoted a mere three out of its more than 1900 pages to the mainstream film industry* (COCA: ACAD).

b. *Remarkably, the university has largely succeeded in avoiding the sort of publicity that **surrounded** the elimination* [*in 1987*] *of its Western Culture canon* (COCA: ACA)

c. *She died before she was 30, having lived enough, however, to **attend** the opening* [*in 1783*] *of Richmond's Georgian Theatre with her brother than Mayor of the town* (BNC: BPJ).

The PPs between brackets anchor the main events profiled by the verbs *oversaw*, *surrounded* and *attend* in examples (54a-c). Unlike the main events profiled by the verbs *analyzed* and *examined* in (51f) and (53), it appears that those in (54a-c) cannot be construed as having sub-events that can occur later. This **obviates the need for context to determine which event should be construed as being anchored by the temporal PP**.

Beside PPs, we have seen in section 3.1 that the intervening material between a nominal head and its complement *of*-phrase can be also a VP. One of the example was:

(55) *A review* [*came out yesterday*] *of a new book about French cooking* (Akmajian 1975: 118).

In example (55), the VP *came out yesterday* is a process relationship profiled by the verb *came*. The trajector of the process relationship is *review*, which is a thing with a process as its base. Notice that this process relationship (i.e. *A review came out yesterday*) does not have a landmark. Why does it not have one? Langacker (2008: 71-72) maintains that the relationship that verbs such as *come* and *arrive* profile is the mover's motion through space. This involves a series of locations occupied by the mover; nevertheless, instead of being in the foreground as focused elements, they remain rather in the background because they "lack the focal prominence of a landmark". As a result, these verbs have a trajector but no landmark.

The trajector of the process relationship (i.e. *the review* in *The review came out yesterday*) corresponds to the trajector of the non-processual relationship profiled by the preposition *of* (i.e. *of a new book about French cooking*). Recall that we have discussed a similar example in (11b), where the nominal head *package* is separated from the relative clause *that I was expecting* by a processual relationship profiled by the verb *arrived*, and where the trajector of *arrived* (i.e. *package*) corresponds to the landmark of the relative clause. This word order symbolizes a conceptual grouping that serves to specify the profiled event (i.e. *arrived*) (see the discussion in section 3.1). By the same token, the conceptual grouping in (55) (i.e. *The review came out yesterday*) serves to specify the event *came out* through its natural reference point *review*. Notice that since the restrictive relative clause in (11b) has its trajector elaborated by *package* and the *of*-phrase in (55) by *review*, they can be both considered as modifiers. Additionally, the profiled events (i.e. *arrived* and *came out*) do not

prefigure a landmark that would lead to the construal of the *that*-clause and the *of*-phrase as elaborations of these events (e.g. *The package* ***indicates*** *that* ... / *The review* ***consisted*** *of* ...); rather, due to the lack of a verb's prefigured landmark, the *that*-clause can be construed as instantiating the thing profiled by *package* in (11b), and the *of*-phrase as elaborating the thing profiled by *review* in (55). By virtue of these conceptual commonalities, it is little wonder that the distance between the nominal heads and the two relations (i.e. *of*-phrase and *that*-clause) is tolerated.

These commonalities in the conceptual integration of the component structures are represented in Figure 23. This figure is constructed by building on Langacker's (2008: 213) Figure 9 and adapting it according to the differences implied by the *of*-phrase. Irrelevant details such as the definite article, adjectives and adverbs are not represented. For the relationship profiled by the preposition *about*, only the composite structure is represented:

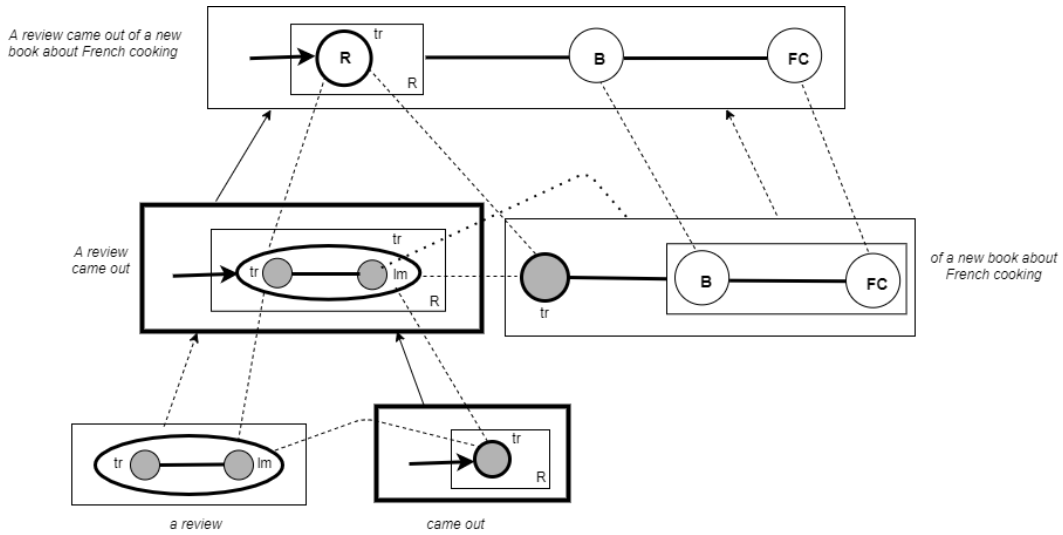

Figure 23. A conceptual grouping through which the profiled event *came out* is specified.

Based on Figure 23, unlike the relative restrictive clause in (11b), the *of*-phrase in (55) elaborates the single schematic landmark prefigured by the nominal head *review*. This landmark is represented by the grey circle inside the oval. *Review* profiles a thing and evokes simultaneously a relationship between a *reviewer* and the *type of the content* being reviewed (e.g. *book*, *article*). We have seen in section 1.2.2 that a situation can be described with varying levels of specificity In example (55), the reviewer is not specified. The fact that the schematic landmark of *review* is elaborated at a higher level of conceptual organization by the *of*-phrase and that the trajector of the *of*-phrase is elaborated by *review* gives this phrase both the status of a modifier and a complement vis-à-vis the head *review*.

Furthermore (55) is more complex than (11b) because the landmark of the complement *of*-phrase (i.e. *book*) profiles a thing, but evokes itself a relationship between the *author* of the book and its *content*. This relation is profiled by the preposition *about*. Recall that it is not only things with a process base that evoke a relation; the example of *aunt* is a case in point (see Figure 1). At a higher level of conceptual organization, *book* corresponds to and elaborates the trajector of the PP *about French cooking*, and the whole NP *a book about French cooking* elaborates the landmark of the relation profiled by the preposition *of*.

Notice that the common denominator between the intervening PPs in (51a-e) and the intervening VP in (55) is that they do not interrupt the conceptual correspondence between the nominal head and the trajector of the complement/ modifier *of*-phrase. Thus, the landmark in the *of*-phrase (i.e. *a* ***book*** *about French cooking*) can be construed as a salient reference point that serves to distinguish the thing profiled by the nominal head *review* with greater level of specificity.

Let us now turn to Akmajian's example in (27b), which he considered to be ungrammatical due to the violation of the syntactic constraint in (26):

(56) **A review <u>of a new book</u>* [*came out yesterday*] ***about French cooking*** (Akmajian 1975: 118).

According to the syntactic constraint in (26) no element is allowed to move more than one cycle up from the cycle that contains it. Given that the PP in bold has crossed two cycles, construction (56) is ungrammatical. However, it was mentioned in section 3.1 that that some speakers in Akmajian (1975: 118) consider (56) to be acceptable when *review* is ***interpreted*** to be about French cooking. Akamajian notes that this interpretation is not possible in the case of some head nouns such as *photograph* in example (28). The question was: why do head nouns such as *review* allow such interpretation whereas others such as *photograph* do not?

Notice that both *review* and *photograph* are nouns with a process base.(e.g. *John reviewed*/ *photographed a book*). The difference seems to reside in domain highlighting[16]; when *review* is combined with the *of*-phrase *of a new book* in (56), it highlights the content rather than the physical domain of the noun *book*. What is reviewed is the book's ***content*** not its

[16] The concept of domain highlighting was discussed in 1.2.1.

physical form - in other words what appears in the review is the reviewed content of the book, not its physical form. Based on our encyclopedic knowledge of a review, we know that it provides a correction or improvement of some type of content. This content correction or improvement provided by *review* can be interpreted as being specified by the relation *about French cooking* at a higher level of conceptual organization.

Conversely, in (28) when *photograph* is combined with the *of*-phrase *of a new book*, the ***physical*** rather than the content domain of *book* is highlighted because what is photographed is not the content of the book but rather its physical form. A photograph does not provide any correction or improvement of some type of content. It is a copy of a physical form. Therefore, in example (28) the relation *about French cooking* cannot be interpreted as a specification of the head noun *photograph*.

Thus, it appears that the construal of the relation profiled by the preposition *about* (i.e. *about French cooking*) to the head nouns in (56) and (28) (i.e. *review* and *photograph*) as salient or non-salient is influenced by the domain they highlight of the noun (i.e. *book*) with which they are combined through the *of*-phrase (i.e. *of a new book*).

Furthermore, it was observed that the PP complement in Radford's (1988: 191) example (15b) does not cross more than one cycle (i.e. the NP *a student* in which the PP is embedded), yet this yields an ungrammatical construction, contrary to what (26) predicts. This example is repeated below as (57):

(57) **a student came to see me yesterday* [*of physics*] (Radford 1988: 191)

In CG terms, the noun *student* is the trajector of the relationship profiled by the verb *came*. Also, the NP *a student* is not the landmark of any other relationship whose trajector would render the verb non-salient to the NP *a student* (e.g. *the parent of a student came to see me*). The intervening VP is salient to the noun *student* in (57), so why does the integration/ combination of *a student came to see me yesterday* with the of-phrase *of physics*, such that *student* elaborates its trajector at a higher level of organization, render the composite structure in (57) ungrammatical? Why does the head noun *student* not correspond to the trajector of the *of*-phrase as it is the case in example (55) with the head noun *review*?

Notice that the noun *student* does not profile the process of studying. What is profiled is the agent/ person doing this process. In this respect, Langacker (1987: 192) observes for instance that adding the suffix *-er* to verbs "shifts the profile from the process as a whole to the actor specifically". The derivational morpheme *-er* is a *schematic agentive noun*. Its base is the schematic conception of the process and its profile is the trajector of the process (Langacker 1991: 293). In example (57), the process profiled by the verb *came* reinforces the centrality of the agent/ person profile. By contrast, the evoked process of studying is peripheral in combination with this verb-[17]However, when the noun *student* is combined with the *of*-relation, the centrality of the process base is accentuated given that this relation introduces a second participant in the process of studying (i.e. *physics*) beside the profiled participant. These arguments are represented in Figures 24 and 25 below. Irrelevant details such as the indefinite article and the infinitival clause are not included:

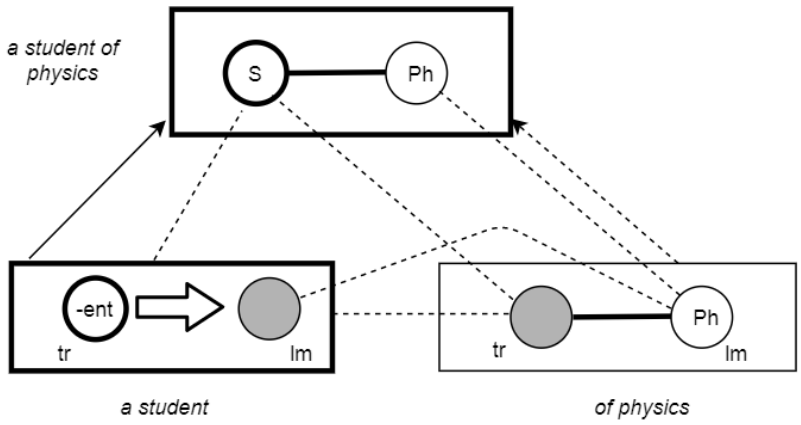

Figure 24. The centrality of the process base in combination with the intrinsic *of*-phrase introducing the participant *physics*.

[17] According to the Oxford English Dictionary (OED) words that end with the suffixes *-ent*/ *-ant* such as *agent*, *claimant, president, president, regent* are used as nouns to refer to a personal agent. Therefore, beside the suffix *-er*, it will be argued that nouns that end with the suffix *-ent* as in the noun *student* also profile an agent and have a schematic conception of a process (*study* in the case of *student*) as their base.

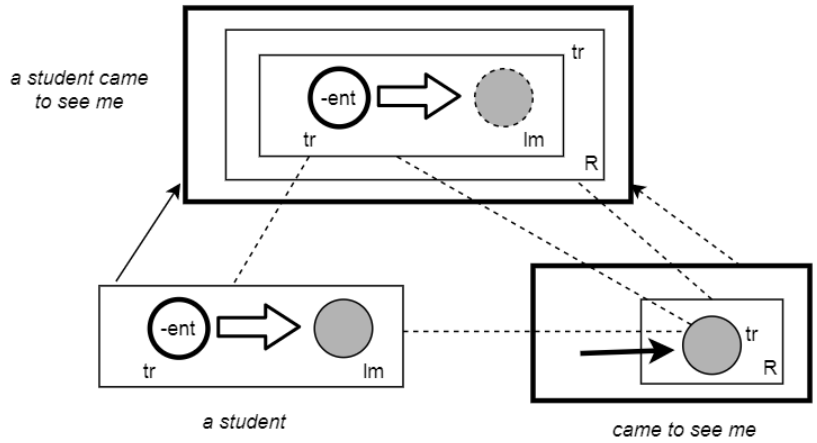

Figure 25. The peripheral role of the process base in combination with the event profiled by the verb *came*.

The conceptual grouping in Figure 24 (i.e. *a student came to see me*) serves to specify the event profiled by the verb *came*, as in the non-classical relative clause construction (11b) represented in Figure 9; however, the *of*-phrase cannot occur away from the head noun *student*, as in construction (55) represented in Figure 23. The peripheral role of the landmark of the process base (i.e. the second participant introduced by the *of*-phrase: *physics*) is reinforced by the profiled event (i.e. *came*). The increased peripheral role is indicated in Figure 25 by a dotted circle at a higher level of conceptual organization. In contrast to the PP *of physics* in (15b), the PP *with long hair* in (15a) can occur away from the head noun student given that the thing introduced by the PP (i.e. *long* ***hair***) is not a landmark of the process base underlying *student*. *Long hair* serves rather to specify the person occupying the trajector of the process base, which is profiled by the noun *student* and made more prominent by the event *came*.

6.2. NPs occurring in the topic position of a question

The results presented in section 5.2 show that more respondents consider construction 7 to be grammatical/acceptable, whereas the majority of respondents consider construction 8 to be ungrammatical/unacceptable. These constructions are repeated below for the sake of convenience:

- **Construction 7**

Speaker A: *I'm going to sing a song, which I wrote myself.*
Speaker B: *Nice*! **[*Who*] *did you write that song about***?

- **Construction 8**

Speaker A: *I heard a beautiful story on the radio today*.
Speaker B: **[*Who*] *did you hear that story about***?

From Davies and Dubinsky's (2003) viewpoint, the ungrammaticality of construction 8 would be due to the fact that it contains a verb of use (i.e. *hear*) whose object is a definite NP (i.e. *that story*). However, we have seen that construction 9 was considered grammatical/ acceptable despite containing the verb of use *heard* whose object is a definite NP (i.e. *that story*):

- **Construction 9**

Speaker A: *The library building has been sinking for a number of years and it is aptly named the mud library. I've heard that very story about MIT and Brown university. Of course, I've heard it about other universities too*.

Speaker B: *Just out of curiosity*, **[which other universities] *have you heard that story about***?

In other words, construction 9 violates Davies and Dubinsky's (2003: 23) semantic and syntactic constraints by extracting an NP from a PP over the definite NP *that story* and over the verb of use *heard*.

While Davies and Dubinsky's (2003: 23) semantic distinction between verbs of use (e.g. *hear*) and verbs of creation (e.g. *write*) claims to predict when extraction may or may not occur, it does not explain how the distinction operates conceptually.

In CG terms, it will be argued that the conceptual difference between the two verb types is that verb of creation prefigure two landmarks: a primary and a secondary landmark. By contrast, a verb of use prefigures one landmark only. Figures 26 (a,b) were constructed to represent the conceptual structure of these verbs exemplified by *write* and *hear*:

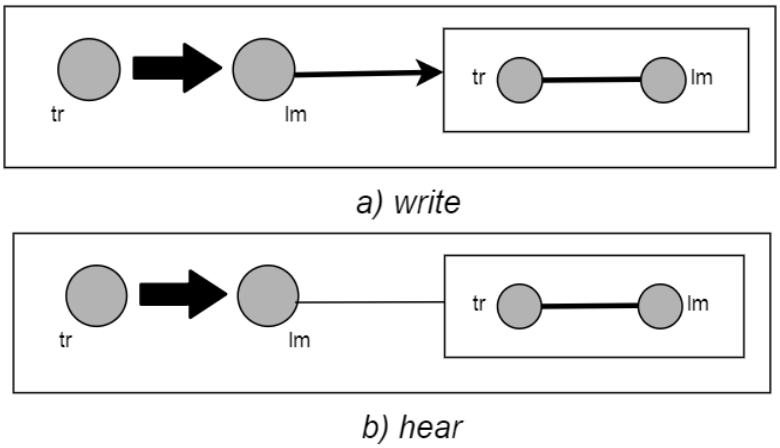

Figure 26. The landmarks prefigured by the verbs *write* and *hear*

In Figure 26a, the thick black arrow represents the energy transmitted by the trajector (e.g. *write*, *tell*, *paint*) towards a particular form that the energy takes (e.g. *song*, *joke*, *mural*) (i.e. the primary landmark). The thin black arrow represents the intended goal of the transmitted energy. This goal (e.g. talking about the issue of bullying) is specified by the relation inside the rectangle (i.e. the secondary landmark). The following dialog from the COCA illustrates this case:

(58) **ROBIN-ROBERTS-ABC-N3**: *But let's, let's chat a little bit about* "***Sorry Not Sorry***. "
DEMI-LOVATO-SINGER2: *Okay*.
ROBIN-ROBERTS-ABC-N3*: What did, what did* ***that song****, what does that mean to you*?
DEMI-LOVATO-SINGER2: *So that song, actually, I started writing* ***it*** *in the studio. A lot of people think that it's about a relationship or something like that. But I actually wrote* ***it*** [***about bullies that bullied me in school when I was younger and how my life is so great today and I'm unapologetic for it***] (COCA: SPOK).

In this dialog, Demi Lovato's song "Sorry Not Sorry" is introduced by the interviewer. Later on, the song is referred to using the anaphoric demonstrative *that* and the pronoun *it* because it has become accessible in the discourse. The *about*-relation between brackets serves to elaborate the secondary landmark of *wrote* and hence distinguish the profiled event with greater specificity. ***That is to say, it specifies the purpose of writing the song (i.e. the primary landmark) entitled "Sorry Not Sorry", and by implication it specifies the song itself.***

In Figure 26b, the verb *hear* has only **one landmark** because its trajector does not transmit an energy that takes a certain form and serves a particular purpose. The energy is rather

applied on **a ready-made form**, and the relation inside the rectangle serves only to specify it. This relation, which is evoked by the entity in the landmark, is represented by a thin line. Let us see how this applies to the "Mudd" library story:

(59) **Mr-MOELLER**: *And the library was renowned, of course as is the college, for having, I think, over a million volumes. As a consequence, the building is sinking and has been sinking for a number of years, and it is aptly named the Mudd Library.*

CONAN: *M-U-D-D, I assume*.

RICHARD: *M-U-D-D, yes*.

Mr-MOELLER: *You know, sir, I have to say* ***I have heard <u>that very story</u>*** **[*about seven different university libraries*]**, *including my own alma mater, Tulane University. So I have to say I think that's something of an urban legend. I've heard it about MIT, Brown University, so many of them* (COCA: SPOK).

In this example, Mr-Moeller had already elaborated the landmark evoked by the noun story earlier in the discourse: a story about the Mudd Library. That is why it is referred to later in the discourse space using the anaphoric *that* in the underlined NP. Therefore, the *about*-relation between brackets will not be construed as elaborating the noun *story* nor the event profiled by the verb *hear* because its single landmark is already specified. Rather, it will be construed as singling out another instance of the whole event. That is to say, we have two instances of the event profiled by the verb *heard*: a) where Mr-Moeller heard a story about the sinking library, and b) where he heard that same story about other universities. The result is two events profiled by the verb *heard*. By contrast, in (58), the *about*-relation does not single out a second instance of the event profiled by the verb *wrote*. It is one event.

So in the case of construction 9, the occurrence of the NP *which other universities* in the topic position was considered grammatical/ acceptable because it was construed as a request to specify a second instance of the whole event profiled by the verb *heard*, not as request to specify the noun *story*. This shows that the level of schematicity of the components of a particular construction and the need for their specification varies according to their conceptual structure (e.g. verbs that prefigure one/ two e-sites) and the construal of the whole construction in relation to the discourse space in which they are used (i.e. whether or not the elaboration of the prefigured e-sites has been already provided in discourse). The semantic and syntactic constraints of verbs of use/ creation as well as the definiteness effect apparently do not take these cognitive factors into account.

6.3. Infinitival clauses that may occur in the topic position of a sentence

Construction 11 was considered ill-formed with a dominant rating of 1 on a scale of 10. As explained before, Langacker (2008: 204) contends that the ungrammaticality of the construction is on account of ***the infinitival clause*** functioning as a complement of the verb *try* (i.e. it elaborates its e-site). This was not the case in construction 10 because the verb *cry* does not have an e-site that needs elaboration. The two constructions are repeated below:

- **Construction 10**

To annoy his mother he cried.

- **Construction 11**

To annoy his mother he tried.

However, as observed in section 3.3, some corpus data show a similar cognitive constraint that underpins constructions where PPs also elaborate the e-site of schematic verbs. These examples are repeated below for convenience:

(60) a. *To compound the matter, the experts don't agree on what constitutes adequate daily exercise. But* **[*on one point*] *they do concur***: *some form of daily physical activity is essential to good health* (COCA: NEWS).

b. *He bites people when they sleep! He comes when nobody's lookin' and poisons decent people*. **[*In the garbage*]** ***he belongs*** (BNC: KA1).

c. *One night we had a spectacular meal*, **[*To all of my senses*]** ***it did appeal*** (COCA: NEWS).

d. [***To the neighbors and all other inquisitive folk***], ***he did lie*** (COCA: FIC).

In these examples, the e-sites of the verbs are also elaborated by their landmarks (i.e. the PPs), yet this time these landmarks do not resist occurring in the topic position. We have seen that Langacker (2008: 204) considers infinitival clauses to be complements relative to a schematic verb; moreover, Langacker (1991: 430) states clearly that infinitival clauses are landmarks of the schematic verbs as in the following example:

(61) *She hopes* ***to graduate next June*** [original emphasis].

Apparently, we cannot apply to PPs that elaborate the e-site of schematic verbs ***Langacker's constraint that prevents infinitival clauses from occurring in the topic position***. This is the

reason why constructions 12 and 13 were created: to find out whether specifying the landmark of the verb *try* (i.e. the infinitival clause) differently to express contrast will license its topicalization as in the case of the NPs and PPs in the examples discussed in section 3.3.

Constructions 12 and 13 were very poorly rated. This suggests that the cognitive principle that was assumed to license the occurrence of PPs in the topic position (i.e. specifying the landmark of an aforementioned/ evoked relationship using a different instance to express contrast) does not improve the grammaticality of construction 11. ***This may be because infinitival clauses profile processes only, and placing them at the topic position of a sentence does not help the hearer anticipate whether they elaborate the e-site of the schematic verb or they merely instantiate it***.

In contrast to infinitival clauses, PPs profile relationships whose landmarks profile in turn various entities. The semantic characterization of these entities can be construed either as being salient or non-salient to the schematic verb. For example, in example (62), the topicalized PP cannot be construed as an elaboration of the schematic verb *put*, not because the landmark of the PP (i.e. *the dusk*) profiles a span in the time domain, but apparently because the profiled time span cannot be construed as being long enough to forget about someone. By contrast, *the past* in (63a,b) constitutes a long duration making possible its construal as a container where the memory of someone can be shut away. In other words, it is difficult to forget about someone during a short period of time, but it is possible to do so after a long time. Based on this construal in examples (63a,b) the profiled time span *the past* can be used to elaborate the schematic verb *put*, more precisely its secondary landmark:

(62) *And **in the dusk** they put Nikolas **in the truck** and someone else said if this is what he's got to do to get a drink once a year, God help him* (COCA: FIC).

(63) a. *Looking into her face he repeated her words on a long drawn-out breath. 'Put her **in the past**.' He shook his head. 'If only I could. But, don't you realise, the past is the present, and the present is the future?* (BNC: FPK)

b. *Your old life is gone. Accept that. I still love Wanda. Put her **in the past**. It's the only way you can be free* (COCA: MOV).

So, the event profiled by the verb *put* can be *elaborated* by relations whose landmarks are occupied by entities that profile areas either in the time or space domains (e.g. *in the **truck**/ the **past***). The reason why the PP in the topic position of the sentence in (62) cannot

elaborate the schematic event (i.e. *they put Nikolas*) is because of the disproportionate scope profiled by *dusk* in relation to the scope of the verb's primary landmark (i.e. *Nikolas*) . In other words, the period of time profiled by *dusk* is not long enough to forget about a person.

An example of an entity with a proportionate scope is in Arthur Miller's sentence *In the garbage he belongs*. *Garbage* can profile a container where waste is kept and it may provide enough scope to contain a person (e.g. *him*), as it is implied in the following example:

(64) *Dump him **in the garbage*** (COCA: MOV).

Thus, when the PP *in the garbage* is combined with the process relationship *he belongs*, which has an elaborated trajector (i.e. *he*) but a schematic landmark, the PP will be construed as an *elaboration* of it.

Infinitival clauses, by contrast, profile events, which do not evoke domains with varying levels of centrality or degrees of scope that, in combination with the schematic verb, may give a clue as to whether the infinitival clause elaborates its landmark or merely instantiates the whole process that this verb profiles. Consider the examples in (65a,b):

(65) a. *To satisfy my pride I tried* [*to **give** the soldier some grounds for his suspicions*] (COCA: B0U)

b. [*To **give** myself some distance from their charms*]*, I tried to tell myself that these mythic selves ... had been carefully manufactured and marketed* (COCA: MAG).

In (65a) the infinitival clause elaborates the e-site of the process profiled by the verb *try*, whereas in (65b) it merely instantiates this process although they both contain the same underlined verb. In other words, the infinitival clause in (65b) scopes over the process, indicating purpose. This indicates that infinitival clauses lack the construal inducing property that PPs may have in relation to the schematic verb with which they are combined. As a result, it is my assumption that because of their inability to induce their construal as elaborating constructions from the topic position of the sentence, infinitival clauses always occur in a position that is adjacent to the schematic verb which they elaborate.

At the same time, the following constructions seem to raise more questions about the topicalization of infinitival clauses:

(66) a. *I couldn't wait to hear McAndrew's side of the story. But* ***wait*** *I had* ***to*** (COCA: FIC).

b. ***Surrender*** *to the enemy, he resolutely refused* ***to*** (Radford 2009: 67).

The occurrence of the underlined verbs in the topic position of the sentence suggests that there is something about the *to*-infinitive that prevents the whole infinitival clause from occurring in this position. The question as to why only the VP, but not the whole infinitival clause, can occur in the topic position of the sentence remains to be answered.

7. Conclusion

The aim of this study was to show that the factors that constrain the occurrence of complements away from their nominal and verbal heads are cognitive rather than purely syntactic. It was shown that syntactic and even semantic constraints do not adequately predict whether a complement phrase, such as a PP or an NP, may or may not occur away from the head in the two forms of constituent displacement: a) *of*-phrases separated from the nominal head through intervening PPs and VPs and b) NPs occurring in the topic position of a question. With regard to the third form of constituent displacement, that is c) infinitival clauses occurring in the topic position of a question, it was observed that the complement/ modifier effect on this word order does not constrain other complements such as PPs and NPs; therefore, the study sought to find out why infinitival clauses form an exception to the rule.

Corpus data and the favorable rating of most respondents indicated that *of*-phrases can in fact be detached from their nominal head by both PPs (even by two PPs at a time) and VPs, as long as these latter do not marginalize the role of the *of*-phrase in elaborating/ specifying the profile determinant of the nominal construction. Whether or not an *of*-phrase becomes peripheral to the profile determinant of the nominal construction does not seem to be determined by purely syntactic constraints and principles such as cycles, complement/ modifier dichotomy or phrasal/ clausal modifiers.

In this study, it was demonstrated that although two complement *of*-phrases occurring in two distinct constructions may appear to share the fact that they both satisfy the cycle constraint, it does not mean necessarily that they will be both grammatical/ acceptable.

Also, it was argued that an *of*-phrase may appear in a position that is distant from the nominal head despite being a sister to it, contrary to what is suggested in some generative accounts.

Moreover, even the syntactic distinction between a clausal and a phrasal modifier does not seem to prevent a clausal modifier PP from occupying a position between a nominal head and its sister *of*-phrase. Thus, it was suggested instead that such distance is judged as (un)grammatical/ (un)acceptable based on a combination of cognitive factors such as *profile*, *cognitive domains* (e.g. basic/ non-basic domains that contribute to the semantic characterization of a concept, conventional meaning, contextual meaning and situational context) as well as *construal*. For example, it was argued that the nominal head *student* profiles the agent in the process base underlying this noun. In a situational context where *student* is combined with the VP *came to see me*, the process underlying *student* becomes peripheral due to the profiled process *came*, whereas the centrality of the agent is maintained, as it occupies the trajector position prefigured by *came*. As a result, the reference point prefigured by the process underlying *student* and introduced by the *of*-phrase (i.e. *physics*) will be construed as irrelevant/ non-salient in this context.

It was also observed that syntactic and semantic constraints (e.g. definiteness and the distinction between verbs of use and creation) seem to overlook the cognitive difference reflected in a) the construal of an instance of an event and b) the construal of ***another instance*** of that very instance. The problem resides in the fact that the two instances can be realized phonologically in the same way such that, from a syntactic-semantic point of view, extraction from the PP complement embedded within the definite NP complement of a verb of use is not possible.

Thus, as an alternative to the syntactic-semantic account, it was argued in this study that the construal of two instances of an event (i.e. an instance of an event and an instance of that very instance) requires the support provided by situational context (i.e. a cognitive domain). More specifically, if based on the situational context the second instance is not specified yet, the occurrence of a *wh*-NP in the topic position of the question, which can be interpreted as a request to specify this instance, should be judged as grammatical/ acceptable. This idea

was corroborated by the favorable rating by most respondents of the construction that was devised to reflect the need to specify *an instance of the aforementioned instance*.

The reason why infinitival clauses behave differently than NP and PP complements proved difficult to see. No corpus example has been found where a complement infinitival clause occurs in the topic position of a sentence. By contrast NP and PP complements were easily found. Nevertheless, it was hypothesized that complement infinitival clauses may occur in such a position if they specified the landmark of the *to*-infinitive differently; that is to say, if it specifies an entity that expresses *contrast* to the entity in the landmark of the non-topicalized infinitival clause. However, the rating of most respondents indicated that the constructions which were devised on this basis were ungrammatical/ unacceptable.

Then, it was observed that the landmarks of complement PPs a) profile different entities (e.g. *garbage*, *dusk*, *past*), b) each entity involves domains with varying levels of centrality (e.g. *garbage*: place, *dusk*/ *past*: time), and c) each entity evokes different scopes (e.g. *past*: wide temporal scope, *dusk*: narrow temporal scope, *garbage*: narrow/ wide spatial scopes depending on construal). Given the specifications provided by the PP, its integration with the profiled event can lead to its construal either as an elaboration of the substructure prefigured by the profiled event (e.g. ***In the garbage*** *he belongs*) or as an instance/ anchor of the whole event (e.g. ***In the dusk*** *they put Nikolas in the truck*). By contrast, it was remarked that all the landmarks of infinitival clauses profile events, and apparently these latter do not evoke any specifications that would lead to the construal of infinitival clauses, in the initial position of a sentence, as a complement rather than a modifier, or vice versa. Thus, all infinitival clauses can be construed as elaborations of the schematic verbs. Word order seems to be the only measure whereby complement and modifier infinitival clauses can be distinguished. However, in the end, it was not clear why the landmark of infinitival clauses lends itself to occur in the topic position of a sentence, without the *to*-infinitive.

Based on the foregoing discussion, it appears that GG's syntactic constraints discussed in this study do not seem to be reliable in determining the tolerated distance between nominal heads and their complements. Cognitive concepts such as profile, conventional/ contextual meaning, situational context and construal proved to provide better explanations of this

distance because they are based on the idea that grammar is not independent of meaning as defined by CG (i.e. conceptualization).

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Appendix

English abstract

This study examines three positions where complement phrases occur away from their nominal and verbal heads and investigates whether the grammaticality/ acceptability of constructions where these complements appear distant from their heads is governed by purely syntactic or rather cognitive factors. Three types of dislocation are examined: *of*-phrases that are separated from their nominal head by intervening prepositional phrases and verb phrases, complement noun phrases within complement prepositional phrases that occur in the topic position of questions, and infinitival clauses that occur in the topic position of sentences. The study discusses purely syntactic constraints such as *blocking category*, *barrier*, *Lexical marking* and *cycle*, as well as syntactic-semantic constraints like *subcategorization restrictions* and *verbs of use*/ *creation* postulated by Generative Grammar to account for the tolerated distance between heads and their complement phrases .

Then, the study explores the extent to which these constraints can explain the grammaticality/ acceptability of examples that illustrate the three types of dislocation. These examples include corpus constructions collected from the *British National Corpus* and the *Corpus of Contemporary American English*, constructions collected from the Generative and Cognitive Grammar literature, as well as hypothetical examples. The grammaticality/ acceptability of these examples is examined further through the rating of twenty-seven native speakers of English. The results point to inadequacies in some generative accounts that claim the independence of grammar from semantics.

Additionally, the results point to the insufficiency of other generative accounts that admit the impact of semantics on grammaticality/ acceptability of these constructions, yet do not explain how meaning results from conceptualization. These accounts overlook the fact that meaning is determined by contextual use rather than being an inventory of objective semantic features. Thus, in this study, it is argued instead that the grammaticality/ acceptability of the constructions have rather a cognitive basis. Therefore, concepts of Cognitive Grammar namely *construal*, *profile*, *elaboration* and *instantiation* are used to

provide an alternative to the Generative Grammar account of the tolerated distance between heads and their complement phrases.

German abstract

Diese Studie untersucht drei Positionen bei denen Komplementphrasen getrennt von nominalen und verbalen Köpfen vorkommen und erforscht, ob die Grammatikalität/ die Akzeptabilität von Konstruktionen, bei denen diese Komplemente entfernt von ihren Köpfen auftauchen, bloß von syntaktischen oder eher von kognitiven Faktoren gesteuert wird. Drei Arten von Komplementverlagerungen werden untersucht: Phrasen, die von ihrem nominalen Kopf durch intervenierende Präpositionalphrasen und Verbalphrasen getrennt sind, Komplement-Nominalphrasen innerhalb Komplement-Präpositionalphrasen, die in der Themaposition von Fragen auftauchen, und Infinitivklauseln, die in der Themaposition von Sätzen auftauchen. Die Studie diskutiert rein syntaktische Beschränkungen wie *blockierende Kategorie*, *Barriere*, *lexikalische Markierung* und *Zyklus*, und auch syntaktisch-semantische Beschränkungen wie *Subkategorisierungsbeschränkungen*, *Benutzungsverben* und *Kreationsverben*, die von generativer Grammatik postuliert wurden, um die tolerierte Distanz zwischen Köpfen und ihren Komplementphrasen zu erklären.

Ziel dieser Studie ist zu erforschen, inwieweit diese Beschränkungen die Grammatikalität/ die Akzeptabilität von Beispielen, die die drei Arten von Komplementverlagerungen darstellen, erklären können. Diese Beispiele sind Konstruktionen, die von the *British National Corpus* und the *Contemporary Corpus of American English* gesammelt wurden, Konstruktionen, die von der generativen und kognitiven Literatur gesammelt wurden, und hypothetische Beispiele. Die Grammatikalität/ die Akzeptabilität von diesen Beispielen wird durch die Bewertung von siebenundzwanzig Englischmuttersprachlern eingehend untersucht. Die Ergebnisse deuten auf Mängel in manchen generativen Beschreibungen hin, dass Semantik und Syntax voneinander unabhänhig sind.

Außerdem zeigen die Ergebnisse Mängel in anderen generativen Beschreibungen, die die Auswirkungen von Semantik auf die Grammatikalität/ die Akzeptabilität von diesen Konstruktionen zugeben, aber wie Bedeutung aus Konzeptualisierung resultiert, nicht erklären. Diese Beschreibungen übersehen, dass Bedeutung vom Zusammenhang eher von objektiven semantischen Eigenschaften bestimmt wird. Daher wird in dieser Studie argumentiert, dass die Grammatikalität/ die Akzeptabilität der Konstruktionen eine kognitive Grundlage hat. Begriffe der kognitiven Grammatik nämlich *Konzeptualisierung*, *Profil*, *Elaboration* und *Instantiierung* werden verwendet, um eine Alternative zu der generativen Grammatikbeschreibung von der tolerierten Distanz zwischen Köpfen und ihren Komplementphrasen zu bieten.