

Research Article

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Modification and context

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Abstract: Functional Discourse Grammar (FDG) assumes a strict separation between representational and interpersonal meaning, which are captured in independent levels within the grammar, and utterance meaning, which arises in contexts of language use. This article argues that this division of labour is problematic for the treatment of modifiers in the noun phrase (non-subjective adjectives in particular), which induce semantic changes in the designation of the noun they modify. It is further claimed that the view of semantics in the model should pivot around a weak interpretation of the notion of compositionality, which allows the modulation of linguistic meaning in context in the dynamic construction of term structures. This is shown to be compatible with the basic tenets of functional linguistics that FDG endorses and very much in line with the contextualist tradition that treats linguistic expressions as propositionally underspecified units which can be truth-conditionally enriched in actual use. The article shows that only minor modifications are necessary in the model, which basically amount to increasing the functional role of the Contextualizer.

Keywords: Functional Discourse Grammar, modification, adjective, subjective, privative, non-subjective

1 Introduction

Functional Discourse Grammar (FDG) analyses linguistic expressions in four independent linguistic levels: the Interpersonal Level (IL), the Representational Level (RL), the Morphosyntactic Level (ML), and the Phonological Level (PL). The IL deals with those pragmatic aspects of utterances that find expression in the grammar, whereas the RL takes care of the denotational properties of linguistic expressions, and thus includes all the information which is necessary for the description of different types of entities. Finally, the ML and the PL are concerned with the structural properties of linguistic expressions. The grammar component interacts with a Conceptual, a Contextual, and an Output Component, which do not belong to the grammar proper, but are deemed necessary to integrate FDG in a wider theory of verbal interaction. In line with this general architecture, the theory assumes a strict separation between utterance meaning, which may arise in specific verbal exchanges, and linguistic meaning, which belongs to the grammar and is represented in the relevant levels.

The aim of this contribution is to show that a number of modifying expressions, attributive adjectives in particular, may induce changes in the denotational properties of the units they modify, which demands an active interaction between the Contextual Component and the RL. I will argue that the construction of proper descriptions for different entities involves access to extra-linguistic information, which may effect changes on the truth-conditional or denotational properties of units at the RL. This involves modelling the relation between context¹ and semantics in a way which is different from what is standardly assumed in

¹ In this article, I will be using the notion of “context” in a broad sense to refer both the local linguistic context (also known as the co-text) and the extra-linguistic context (conversational setting), from which non-compositional meaning can be obtained.

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FDG. However, I will claim that this poses no problem for the theory, as long as one assumes that meaning modulation may operate before compositionality, as is claimed in the contextualist tradition in pragmatics.

The article is organized as follows: in Section 2, I will discuss the way semantics is dealt with in FDG. Section 3 is devoted to the notion of modification and how it will be understood in this contribution. Relevant properties of adjectival modification are considered in Section 4. In particular, I will show that non-subjective adjectives alter the denotation of the units they modify, which, to the extent this depends on contextual information, calls for a more intimate relation between the RL and context. Section 5 defends a weak interpretation of the notion of compositionality, on the basis of which Section 6 proposes an analysis of adjectival modification in FDG that is compatible with the context sensitivity of modification.

2 Semantics in FDG

The goal of the theory of FDG is characterized in Hengeveld and Mackenzie (2008, 31) as “to describe and, as far as possible, explain the formal properties (syntactic, morphological, and phonological) of Discourse Acts from a functionalist perspective..” The functionalism endorsed by the model is characterized after Dik (1986) as “an approach to linguistic analysis that is based on the belief that the properties of linguistic utterances are *adapted to those communicative aims* which the language user, in interaction with other language users, seeks to achieve by using those utterances” (emphasis mine). In FDG, then, linguistic knowledge is instrumental in interaction (Hengeveld and Mackenzie 2008, 28). Correspondingly, an apt definition of semantics, which, in my view, FDG practitioners would approve, is provided by Saaed (2003, 3) as “the study of meaning communicated through language.”

However, this orientation is not what we really find in the FDG architecture, as the theory establishes a strict separation between the semantic and pragmatic aspects of linguistic expressions. Note additionally that the IL only accounts for pragmatic distinctions if they lead to systematic choices in the grammar, which excludes inferences that may be obtained from the context on a particular interaction (i.e. implicatures). As shown in the following passage, Hengeveld and Mackenzie are careful to characterize meaning as captured at the RL as purely denotational and compositional, abstracted away from instances of use in actual communication:

- (i) The term “semantics” is limited to the ways in which language relates to the extra-linguistic world it describes.
- (ii) The term “semantics” is restricted to the meanings of lexical units (lexical semantics) and complex units (compositional semantics) in isolation from the ways these are used in communication (Hengeveld and Mackenzie 2008, 128–9).

The characterization of semantics in FDG as meaning in isolation from use in communication might lead one to believe that the theory is in fact committed to objectivist truth-conditional semantics. Indeed, the RL in FDG is usually characterized as the level at which the truth-conditional properties of linguistic expressions are captured (see e.g. Keizer 2019) and the truth-conditional effects of different units have been used in the FDG literature to assign them representational or interpersonal status. There thus seems to be an inherent tension between the functional orientation of the model and its conception of semantics that certainly calls for clarification.

FDG’s purported commitment to truth-conditional semantics needs to be qualified, though. In Functional Grammar, FDG’s predecessor model, Dik (1997, 129) explicitly claimed that successful reference is not tied to the existence of entities in the real world and “we can refer to ‘real’ things only to the extent that we have some mental representation of them.” Reference in the F(D)G tradition is then mediated by conceptualization, although the nature of that relation has not received attention in the model.²

² Note, however, that this position is not incompatible with a truth-conditional approach to meaning. Formal semanticists would not deny the existence of concepts or mental representations, only their relevance in the description of linguistic meaning (see e.g. Portner 2005).

In objectivist semantics, however, reference is achieved through the identification of the (truth)-conditions that have to be met for a given expression to provide a true description of the world. It is those conditions that guarantee successful reference, independently of the language user's mental representations. Dik's position is maintained in FDG, as the RL is said to consist of "a number of hierarchically organized layers representing different types of non-linguistic (real or fictional) entities" (Keizer 2015, 104). This is particularly clear in the case of the Propositional Content, the highest layer in the RL, which is characterized as a mental construct that cannot be evaluated in terms of its real existence, but in terms of its truth.

Semantic representations in FDG should then be seen as instances of the speakers' mental representations of the entities they wish to designate and do not involve an ontological commitment to the existence of the entities in the real world, nor to the identification of the strictly necessary conditions that guarantee successful reference as is the case with abstract Fregean senses. As pointed out by Kees Hengeveld (p.c.), the statement that semantics in FDG deals with meaning "in isolation" from its use in communication (see quotation above) was intended as a way to emphasize the separation of denotational from interpersonal meaning within the grammar and the independence of the two corresponding levels of analysis.

The truth-conditional flavour of semantics in FDG probably derives from two other features: first, the FG and FDG formalisms are inspired by predicate logic representations which are usually associated with a truth-conditional approach to meaning. However, Hengeveld and Mackenzie (2008), probably in reaction to criticisms like those in Escibano (2008), are explicit about the role of the formalism in the theory as a means to an end, and not to an end in itself (see also Van de Velde 2010):

Although FDG provides precise representations for its claims, the formalisms it uses should not be confused with the formal languages employed by truth-conditional semanticists and in radical formalism. Ultimately, while every effort is made to keep them mutually consistent, clear and usable, the representations are but a means to the end of insightful analysis of linguistic phenomena. (Hengeveld and Mackenzie 2008, 42)

Second, and no doubt more importantly, the independence of the IL and the RL in FDG, and the addition of an ancillary Contextual Component outside the grammar proper, would seem to be in accordance with an approach to the semantics of natural languages, which separates linguistic meaning from that which emerges in acts of communication (see Giomi (2020, 11) for relevant discussion), a position which is standardly assumed in the formal semantics literature. The IL in FDG is not meant to capture Gricean implicatures (i.e. the speaker's communicative intention), but only those pragmatic aspects of linguistic expressions which are encoded in the grammar itself (e.g. illocutions corresponding to basic communicative intentions). Different authors (see e.g. Butler 2013, Connolly 2014, Cornish 2009, 2013, 2022) have stressed the problem this poses for FDG, on the grounds that a functional theory should be able not only to provide an account of the structural and functional properties of linguistic expressions, but also to explain how utterances are employed in interaction to achieve communicative goals.

In sum, the interpretation of the RL as the level of semantic designation and the strict separation between speaker-bound meaning and linguistically encoded meaning leads to an obvious tension with the basic principles of functional linguistics that the theory itself endorses, as FDG fails to show how linguistic expressions are adapted to their communicative uses and how the linguistic system is instrumental in communication. Of course, the static nature of grammar and the inherent dynamism of verbal interaction seem to be difficult to reconcile in linguistic description, but the model should at least reveal how meaning in context interacts dynamically with linguistic meaning as deployed by the grammar. It is only in that way that one can show how linguistic utterances are adapted to their uses in communication.

In this contribution, I will show that the dynamic construction of utterances may have an impact on the denotational value of linguistic expressions as represented in the RL. The existence of different types of phenomena that modulate meaning in context (e.g. adjectival modification or coercion) is well known in the lexical semantics literature. These processes can be accommodated in FDG as currently conceived under the assumption that they operate on conventional linguistic meaning as encoded in fully developed linguistic expressions. However, if it can be shown that linguistic units may shift designation in the dynamic

construction of complex expressions, there is no way to construct the denotational meaning of linguistic units without interaction with context and/or general knowledge. Although denotation or designation are usually understood as terms which refer to meaning encoded in the language prior to its use in communicative acts, there is no incompatibility between the compositional construction of the meaning of complex expressions and interaction with context. Thus, I will argue that the denotation of a complex linguistic expression at the RL is constructed compositionally, but crucially, relative to the context of use. In line with work both in formal semantics and the contextualist tradition, I will show that different modifiers induce changes in the denotational value of the expression, which calls for a close relation between the RL and context. Hence, rather than interpreting semantics in FDG as the study of meaning in isolation from its use in communication (see quotation above), I suggest that the theory should represent the meaning of linguistic expressions with reference to the ways they are used in communication.

3 Modification and meaning in FDG

Most work on modification usually devotes an initial section addressing the nature of the process or explaining the way it should be understood in that particular work. This would not be necessary if the main properties of modification were shared and generally accepted in linguistic description. This contribution will be no exception, and in this section I will outline the basic properties of the notion of modification as it is understood in this article, as well as relevant aspects of the way it has been handled in the FDG tradition.

The difficulty in finding an accurate characterization of modification is probably due to different factors, but I will only pay attention to two here: the function/form correspondence, which is particularly unclear in modification, and the miscellaneous formal properties of modifiers.

3.1 Function and form

In their introduction to the analysis of the Noun Phrase in the F(D)G tradition, García Velasco and Rijkhoff (2008, 15) comment on the problem of categorizing in linguistic description:

The basic problem with names for linguistic categories seems to be that they tend to be based either on formal or on functional properties and that there is usually no direct relationship between them. The same constituent may occur in different functions, and the same function may apply to different forms or constructions.

This general problem seems to be particularly evident in the case of modification. Thus, in his recent introduction to modification, Morzycki (2016, 8) notes a difficulty in the characterization of the notion, which in his view stems from the fact that any linguistic unit may be characterized *internally* (i.e. by their intrinsic properties) or *externally*, by the role they play in linguistic expressions. There is, however, no novelty in this proposal other than the use of different terminology, for Morzycki's observation again seems to revolve around the function/form opposition in linguistic categorization. However, the problem with modification is exacerbated in that both the functional and formal sides of the notion seem to correspond to a particularly unclear communicative or grammatical function on the one hand, and to a plethora of constructions with different morphosyntactic properties on the other. Thus, the grammatical function of modification is difficult to characterize and the formal properties of modifiers correspond to a number of disparate units which seem to defy consistent categorization. Morzycki illustrates this very clearly:

The internal sense of 'modifier', then, to a very crude approximation, may amount to just this; you're a modifier if you're an adjective or an adverb (...). The external sense of 'modifier' has to do with crosscategorical parallels in the role an expression plays. You're a modifier if you are adjoined to something you're not an argument to. (Morzycki 2016, 9)

The vagueness of this characterization is revealing. On the one hand, modifiers are identified internally as specific lexical classes such as adjectives or adverbs; however, this immediately raises the question of how to characterize those lexical classes. If one is to define the class “adjective” as a modifier of a nominal head (see below), the definition of modification becomes circular, and if adjectives are to be identified on the basis of their morphosyntactic properties, there will surely be languages in which modification thus understood would play no role if they lack adjectives altogether. Similarly, the external sense of modifier is based upon the argument/adjunct status of linguistic units, but this is not always clear for some participant types (directionals, beneficiaries, instrumentals, etc.).

The functional or external role of modification can also be characterized in communicative or actional terms as a process (i.e. a function) which is performed by speakers, on a par with other linguistic “actions” such as predication and reference. However, distinguishing modification from reference and predication does not seem to be an easy matter. Referring can be generally defined as the identification of an entity with linguistic means. In order to do so, speakers characterize an entity by ascribing properties, a process which should help addressees identify or construe the intended referent in joint cooperative communication (Dik 1997, 132). For that purpose, nouns, adjectives, prepositional phrases, relative clauses, and additional units may be appropriate, which proves that predication and modification are similar processes in actional terms. In fact, given that in FDG all lexemes are treated as property-denoting items which are inserted in property frames defined by variable “f” (note also that in old Functional Grammar all lexemes were treated as predicates), there is in practice no semantic or interpersonal distinction between nouns and adjectives, as they are both used to predicate or ascribe a property or relation and restrict the denotational value of an entity variable.

Several authors, however, have tried to distinguish modification from predication and reference in actional terms. Thus, Croft defends the existence of three basic propositional acts with communicative value: predication, reference, and modification:

The act of REFERENCE identifies a referent and establishes a cognitive file for that referent, thereby allowing for future referring expressions coreferential with the first referring expression. The act of PREDICATION ascribes something to the referent. Predication does not establish a cognitive file for the state of affairs that is predicated, but instead prototypically reports relatively transitory states of affairs, often in a narrative sequence. The act of MODIFICATION (of referents) functions to enrich a referent’s identity by an additional feature of the referent, denoted by the modifier. (Croft 2001, 66)

In the FDG tradition, Rijkhoff (2014) has elaborated on Croft’s proposal and argues extensively for the inclusion of the Subact of Modification along with the already established Subacts of Ascription and Reference.³ One of the reasons in favour of this proposal is that languages make use of a dedicated lexical category, that of adjectives, for the basic Subact of Modification (but see Section 3.2). Thus, in the typological work of Hengeveld (1992, 2013), for example, which is also behind the FDG approach to lexical categories, the adjective is functionally characterized as the prototypical modifier of a nominal head. Rijkhoff (2014, 133) defines the Subact of Modification as a basic communicative function whose role is “to modify (‘enrich’, ‘supplement’) core linguistic material used in the act of predicating and referring.” Similarly, Dixon (2004, 10) claims that adjectives serve two main functions in the grammar of languages: (i) assigning a property to an individual (as in copula constructions), and (ii) attributive modification, which is characterized as “a specification that helps focus on the referent of the head noun in an NP that relates to a predicate argument.”

There seems to be an inherent problem with Rijkhoff’s proposal, though. While predication/ascription and reference can be properly defined in communicative terms as independent and basic “actions” with communicative import, modification presupposes the existence of a referential or ascriptive act, which can be further enriched through the specification of additional features by the modifiers. In other words,

³ Note, however, that Croft’s characterization seems to restrict predication to “relatively transitory states of affairs,” that is, to the prototypical function of verbal units. It would then seem that nouns, for example, are not treated as predicates in his proposal. In fact, modification does not seem to involve a relation between a modifier and the noun it modifies in his approach.

modification involves a prior act of ascription in the identification of a referent (see Croft's quotation above). This leads naturally to the view of modification as a secondary function of an optional nature and casts doubt on its analysis as a basic communicative action on a par with predication and reference. In fact, given that both nouns and adjectives have a predicative function, they can only be distinguished by the priority they obtain in the construction of referents: nouns come first and modifiers come afterwards in the dynamic construction of noun phrases, as was already noted in classical FG, in which nouns were considered "first" restrictors. If we view reference construction as the stacking of "clues" (in the form of predicates) leading to the identification of a referent, the actional role of modifiers and nominal lexemes is the same, and there seems to be no obvious reason to add a new propositional (Sub)act of Modification.⁴ In other words, the alleged communicative difference between heads and modifiers is, I would argue, not of an actional nature, but a natural consequence of the inherent properties of the semantic process of entity description. There is thus no interpersonal difference between predication and modification, and it is only the difference in semantic priority between first and secondary restrictors that is reflected in morphosyntax through the obligatoriness of heads and the optionality of modifiers. Therefore, units at the RL will be regarded as those that compositionally contribute to the description of a given denotational unit, irrespectively of the way that contribution is instantiated. Modification can indeed be characterized as the enrichment of the descriptive or denotational content of a referent, but this involves no difference in actional or interpersonal terms. Compositionality thus emerges as the only requirement to construct the designation of a denoting unit. As shown in Section 4, this solves some problems discussed in previous literature (Giomi 2020, Keizer 2019) with respect to the restrictive/non-restrictive, intersective/non-intersective nature of attributive adjectives and modifying units.

3.2 The miscellaneous formal nature of modifiers

A second problem in the characterization of modification derives from the miscellaneous nature of the units that function as modifiers. This problem is undoubtedly linked to the previous discussion. As the number of entity-denoting lexemes in a language is obviously limited, the construction of a referential unit begins with the selection of that which best approximates the described entity for the purpose of referent identification. If this is felt insufficient for the addressee to grasp the intended referent, more specifications will follow in the form of modifiers. However, the ways in which entities may be further specified are initially unlimited, and it is virtually impossible for languages to lexicalize all potential properties of all entities in the world of discourse, both concrete and abstract. Dixon (1977; 2004) notes that languages with a small adjective class lexicalize four main semantic types: "dimension" (*big, small*, etc.), "age" (*old, new*, etc.), "value" (*good, bad, perfect*, etc.), and "colour" (*black, white, red*, etc.). In languages with a larger adjective class, additional semantic types include "physical property" (*hard, soft, heavy*, etc.), "human propensity" (*jealous, happy, clever*, etc.), and "speed" (*fast, slow*, etc.). He also notes that in languages with a small adjective class, tendencies can be observed, so that a particular semantic type will typically be expressed by another part of speech. For example, if the language lacks adjectives for physical property terms, this category will usually be expressed by verbs or nouns (e.g. structurally complex units such as PPs, relative clauses, etc.). Thus, the existence of significant differences in the size of adjective classes and the need for other constructions to assume the modifying function, together with the different morphosyntactic properties of adjectives across languages, casts doubt on the very existence of the adjective as a universal part of speech, to the extent that some typologists prefer the term "property word" (Van Lier 2017). However, although there is some controversy as to whether the Noun–Verb distinction is present in all languages, it is

⁴ Although he does not defend the need for Subacts of Modification, Giomi (2020) argues that the communicative role of heads and modifiers is indeed different. As I see it, his proposal seems to derive from the internal vs external position of heads and modifiers in FDG's general pattern for all levels of linguistic description, as will be shown below.

at least acknowledged to be a strong universal tendency deriving from the basic actional distinctions of predication and reference (see e.g. Lyons 1977, 429).

In principle, then, all those units which contribute to the description of a referent other than the head may be considered a modifier, regardless of their final formal expression. Thus, in Rijkhoff's typological work on the structure of the Noun Phrase (2002, 2014), "modifier" is used as a cover term for "the various functional modifier categories discussed here, which include both grammatical and lexical modifiers and which cover all the 'dependents' that are not arguments or complements, both in the NP and the clause" (Rijkhoff 2014, 134). As noted by Van de Velde (2007, 204fn), the notion of modifier in FDG may be used to refer to both grammatical and lexical dependents, or to lexical modifiers only (as was the case of the notion "satellite" in classical FG), while the grammatical expression of additional specifications of predicates and referents at different levels are treated as operators.

The diverse formal realizations of modifiers are also evident in the analysis of levels and layers in FDG. In the theory, all levels of linguistic analysis are formalized on the basis of the following general template, which provides positions for modifiers and operators in each layer:

$$(1) (\pi v_1: [h (v_1)_\Phi]: [\sigma (v_1)_\Phi])$$

As mentioned earlier, implicit in this schema is the recognition of a primary Subact of Ascription ($[h (v_1)_\Phi]$), which may be elaborated by additional and optional modifiers ($[\sigma (v_1)_\Phi]$). In other words, modification requires the previous inclusion of a head unit as the first restrictor of the entity variable (v). Given that this schema is applied to all levels and layers of linguistic description, the diversity of modifiers and their relation with modified units seems difficult to characterize in a universally valid manner.⁵ As a consequence, a definition of modification which covers all the different uses and functions of modifiers in linguistic expressions can only be provided in very general and somewhat loose terms. In FDG, then, modification can be defined as the optional specification or description of a grammatical head. In the same way as "headedness" is a grammatical relation, modification is seen as a grammatical relation too, potentially relevant at all levels and layers of linguistic description. Incidentally, this supports a non-actional interpretation of modification, as predication and reference are interpersonal actions, but irrelevant to the processes of morphosyntactic and phonological encoding.

To sum up, in spite of the different attempts at providing a definition of modification on interpersonal, functional, or formal grounds, the notion still seems extremely elusive and defies a precise characterization. The identification of modifiers needs to be made with reference to the notion of grammatical head, and the exact nature of the modifying function very much depends upon the particular level of linguistic analysis. The following section is devoted to particular aspects of modification at one such level in FDG with special reference to the interaction between semantic and contextual knowledge.

4 The contextual sensitivity of semantic modification

The conceptualization of semantics in FDG as purely grammar internal and denotational excludes the possibility of extracting information from the context in the construction of semantic representations, other than referents for indexical expressions or relevant properties of speech participants (e.g. social status for honorifics). In this section, however, I will argue that some types of modifiers have to be interpreted relative to the context of use and therefore pose a challenge to the RL as conceived of in FDG. The section is mostly inspired in the analysis by Partee (1995; 2007).

⁵ Keizer et al. (2022), however, restrict modification to the IL and RL only.

4.1 The local context: adjectives

In predicate logic, an expression such as *an old rich man*, which denotes the intersection of three predicates, receives the following analysis:⁶

- (2) $\exists x \text{MAN}_x \ \& \ \text{RICH}_x \ \& \ \text{OLD}_x$

The FDG analysis at the RL resembles this notation and conjoins predicates as lexical properties which restrict the variable for individuals “x” (Hengeveld and Mackenzie 2008, 241):

- (3) *an old rich man*
 $(1x_i: [(f_i: \text{man}_N(f_i)) (x_i)]: [(f_j: \text{rich}_A(f_j)) (x_i)]: [(f_k: \text{old}_A(f_k)) (x_i)])$

An initial difference between the representations in (2) and (3) is that in FDG the order in which predicates are stacked onto the individual variable is relevant. Thus, the first restrictor is the head of the construction, which is usually a noun in the noun phrase. The notation does not make any initial distinction between heads and modifiers, other than their position in the structure.

A basic objective in truth-conditional semantics is to show how linguistic meaning follows from linguistic expressions independently of the context of use. Thus, the analyses in (2) and (3) warrant valid entailments in all contexts of use. Each one of the predicates denotes a property which can be independently predicated of an individual, given the fully compositional and intersective nature of their semantic contribution:

- (4) *Geoffrey is an old rich man*
 Therefore: ‘Geoffrey is old/rich/a man’

Additionally, the analysis of those lexemes as predicates in representation (3) is in accordance with the potential to use them in predicative expressions such as *he is rich* or *he is old*.

However, it has long been noted that not all adjectival predicates are intersective, which poses a problem for logical analysis. Following work by Partee (1995), introductory semantic books such as Morzycki (2016) and Kroeger (2019) distinguish subjective and non-subjective adjectives, whose main properties will be discussed in the following sections.

4.1.1 Subjective adjectives

Consider the following examples (Morzycki 2016, 16):

- (5) *Floyd is a skilful/lousy/experienced/typical surgeon*

The expression *a skilful surgeon* in (5) does not denote someone who is both skilful and a surgeon, but someone who is skilful *as* a surgeon. Unlike plain intersective adjectives, the entailment *Floyd is skilful* does not follow from (5). The same reasoning applies to the rest of the adjectives in the example. This is because each one of the predicates is not truth-conditionally independent: Floyd is not said to be skilful in general, but only as a surgeon. The adjective–noun combination therefore denotes a subset of the extension of the head noun, and it is for this reason that this class of adjective is called subjective.

Interestingly, some adjectives may have either a subjective or intersective reading. Consider the following example from Lepore (2000, 331):

- (6) *John is a gay activist*

⁶ In predicate logic, “ \exists ” stands for the existential operator and “ $\&$ ” for logical conjunction.

In (6), two interpretations seem possible: John may be gay and an activist (intersective), or he may be an activist for gay rights, regardless of his sexual orientation (subsective interpretation; see Morzycki (2016) and Kroeger (2019) for additional examples). The two interpretations are captured in FDG by analysing subsective interpretations as property modification.⁷ Compare the representations in (7):

- (7) *a gay activist*
- a. $(1x_i: [(f_i: \text{activist}_N (f_i)) (x_i)]): [(f_j: \text{gay}_A (f_j)) (x_i)]$ (intersective)
- b. $(1x_i: [(f_i: \text{activist}_N (f_i): [(f_j: \text{gay}_A (f_j)) (f_i)]] (x_i))$ (subsective)

As the representation in (7b) shows, the adjective “gay” modifies the noun “activist,” thus creating a complex configurational property that restricts the individual variable (x_i). This contrasts with the analysis in (7a), in which each property independently restricts (x_i).

4.1.2 Non-subsective adjectives

Other types of adjectives behave neither intersectively nor subsectively as they change the designation of the noun they restrict, thus inducing truth-conditional effects. An illustrative example of this class is the adjective *former*, which cancels the property denoted by the noun it modifies and shifts the denotation of the complete expression to the null set. Thus, the noun phrase *a former friend* denotes an individual who had the property of being a friend in the past, but does not have it any more. As a consequence, a subsective interpretation is not possible, as former friends do not belong to the subset of friends (compare with *skilful surgeon*). It is for this reason that adjectives in this class are called “privative” in the formal semantics literature. The set includes others such as *present*, *erstwhile*, *previous*, or *old* (Morzycki 2016, 45), which denote a point or period in time and are called “temporal-ordering” modifiers in that work.

Partee (1995; 2007) notes that non-subsective adjectives may be divided into two main types, those for which the adjective–noun combination is never an instance of the noun used on its own (“privatives” such as *a former friend*, *a counterfeit Picasso*), and those that indicate that the nominal property may or may not be applicable to an individual (“plain non-subsective”), as *alleged* in *an alleged murderer*. Consider the following contrast (see Lepore 2000, 331):

- (8) a. *That painting is a counterfeit Vermeer*⁸
 Therefore: that painting is a Vermeer (invalid)
 Therefore: that painting is a counterfeit (valid)
- b. *John is an alleged murderer*
 Therefore: John is a murderer (invalid)
 Therefore: John is alleged (invalid)

In FDG, Hengeveld and Mackenzie (2008) follow the analysis of Van de Velde (2007) who treats adjectives of the *alleged* type as interpersonal modifiers of a Subact of Ascription. Although this analysis is compatible with a number of properties the adjective displays (e.g. *alleged* does not have a predicative use and has a reportative value) its analysis as an interpersonal modifier leaves the individual variable at the RL with only one restrictor, the predicate *murderer*, as shown in (9):

- (9) *the alleged murderer*
- IL: $(+id R_I [(T_1: [] (T_1): \text{alleged} (T_1))] (R_I))$
- RL: $(1x_i: [(f_i: \text{murderer} (f_i)) (x_i)] (x_i))$

⁷ See also Keizer (2022) and Kemp and Hengeveld (2022).

⁸ But note that even though *a former friend* is not necessarily a friend, the entailment “John is former” is not valid.

The analysis demonstrates that at the RL the individual variable (x_i) is restricted by the predicate *murderer*, but it is at the IL that the Subact of Ascription (T_1) corresponding to that lexeme is characterized as potentially inappropriate. In other words, the presence of the adjective *alleged* at the IL alters the denotational properties of the representation at the RL. This would seem to go against FDG's conceptualization of semantics, as laid out in Section 2, which views interpersonal distinctions as fully independent of the denotational properties of linguistic expressions at the RL (Hengeveld and Mackenzie 2008, 128–9). It then follows that, in spite of its interpersonal nature, the adjective *alleged* contributes compositionally to the designation of the linguistic expression in which it appears.

In short, the formal semantics literature has identified (at least) three types of adjectives with different properties: intersective, subsective, and non-subsective adjectives. Adjectives in the latter category (privative and plain non-subsective) effect semantic changes on the denotation of the individual as constructed in the RL and do not seem to behave fully compositionally, which poses a problem for the conception of semantics in FDG. These adjectives invite speakers to elaborate an appropriate semantic interpretation in the dynamic construction of the expression itself, which goes beyond the mere intersection of the involved predicates.

4.2 Vague modification, degrees, and standards

The interaction between the denotational properties of lexemes and context is not limited to non-subsective adjectives. Many apparently intersective adjectives seem to behave subsectively too, as they denote a subset of the extension of the head noun. Standard gradable adjectives such as *tall* or *large* need to be modulated in context: *a tall boy* is tall *for* a boy and *a large fly* is large *for* a fly. The degree of height and size these expressions entail depends on the noun they modify (what is large for a fly may not be for a boy) and need to be worked out in context. Partee (1995, 330) illustrates the problem with the following pattern of inference:

- (10) *Win is a tall 14-year old*
Win is a basketball player
 ??Therefore: Win is a tall basketball player

The invalid inference in (10) suggests that the adjective *tall* is non-intersective. According to Partee, however, it seems inappropriate to treat adjectives like *tall* as subsective. Instead, they are said to introduce a “range of indeterminacy,” which needs to be resolved in context relative to the semantics of the noun it modifies. For this reason, gradable adjectives are treated as vague and context-sensitive expressions as it is necessary to adjust “the interpretation of the modifier in the light of the local context created by the head noun” (Partee 1995, 333).⁹

A similar situation is observed in the analysis of degree words which I provided in García Velasco (2013). In that work, I noted that the function of degree words is to further specify a property with reference to a standard of comparison along a given dimension scale (see also Giomi [2022], who additionally treats degrees as quantities). In fact, an analysis along those lines had already been suggested by Hengeveld and Mackenzie (2008, 455), and slightly modified in Hengeveld and Mackenzie (2021). Consider the following example:

- (11) John is more intelligent than his brother
 $[(f_1^c: (f_1: \text{Adj } (f_1): (f_2: \text{more}_{\text{Adv}} (f_2) (f_1)) (x_1)_{\text{Standard}})) (f_1^c)) (x_2)_{\text{U}}]$

⁹ Similarly, Hengeveld and Smit (2009, 1124) note that “The insertion of operators and modifiers obviously has to follow the insertion of heads, since the denotation of the head places constraints on the ways it may be restricted by non-primary restrictors and auxiliary categories.”

The representation in (11) assumes the existence of a standard of comparison, which is realized by the individual denoted by *his brother* in this particular example. As I argued in García Velasco (2013), degree expressions may be classified according to whether they introduce an explicit standard of comparison in the form of a *than*-phrase as in (11) or a result clause (e.g. “so intelligent *that she got an A+*”), or whether the standard of comparison is provided by the context. In that article, I further argued that the standard of comparison that degree words introduce replaces the one provided by gradable adjectives, which are inherently comparative. Thus, a boy is tall if he is taller than a height which we consider “unremarkable” for some group (Murphy 2010, 228). The particular properties of the standard of comparison are provided by the context or general knowledge. Of course, privative and other non-subjective adjectives are not inherently comparative, but one could also argue that their coercive effects on the denotational properties of the noun they modify are also a function of the context of use (either linguistic or extra-linguistic), which needs to be captured in the RL, as they clearly have compositional effects.

Interestingly, the grammar of languages provides examples of cases where access to context is necessary to construct the truth-conditional interpretation of a linguistic expression. One obvious case of a construction whose truth conditions cannot be obtained on the basis of conventional literal meaning only is that of English N + N compounds. At least a subset of them, typically those whose interpretation is not constrained by thematic relations, can receive multiple readings which can only be resolved in context. Thus, as is well-known in the literature, a compound such as *marble museum* (Plag 2003, 150) may have several readings, including “museum built with marble” or “museum in which marble statues are displayed.” More interpretations are possible, but all of them will refer to a museum of some kind, since it is a basic fact of English word-formation that the rightmost element functions as the head of the entire construction. As Partee (1995) notes, however, given the absence of semantic constraints, the burden of the interpretation of nominal compounds is put onto the addressee’s general knowledge, which should help arrive at the most plausible interpretation in the relevant context (see also Kamp and Partee 1995, 144).

Two important aspects about N + N compounds are worth discussing. First, they illustrate a productive pattern in the grammar of English. This is not a case of an occasion-specific unit (e.g. Clark and Clark’s (1979) contextuials) created on the spur of the moment to satisfy specific communicative needs. It shows that the grammar of languages may contain productive and regular patterns of grammatical constructions and rely on the addressee’s ability to infer a significant part of the denotational meaning of the expression in actual usage. Second, N + N compounds are not incompatible with the principle of compositionality as long as one assumes a weak interpretation of the principle. Weiskopf (2007) discusses several approaches to the semantics of nominal compounds including semantic underspecification, free enrichment, or multiple ambiguity, and proposes to treat them as context-sensitive structures which contain an indexical element that needs to be satisfied in context. In spite of the technical differences, all the proposals that Weiskopf considers preserve compositionality and are compatible with the context-sensitivity of many natural language expressions. Although the interaction between context and compositional meaning as represented in the RL may be a problem for FDG under standard assumptions, the following section will hopefully show that compositionality is fully compatible with context-sensitive semantics.

5 Compositionality and context

I have argued that the crucial notion in the construction of the denotational value of complex expressions is compositionality. Regardless of the type of relation that the different predicates enter into, whether heads or modifiers, the RL needs to include those aspects of meaning that contribute compositionality to the semantics of a linguistic expression. If property-denoting predicates change the denotational value of the unit they modify (privative adjectives of the *former/fake* type), their semantic contribution will have to be dealt with at the RL. This also motivates the reanalysis of interpersonal adjectives of the *alleged* type as representational units. The question that now arises is whether this interaction between context and semantics is

compatible with the interpretation of the RL in FDG as the level at which the compositional properties of linguistic expressions are captured.

Compositionality seems to be the key to understanding how it is possible to construct an unlimited number of meaningful linguistic expressions on the basis of a finite set of linguistic units. Given the endless number of possible expressions in languages, the feeling that some version of compositionality or other is necessary in a description of human language has been assumed in both formal and functional models alike (but see Goldberg 2015 who addresses a number of challenges for compositionality).

The Principle of Compositionality, also known as Frege's principle, was actually never put forward by Frege in explicit terms, but the following formulation seems to be fairly uncontroversial:

The meaning of a complex expression is a function of the meanings of its parts and of their syntactic mode of combination. (Kamp and Partee 1995, 135)

Cruse (2002, 65) claims that the principle of compositionality incorporates the following three separate claims:

- (i) The meaning of a complex expression is completely *determined* by the meanings of its constituents.
- (ii) The meaning of a complex expression is completely *predictable* by general rules from the meanings of its constituents.
- (iii) Every grammatical constituent has a meaning which contributes to the meaning of the whole.

These three claims are independent to some extent and have different implications. The first one rules out the possibility that sentence meaning is enriched with extra linguistic information. The second claim adds the possibility of applying systematic rules of meaning combination and thus corresponds to the wording "syntactic mode of combination" in the formulation of the principle. The two claims in combination guarantee that no provision is made for the appearance of additional meaning components as a result of the combination of the different parts of a complex linguistic expression. Compositionality in this strong sense amounts to the uniform and rule-governed computation of the individual meanings independently contributed by each grammatical element in a given expression. Finally, the third claim is significantly weaker as it merely states that the meaning of a complex expression must be constructed from their parts, which should all contribute meaning to the expression. It therefore opens the possibility for the sense of a complex linguistic expression to include meaning components not present in the expression itself.

Additionally, the Principle of Compositionality leaves a number of issues open to interpretation. As Pelletier notes

The Principle makes no assumptions about what meaning is, nor does it say how one can tell whether two expressions have the same or different meanings. It makes no assumptions about what the parts of a complex expression are, nor does it put any restrictions on what is the function on the parts and the mode of combination. (Pelletier 1994, 11)

In other words, compositionality is not a monolithic idea. In fact, Cruse's third claim is fully compatible with approaches to meaning construction that contend that meaning as encoded in linguistic expressions is significantly underspecified and needs to be enriched in context to the extent that inferential pragmatic processes are relevant in the computation of truth-conditional meaning (Recanati 2010). Authors who follow this approach range from those working in the Relevance Theory tradition (Sperber and Wilson 1986, Carston 2002), cognitive and usage-based approaches (e.g. Evans 2009), evolutionary theory (Scott-Phillips 2015), lexical pragmatics (Noveck 2018), and even in computationally oriented work (Pustejovsky 1995). Pustejovsky and Batiukova (2019, 329) argue that well-known adjective–noun combinations behave differently depending on the semantic type of the modified noun. One obvious case is that of the adjective *fast* in the noun phrase *fast road*, which refers to a road on which vehicles can go fast (the road itself doesn't move after all). Given the productive and to some extent not fully predictable nature of their semantics, Pustejovsky and Batiukova argue that sequences of this type are a challenge to compositionality, and cannot be accounted for by simply assuming the existence of multiple senses for each lexeme. Their conclusion is that "although word meaning as specified in the lexical entries might be an important ingredient of the

compositional interpretation, it is sensitive to being further determined in context” (Pustejovsky and Batiukova 2019, 330).

In fact, recent insights in the contextualist literature have convincingly shown that compositionality is fully compatible with the semantic flexibility and context-sensitivity of linguistic expressions. In particular, Recanati (2012) argues that expressions such as gradable adjectives are modulated *before* compositionality operates. He proposes a modulation function that operates on individual units and delivers an interpretation of each sentence constituent which is appropriate to the context of use. It is this resulting interpretation which is then subject to standard compositionality, thereby rendering a modulated interpretation for the entire complex expression. Recanati argues that this proposal is fully compatible with a weak interpretation of compositionality (as in Cruse’s third claim above) and accounts for lexical and phrasal (local) modulation, and other types of context-sensitivity effects. In all, this means that those expressions which affect the denotation of the modified unit function intersectively once their context-sensitive properties have been properly worked out. The necessary assumption is then that non-subjective adjectives modulate the meaning of the expressions they modify in ways that have to be determined before compositionality operates. In the following section, I will explore how this idea can be implemented in FDG.

6 FDG: compositionality and the contextualizer

In this article, I have argued that the conception of semantics in FDG does not pay due justice to the possibility of enriching compositional meaning in local phrasal constructions through sense modulation. In actual practice, the RL only makes use of intersection relations either at the individual or property layers. The following section thus shows how the different types of adjectives discussed previously can be handled in the model. Section 6.2 additionally shows how the process of sense modulation can be integrated in the architecture of FDG.

6.1 Non-subjective modification in FDG

The problem posed by subjective adjectives was addressed in FDG a long time ago (Hengeveld 2008, Escribano 2008) and then taken up again more recently in Giomi (2020) and Keizer (2019); see also Keizer (2022) and Kemp and Hengeveld (2022). Hengeveld and Mackenzie (2008, 230) note that some adjectives modify the “f” variable and create a complex property which restricts the denotation of the individual variable “x” as a whole. This is the analysis proposed in (7b) for the subjective interpretation of the expression *gay activist*. However, the authors extend this representation to privative adjectives like *former* in the expression *former neighbour*, and argue that the same analysis should be used for classifying adjectives such as *medical* in *a medical student* (Hengeveld and Mackenzie 2008, 230, 242):

- (12) *a former neighbour*
 $(1x_i: [(f_i: \text{neighbour}_N (f_i): [(f_j: \text{former}_A (f_j)) (f_i)])] (x_i))$

However, adjectives like *former* and *medical* have different properties. Whereas *former* indicates that the property denoted by the noun *was* but is no longer applicable, a medical student still is a type of student. The qualifying adjective *medical* is thus subjective as it denotes a subset of the extension of the head noun. The adjective *former*, however, changes the denotation of the noun and it is thus said to belong to the group of so-called “privative” adjectives. Recent developments in FDG suggest a potential analysis for adjectives of the *former* type. As mentioned above, the set includes others such as *present*, *erstwhile*, *previous*, or *old* (Morzycki 2016, 45), which denote a point or period in time and are called “temporal-ordering” modifiers in that work. Given that the option of being located in time is a property of States of

Affairs, one could reanalyse *former* as an event modifier. The expression *He is my former neighbour* warrants the inference *He was my neighbour*. If we thus analyse the property “neighbour” as a State of Affairs “e” restricting an individual “x” variable, the resulting analysis would be as follows:¹⁰

(13) $(1x_i: [\text{Ant } e_i: [(f_i: \text{neighbour}_N (f_i) (e_i))]: [(f_j: \text{former}_A (f_j)) (e_i)] (x_i))$

In (13), the property “neighbour” restricts the SoA variable “e”. This is intended to represent the meaning “be a neighbour”, which is temporally set as anterior to the designation of the property denoted by the temporal-ordering adjective “former.” The gist of this representation is thus the reanalysis of a typically individual-restricting property as an event-restricting property, due to the requirements of the temporal modifier “former.” In other words, this analysis can be seen as a case of type-coercion, which in FDG is defined as “a process whereby the class of a lexeme is adapted to the requirements of its syntactic position. Coercion applies to lexemes that are used in a non-default position at the Representational Level and need to be prepared for their function at the Morphosyntactic Level” (Keizer 2015, 300). Additional evidence for this analysis derives from the fact that coercion in FDG typically brings about the addition of a derivational affix at the ML. In fact, Hengeveld and Mackenzie (2008, 404) state that “much of derivational morphology can be interpreted as the formal reflection of coercion effects.” The use of derivational prefix *ex-* in expressions such as *ex-boyfriend* can thus be seen as morphologically equivalent to syntactic modification by the adjective *former*.

In fact, a coercion analysis for privative adjectives has been suggested in the formal semantics tradition but, crucially, with a slightly different interpretation of coercion processes. Indeed, it seems difficult to see how the FDG analysis in (13) above could be extended to other non-temporal privative adjectives. Predicates like *fake* or *counterfeit*, which also cancel the denotation of the main predicate allow predicative uses and cannot be said to modify an event under any reasonable interpretation:

- (14) a. *This painting is a counterfeit Vermeer*
 Therefore: This painting is not a Vermeer
 b. *A fake gun*
 Therefore: It is not a gun

Partee (2007, 153; see also Morzycki 2016, 27) notes that adjectives such as *fake* or *counterfeit* coerce a loose interpretation on the noun they modify: Hence, even though the entailment “this is not a gun” follows from the noun phrase *a fake gun*, the question “is this gun real or fake?” makes perfect sense, which might suggest that *fake* behaves subsectively after all. This can be seen in situations in which it would seem unnatural to refer to a gun as a fake gun, as in speaking to a child, for whom the toy is real in their imaginary world. Partee (2007) then explains that adjectives need to be interpreted relative to the context created by the head noun in a dynamic way. This is formulated in the so-called *The Head Primacy Principle* (HPP):

In a modifier-head structure, the head is interpreted relative to the context of the whole constituent, and the modifier is interpreted relative to the local context created from the former context by the interpretation of the head.

However, privative adjectives seem to be particularly sensitive to another general principle, *The Non-Vacuity Principle* (NVP): “In any given context, try to interpret any predicate so that both its positive and negative extension are non-empty.” The two principles are not absolute and usually cooperate in interpretation, but in the case of privative adjectives, the NVP seems to outrank the HPP, which coerces the meaning of the head noun in *a fake gun* to include real guns too. As a consequence, Partee argues, privative adjectives can be reanalysed as subsective after all (see also Kamp and Partee 1995).

¹⁰ Absolute tense operators modify the layer of the “episode” in FDG, whereas relative tense operators (anteriority or simultaneity) scope over States of Affairs. Note that the expression is compatible with different operators of absolute tense: *he is/was/will be a former neighbour*.

Partee then assumes a dynamic construction of noun phrases in which the conventional meaning of predicates is calibrated as the process proceeds. In fact, this dynamic construction of noun phrases is very much reminiscent of the stacking of predicates in term structure (see example (3)), which is found in Dik (1997, 149). In Dik's system (but see Giomi 2020 for an opposing view), the order of predicates in the construction of terms is crucial for defining scope relations and arriving at the appropriate interpretation of the complex term. Assuming this dynamic process of term construction and in line with previous discussion on sense modulation before compositionality, the coercive effect of privative adjectives can be easily incorporated in FDG; we only need to allow the system to modify the semantic interpretation of the predicates as term construction proceeds.

A similar strategy can be followed in the analysis of vague adjectives such as *tall* (see Szabó 2001 for a detailed analysis along these lines). Recall that these adjectives are interpreted relative to a standard of comparison, which is explicitly introduced in the FDG analysis of comparative constructions. Similarly, one could propose that vague adjectives can participate in frames such as this:¹¹

$$(15) (f_1: \text{tall}_A (f_1)) (x_1)_{\text{Standard}}$$

Example (15) would be paraphrased as “tall for *x*,” where the value of “*x*” has to be fixed in context. The analysis of “a tall boy” is then given in (16):

$$(16) \text{ A tall boy} \\ (1x_1: [(f_1: \text{boy}_N (f_1)) (x_1)]: [(f_1: \text{tall}_A (f_1)) (x_1) (x_1)_{\text{Standard}}])$$

This analysis solves the problem noted by Partee (i.e. a tall 14-year old who plays basketball is not necessarily a tall basketball player), as the entailment that would follow from an expression such as *John is a tall 14-year old boy* is “tall for a 14-year old” and not simply “tall”. As Morzycki (2016, 10) notes, the standard will be represented by the class of elements designated by the head noun itself. In FDG, this could be analysed by spelling out the standard of comparison with the property “boy” and the universal quantifier (\forall):

$$(17) (\forall x_j: (f_j: \text{boy}_N (f_j)) (x_j)_{\text{Standard}})$$

The standard of reference in this case is then fixed by all entities to which the property “boy” applies. The exact value (i.e. what most people would consider an “unremarkable” height for boys) of the standard of reference needs to be determined against contextual or general knowledge.

Note that if this analysis is extended to evaluative adjectives, the problem noted by Keizer (2019) that some representational modifiers are not restrictive can be solved. Keizer (2019, 383) provides the following corpus examples:

- (18) a. *There were seven of us, my three kids, wife, my father-in-law, my **old** mother and me*
 b. *Our **friendly** staff is here to make sure that you have an outstanding experience.*
 c. *The **prolific** Toni Morrison returned this year with her first novel set in the current time.*

Keizer notes that the adjectives *old*, *friendly*, and *prolific* in these examples are not restrictive, as the referent of the noun phrase in which they participate would be the same if the adjectives were not present, and they just serve to add a property to an already defined set of entities. She therefore proposes to represent them with an additional propositional content within the RL.

I agree with Keizer that the non-restrictive modifiers in (18) should be analysed as representational units, given their descriptive nature and the fact that they contribute compositionally to the semantics of

¹¹ But see Giomi (2022) for arguments against the use of variables for standards with gradable adjectives.

the unit in which they participate. However, another possible analysis for those non-restrictive adjectives which merely add a descriptive specification would be to assume that, unlike in ordinary uses, they do not introduce a standard of comparison since they just denote what is considered an intrinsic property of the head noun. This is evident in another example discussed by Keizer: “white snow”. The adjective “white”, although gradable (e.g. “snow is whiter than cotton”), need not be interpreted relative to an unremarkable standard of “whiteness for snow” in that expression. The difference between the restrictive and non-restrictive uses of, for example, adjective *old* (e.g. “old mother” in (18a) vs “old computer”) may be interpreted again in terms of the Dikkian approach to term construction. Dik (1997, 130) introduces an opposition between constructive and identifying reference. In constructive reference, the speaker assumes that a referent is not available to their addressee and therefore provides clues for its construction in the form of restrictive predicates. In identifying reference, the referent is presumably available to the addressee, and the function of restrictive units is to guide the addressee to the activation of the intended referent. One could thus assume that a standard of comparison is only necessary in constructive reference, and not in identifying reference. This accords well with Keizer’s observation that the identity of the referent of *my old mother* in (18a) is guaranteed both by the sense of the noun “mother” and by the presence of the definite possessive determiner “my”. The definite (known) status of the referent is even more obvious in the case of *prolific Tony Morrison* in (18c), given the interpersonal and context-unique nature of proper nouns.

The analysis of (restrictive) gradable adjectives can thus be accommodated in FDG under the assumption that the modified noun establishes the class of entities against which the adjectival property needs to be modulated. Subjective adjectives can be similarly analysed, with the only difference that the standard of reference now ranges over properties and not individuals. Thus, an expression such as *a skilful surgeon*, which is paraphrased as “skilful as a surgeon”, would receive the following analysis:

- (19) *A skilful surgeon*
 $(1x_i: [(f_i: \text{surgeon}_N (f_i): [(f_j: \text{skilful}_A (f_j)) (f_k) (f_2)_{\text{Standard}}])] (x_i))$

The relevant difference between subjective and intersective gradable adjectives thus derives from the fact that the class of entities that set the standard of reference is of the property type in the former case and of the individual type in the latter.

Finally, consider the case of non-subjective adjectives of the *alleged* type. I argued in Section 4 that the analysis of *alleged* as an interpersonal modifier is inadequate under the view of the RL adopted in FDG. *Alleged* in *an alleged murderer* opens the possibility for the description of an individual as a murderer not to be the case. They thus alter the denotation of the head noun and have truth-conditional and compositional effects. One possible analysis would simply assume that the adjective modifies the nominal property, as in (20):

- (20) *an alleged murderer*
 $(1x_i: [(f_i: \text{murderer}_N (f_i): [(f_j: \text{alleged}_A (f_j)) (f_i)])] (x_i))$

In (20), it is then the lexical semantics of the adjective that indicates that the property (f_i) it modifies may or may not be the case. However, this analysis is parallel to subjective representations (cf. 7b) and is therefore inadequate, for an alleged murderer does not belong in the class of murderers. Moreover, the expression *John is an alleged murderer* cannot be paraphrased as “John is alleged as a murderer”, and it would also seem odd to claim that the property “alleged murderer” is being predicated of John.

As mentioned earlier, in FDG adjectives of the *alleged* type are treated as modifiers of a Subact of Ascription and are therefore considered interpersonal units. This follows Van de Velde’s (2007, 218) analysis, who notes that these adjectives, and others like *reputed*, *ostensible*, *false*, or *possible*, put “the felicity of the ascriptive subact at issue.” In my view, however, the function of *alleged* is in fact to reject commitment to the evaluation of an individual with the property designated by the noun. In other words, it is the veracity (truth) of the description which is at issue (not the Subact of Ascription itself), and therefore *alleged* should be treated as a propositional modifier. Evidence in favour of this analysis comes from the interaction of *alleged* with factive verbs, whose complement clauses are presupposed to be true, as opposed to non-

factives, with which the speaker does not commit him/herself to the veracity of the propositional content. Thus, (21b) is unnatural, because the use of the non-factive verb *believe* in the main clause signals the speaker's lack of commitment with the truth of an embedded proposition containing the adjective *alleged*, which in turn indicates non-commitment with the description of an individual as a murderer. This results in a pragmatic anomaly, which contrasts with the behaviour of factive *know* in (21a):¹²

- (21) a. *They know that John is an alleged murderer*
 b. # *They believe that John is an alleged murderer*

Note, additionally, that other ascriptive operators (*sort-of*) and modifiers (*so to speak*) sound natural in the same context (see Hengeveld and Mackenzie 2008, 111–12):

- (22) a. *They believe that John is a sort-of murderer*
 b. *They believe that John is a murderer so to speak*

Further evidence comes from the FDG treatment of predicate negation, which in a way has a semantic effect parallel to that of privative adjectives. Expressions such as *non-issue* or *non-happy/not happy* are analysed by Hengeveld and Mackenzie (2018, 30) as instances of property negation:

- (23) (neg f_i : issue_N (f_i))

Just like *alleged*, property negation changes the denotation of the property introduced by the head noun. The denotation of *non-issue* is vacuous in effect, but the communicative value of the expression derives from the interpretation of the empty set it denotes with reference to the property introduced by the noun *issue*. The noun sets a frame or context with reference to which the entity described as a non-issue is to be interpreted. The interpretation of the expression does not derive from the infelicity or lack of appropriateness of the description, but is in fact a description in negative terms: it is not the case that something is an issue. The speaker is thus sure of the felicity of not ascribing that property to a given entity. The function of *alleged* is somewhat similar. In the expression *an alleged murderer*, the noun *murderer* sets the frame against which an individual is to be described. The speaker is sure that somebody's condition as a murderer is what is at stake. This is confirmed by the fact that *an alleged murderer* is typically to be found in conversational contexts in which there is evidence, although not necessarily conclusive, that someone is a murderer. Consequently, the proposed representation is as follows (compare (13)):

- (24) (1 x_i : [p_i : [(f_i : murderer_N (f_i)) (p_i)]]: [(f_i : alleged_A (f_i)) (p_i)] (x_i))

The gist of the analysis is then the insertion of the noun *murderer* in a propositional slot, thus restricting a proposition “p”, whose truth of falsehood is described as “alleged”, that is, potentially true or false due to lack of evidence.

6.2 Sense modulation in FDG: the Contextualizer

The role of context in the construction of linguistic interpretation is acknowledged in FDG with the introduction of an ancillary Contextual Component which informs the grammar of those aspects of the text and context that have grammatical impact in the linguistic expression. Hengeveld and Mackenzie (2014, 2021) argue that the Contextual Component includes two types of information: discursual and situational.

¹² As pointed out to me by Evelien Keizer (p.c.), the acceptability of (21a) may be due to the fact that factive predicates invite a purely reportative (i.e. interpersonal) interpretation of *alleged*, which would go against the analysis defended here.

Situational information is restricted to a “language-specific selection of those details of the speech situation that have relevance for Formulation” whereas discursal information is recorded in the Contextual Component, as it may be needed for anaphoric reference to units in previous utterances. What both dimensions have in common is that they are dynamic, in the sense that they are constantly being updated and adapted to the needs of communication as the verbal interaction evolves. In García Velasco (2014, 2018), I argued that there is an inherent tension between FDG’s static approach to grammar and the necessary dynamism of language use and verbal interaction (see also Cornish 2013, 2022). In fact, several authors have argued that some linguistic processes cannot be fully understood under the static conception of the grammar proposed in FDG (see e.g. Butler 2013, Connolly 2007, 2014, Cornish 2009, 2013, 2022, Keizer 2014). In different ways, all these proposals defend the idea that the role of context in grammatical description needs to be taken into account even if it leads to probabilistic choices in the grammar only. The present contribution, however, goes one step further, as the examples of meaning modulation discussed show that the rigid separation of semantics and pragmatics is inappropriate both on architectural and methodological grounds.

The relation between the Contextual Component and the grammar is mediated by a process known as Contextualization. This operation contains a complex *contextualizer* which connects strata in the context with corresponding levels of representation in the grammar. In the representational stratum, for example, information about perceived entities is transmitted onto the grammar so that referential units can be linked with observable referents in the speech situation.

Sense modulation then entails that the contextualizer should be allowed to dynamically interact with the RL for the purposes of compositional meaning construction. This respects the static nature of conventional meanings and the context dependence of compositional meanings, but raises the question whether what is being modelled in this proposal is a representation of psychological processes in speech production. Hengeveld and Mackenzie (2008) have made it clear that FDG should not be seen as a production model, and that its dynamic implementation should be seen as a reflection of the sequence of steps taken by the analyst in order to “clarify the logic of the relations among the layers, levels and components” (Mackenzie 2014, 251: see also Hengeveld and Smit 2009). This, in Hengeveld and Mackenzie’s view, should be enough to meet the standard of psychological or cognitive adequacy which was proposed by Dik (1997).

I believe the modulation of meaning in the RL is fully compatible with the dynamic implementation of FDG as proposed in Hengeveld and Smit (2009):

the dynamic construction of the representational level occurs in close interaction with the dynamic construction of the interpersonal and morphosyntactic levels, respectively. Note that in proposing a dynamic implementation of the grammar we do not imply that FDG should be conceived as a procedural speaker model. We merely refer to *the dynamic and stepwise procedure in which the grammar generates underlying representations*. (Hengeveld and Smit 2009, 1118; emphasis mine)

The dynamic implementation is thus restricted to the grammar component and the generation of underlying representations. It is seen as an internal process, but there is no contradiction for the grammar to consult the Contextual Component in the process. As mentioned above, Hengeveld and Smit (2009, 1124) observe that in the dynamic construction of the RL, the head places constraints on the way it may be restricted by non-primary restrictors. They illustrate the issue with selectional restrictions between operators and heads, but nothing would prevent the dynamic implementation of the grammar to consult the ancillary components in the dynamic process of linguistic generation.

7 Conclusions

Recent trends in (broadly) functional approaches to language and communication seem to agree on the fact that linguistically encoded meaning underdetermines the speaker’s communicative intention. Although this is compatible with a strictly Gricean interpretation of the semantics/pragmatics divide, several authors have now questioned that dichotomy, under the assumption that contextual meaning systematically enriches or modifies propositional meaning.

In this article, I have argued that FDG is in an excellent position to adopt this view in spite of its historical inclination to separate grammar from context. I have illustrated the problem with the coercive effects of different types of adjectives on the head they modify and argued for a closer interaction between context and the RL in the dynamic construction of semantic structure. It is my contention that, as long as the necessary qualifications on the role of adjectives are included in the RL, this approach is fully compatible with the principles of FDG and functionalism, and its view of semantics as purely denotational, compositional, and independent of interpersonal information.

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References

- Butler Christopher S. 2013. “A reappraisal of the functional enterprise with particular reference to Functional Discourse Grammar.” *Revista Canaria de Estudios Ingleses* 67, 13–42.
- Carston, Robyn. 2002. *Thoughts and utterances. The pragmatics of explicit communication*. Oxford: Blackwell.
- Clark, Eve V. and Herbert H. Clark. 1979. “When nouns surface as verbs.” *Language* 55, 767–811.
- Connolly, John H. 2007. “Context in Functional Discourse Grammar.” *Alfa. Revista de Lingüística* 51, 11–33.
- Connolly, John H. 2014. “The contextual component within a dynamic implementation of the FDG model: structure and interaction.” *Pragmatics* 24, 229–48.
- Cornish, Francis. 2009. “Text and discourse as context: Discourse anaphora and the FDG Contextual Component.” *Web Papers in Functional Discourse Grammar* 82, 97–115.
- Cornish, Francis. 2013. “On the dual nature of the Functional Discourse Grammar model: context, the language system/ language use distinction, and indexical reference in discourse.” *Language Sciences* 38, 83–98. doi: 10.1016/j.langsci.2013.02.001.
- Cornish, Francis. 2022. “Text, discourse, context: a meta-trilogy for language use.” *Journal of Pragmatics* 199, 91–104.
- Croft, William. 2001. *Radical construction grammar*. Oxford: Oxford University Press.
- Cruse, David A. 2002. *Meaning in language*. Oxford: Oxford University Press.
- Dik, Simon C. 1986. “On the notion ‘functional explanation’.” *Working Papers in Functional Grammar* 11.
- Dik, Simon C. 1997. *The Theory of Functional Grammar. II vols*, edited by Kees Hengeveld. Berlin: De Gruyter Mouton.
- Dixon, R. M. W. 1977. “Where have all the adjectives gone?” *Studies in Language* 1, 19–80.
- Dixon, R. M. W. 2004. “Adjective classes in typological perspective.” In *Adjective classes: a cross-linguistic typology*, edited by R. M. W. Dixon and A. Y. Aikhenvald, p. 1–49. Oxford: Oxford University Press.
- Escribano, J. L. G. 2008. “On noun phrase structure in Functional (Discourse) Grammar: Some conceptual issues.” In *The noun phrase in Functional Discourse Grammar*, edited by Daniel García Velasco and Jan Rijkhoff, p. 117–79, Berlin: De Gruyter Mouton.
- Evans, Vyvyan. 2009. *How words mean*. Oxford: Oxford University Press.
- García Velasco, Daniel. 2013. “Degree words in English: A Functional Discourse Grammar account.” *Revista Canaria de Estudios Ingleses* 67, 79–96.
- García Velasco, Daniel. 2014. “Activation and the relation between context and grammar.” *Pragmatics* 24, 297–316.
- García Velasco, Daniel. 2018. “Cognitive status and referential acts in Functional Discourse Grammar.” *Quaderns de Filologia. Estudis Lingüístics XXIII*, 155–75.
- García Velasco, Daniel and Jan Rijkhoff. 2008. “Introduction.” In *The noun phrase in Functional Discourse Grammar*, edited by Daniel García Velasco and Jan Rijkhoff, p. 1–41. Berlin: De Gruyter Mouton.
- Giomi, Riccardo. 2020. “Headedness and modification in Functional Discourse Grammar.” *Glossa: A Journal of General Linguistics* 5(1), 1–32. doi: 10.5334/gjgl.1290.

- Giomi, Riccardo. 2022. “Similatives are Manners, comparatives are Quantities (except when they aren’t).” *Open Linguistics* 8, 650–74. doi: 10.1515/opli-2022-0211.
- Goldberg, Adele E. 2015. “Compositionality.” In *The Routledge handbook of semantics*, edited by Nick Riemer, p. 419–33. London: Routledge.
- Hengeveld, Kees. 1992. *Non-verbal predication: theory, typology, diachrony (Functional Grammar Series 15)*. Berlin: De Gruyter Mouton.
- Hengeveld, Kees. 2008. “Prototypical and non-prototypical noun phrases in Functional Discourse Grammar.” In *The noun phrase in Functional Discourse Grammar*, edited by Daniel García Velasco and Jan Rijkhoff, p. 43–62. Berlin: De Gruyter Mouton.
- Hengeveld, Kees. 2013. “Parts-of-speech systems as a basic typological determinant.” In *Flexible word classes: typological studies of underspecified parts of speech*, edited by Jan Rijkhoff and Eva van Lier, p. 31–55. Oxford: Oxford University Press.
- Hengeveld, Kees and J. Lachlan Mackenzie. 2008. *Functional Discourse Grammar*. Oxford: Oxford University Press.
- Hengeveld, Kees and J. Lachlan Mackenzie. 2014. “Grammar and context in Functional Discourse Grammar.” *Pragmatics* 24, 203–27.
- Hengeveld, Kees and J. Lachlan Mackenzie. 2018. “Negation in Functional Discourse Grammar.” In *Recent developments in Functional Discourse Grammar*, edited by Evelien Keizer and Hella Olbertz, p. 18–45. Amsterdam: John Benjamins.
- Hengeveld, Kees and J. Lachlan Mackenzie. 2021. “Interfaces, mismatches, and the architecture of Functional Discourse Grammar.” In *Interfaces in Functional Discourse Grammar: Theory and applications*, edited by Lucía Contreras García and Daniel García Velasco, p. 15–57. Berlin and New York: De Gruyter Mouton.
- Hengeveld, Kees and Niels Smit. 2009. “Dynamic formulation in Functional Discourse Grammar.” *Lingua* 119, 1118–30.
- Kamp, Hans and Barbara Partee. 1995. “Prototype theory and compositionality.” *Cognition* 57, 129–91.
- Keizer, Evelien. 2014. “Context and cognition in FDG: what, where and why?” *Pragmatics* 24, 399–423.
- Keizer, Evelien. 2015. *A Functional Discourse Grammar of English*. Oxford: Oxford University Press.
- Keizer, Evelien. 2019. “The problem of non-truth-conditional, lower-level modifiers: A Functional Discourse Grammar solution.” *English Language and Linguistics* 24, 365–92. doi: 10.1017/S136067431900011X.
- Keizer, Evelien. 2022. “Modifier-numeral word order in the English NP: An FDG analysis.” *Open Linguistics* 8, 545–72. doi: 10.1515/opli-2022-0207.
- Keizer, Evelien, Thomas Schwaiger, and Elnora ten Wolde. 2022. “Modification in Functional Discourse Grammar: State of the art and issues addressed.” *Open Linguistics* 8, 512–23. doi: 10.1515/opli-2022-0216.
- Kemp, Lois and Kees Hengeveld. 2022. “English evidential -ly adverbs in the noun phrase from a functional perspective.” *Open Linguistics* 8, 573–92. doi: 10.1515/opli-2022-0208.
- Kroeger, Paul R. 2019. *Analyzing meaning. An introduction to semantics and pragmatics*. Berlin: Language Science Press.
- Lepore, Ernest. 2000. *Meaning and argument*. Oxford: Blackwell.
- Lyons, John. 1977. *Semantics*. Cambridge: Cambridge University Press.
- Mackenzie, J. Lachlan. 2014. “The contextual component in a dialogic FDG.” *Pragmatics* 24, 249–73.
- Morzycki, Marcin. 2016. *Modification*. Cambridge: Cambridge University Press.
- Murphy, Lynne. 2010. *Lexical meaning*. Cambridge: Cambridge University Press.
- Noveck, Ira. 2018. *Experimental pragmatics. The making of a cognitive science*. Cambridge: Cambridge University Press.
- Partee, Barbara. 1995. “Lexical semantics and compositionality.” In *Invitation to cognitive science. Part I: Language*, edited by Lila R. Gleitman and Mark Liberman, p. 311–60. Cambridge, MA: The MIT Press.
- Partee, Barbara. 2007. “Compositionality and coercion in semantics: The dynamics of adjective meaning.” In *Cognitive foundations of interpretation*, edited by Gerlof Bouma, Irene Krämer and Joost Zwarts, p. 145–61. Amsterdam: Royal Netherlands Academy of Arts and Sciences.
- Pelletier, Francis J. 1994. “The principle of semantic compositionality.” *Topoi* 13, 11–24.
- Plag, Ingo. 2003. *Word-formation in English*. Cambridge: Cambridge University Press.
- Portner, Paul H. 2005. *What is meaning? Fundamentals of formal semantics*. London: Blackwell.
- Pustejovsky, James. 1995. *The Generative Lexicon*. Cambridge, MA: The MIT Press.
- Pustejovsky, James and Olga Batiukova. 2019. *The Lexicon*. Cambridge: Cambridge University Press.
- Recanati, François. 2010. *Truth-conditional pragmatics*. Oxford: Oxford University Press.
- Recanati, François. 2012. “Compositionality, semantic flexibility, and context-dependence.” In *The Oxford handbook of compositionality*, edited by Wolfram Hinzen, Edouard Machery and Markus Werning, p. 175–91. Oxford: Oxford University Press.
- Rijkhoff, Jan. 2002. *The Noun Phrase*. Oxford: Oxford University Press.
- Rijkhoff, Jan. 2014. “Modification as a propositional act.” In *Theory and practice in functional-cognitive space*, edited by María de los Ángeles Gómez González, Francisco José Ruiz de Mendoza Ibáñez and Francisco González-García, p. 129–50. Amsterdam: Benjamins.
- Saeed, John I. 2003. *Semantics*. Oxford: Wiley Blackwell.
- Scott-Phillips, Thom. 2015. *Speaking our minds*. London: Red Globe Press.
- Sperber, Dan and Deirdre Wilson. 1986. *Relevance. Communication and cognition*. Oxford: Blackwell.

- Szabó, Zoltan G. 2001. "Adjectives in context." In *Perspectives on semantics, pragmatics, and discourse*, edited by I. Kenesei and R. M. Harnish, p. 119–46. Amsterdam: John Benjamins.
- Van Lier, Eva. 2017. "The typology of property words in Oceanic Languages." *Linguistics* 55(6), 1237–80.
- Van de Velde, Freek. 2007. "Interpersonal modification in the English noun phrase." *Functions of Language* 14, 203–30.
- Van de Velde, Freek. 2010. "Review of Daniel García Velasco & Jan Rijkhoff (eds.) *The noun phrase in Functional Discourse Grammar*. *Functions of Language* 17(2), 306–15.
- Weiskopf, Daniel A. 2007. "Compound nominals, context and compositionality." *Synthese* 156, 161–204.