RESEARCH

Headedness and modification in Functional Discourse Grammar

Riccardo Giomi

CELGA-ILTEC (University of Coimbra), Largo da Porta Férrea, Coimbra, PT

rgiomi@campus.ul.pt

The notions of head and modifier are two basic tenets of general linguistic theory and play a fundamental role in the view of grammatical structure endorsed by Functional Discourse Grammar. The aim of this paper is to refine the theory's current approach to headedness and modification, according to which linguistic expressions that lack a head at the semantic or the pragmatic level are not available for any sort of lexical modification. It is argued that this assumption originates from a view of headedness and modification inherited from traditional Functional Grammar, where heads and modifiers were conceived of, respectively, as "first" and "second" restrictors of the variable to which they apply; such an approach, I will suggest, is no longer tenable in the light of the theoretical principles that have meanwhile been introduced in the framework of Functional Discourse Grammar. The main proposal put forth in the paper is that, by shifting to a definition of the head/modifier opposition in terms of *internal* vs. *external* specifications of the linguistic units which they serve to qualify, Functional Discourse Grammar becomes perfectly capable of accounting for any possible type of modification of headless pragmatic or semantic units.

1 Introduction

The theory of Functional Discourse Grammar (FDG; Hengeveld & Mackenzie 2008) endorses a view of language structure in which each level of grammatical analysis (pragmatics, semantics, morphosyntax and phonology) is organized as a hierarchically ordered configuration of functional or formal layers. Each layer of each of the four levels is represented with its own variable (corresponding to a separate pragmatic, semantic, morphosyntactic or phonological unit) whose head may be specified by distinct types of linguistic elements; at the Interpersonal and Representational Levels (which deal with pragmatics and semantics respectively), each layer may be further specified by one or more lexical modifiers, which provide additional information about the relevant pragmatic or semantic unit. At the same time, these two levels make provision for the possibility that certain types of variables may lack a head altogether: since, unlike other linguistic theories, FDG rejects the notion of null or empty categories, in such cases the head of the variable in question will not be displayed as a "zero" placeholder but will simply be left unspecified. Now, owing to a view of the relation between heads and modifiers inherited from the predecessor of FDG (Dik's Functional Grammar), in which heads and modifiers are respectively understood as "first" and "second" restrictors of the variable to which they apply, it is usually assumed that, when the head of a given variable is absent, the variable in question will not be liable to any sort of lexical modification. The aim of this paper is to reconsider this assumption in the light of actual empirical evidence, and in accordance

with the main theoretical innovations that distinguish FDG from "traditional" Functional Grammar – first and foremost, the full elaboration of an Interpersonal Level of linguistic analysis.

The paper is organized in the following way. The basics of FDG are introduced in Section 2, with a focus on the general principles of the theory (2.1) and on the notion of hierarchical layering (2.2). In Section 3 I present FDG's current approach to headedness and modification, describing the various types of heads that may be distinguished at the Interpersonal and the Representational Level (3.1), the general features of the FDG notion of modification (3.2) and the relation between heads and modifiers (3.3). Section 4 addresses the practical and theoretical problems posited by the modification of headless variables. After introducing the matter in Section 4.1, I will discuss the one possible solution that has so far been advanced for the modification of headless variables of the Representational Level (Keizer 2012), arguing that this proposal is not entirely satisfactory and elaborating my own, alternative account (4.2–4.3); subsequently, I will show that this account can also be successfully applied to the modification of headless variables at the Interpersonal Level (4.4). Finally, the theoretical implications of my proposal and the conclusions of the paper are presented in Section 5.

2 Functional Discourse Grammar
2.1 General features

As a structural-functional model of language, FDG aims at meeting the three standards of psychological, pragmatic and typological adequacy set by Dik (1997: 12–14). In keeping with these requirements, FDG presents itself as "a typologically-based theory of language structure" and, more specifically, as the Grammatical Component of a wider theory of verbal interaction, "systematically link[ing] up with a Conceptual, a Contextual, and an Output Component" (Hengeveld & Mackenzie 2008: 1). The overall model is thus designed to be compatible with psycholinguistic evidence to the extent that, following Levelt (1989), language production is understood as "a top-down process, which starts with intentions and ends with the articulation of the actual linguistic expression" (Hengeveld & Mackenzie 2008: 2). In addition, the concern with pragmatic adequacy is embodied in the close interaction between the Grammatical and the Contextual Component, the latter being viewed "as a companion to the Grammatical Component, collaborating with it to achieve contextually appropriate outputs" (Hengeveld & Mackenzie 2014: 204). The general architecture of FDG is represented in Figure 1, where the model is presented from the viewpoint of language production. It should be stressed, however, that this is a merely conventional choice: as pointed out by Hengeveld & Mackenzie (2008: 2), "the model could in principle be turned on its head to account for the parsing of utterances. It is clear that listeners analyse phonetic input into phonological representations, which are subsequently grouped into morphosyntactic constituents, from which meaningful representations are then constructed". For an actual implementation of this idea see Giomi (2014).

As shown in Figure 1, the communicative intention developed in the Conceptual Component triggers the grammatical operation of Formulation, which is responsible for structuring the interactional and ideational aspects of that communicative intention into two separate levels of grammatical analysis: the Interpersonal and the Representational Level. These two levels of analysis, which deal with pragmatics and semantics respectively, "describe language in terms of its functions and meanings, but only in so far as these functions and meanings are encoded in the grammar of a language" (Hengeveld & Mackenzie 2008: 5). This dualist "form-oriented, function-to-form" approach is reflected in the organization of the Grammatical Component in the fact that the pragmatic and semantic structures created by Formulation are in turn translated into morphosyntactic
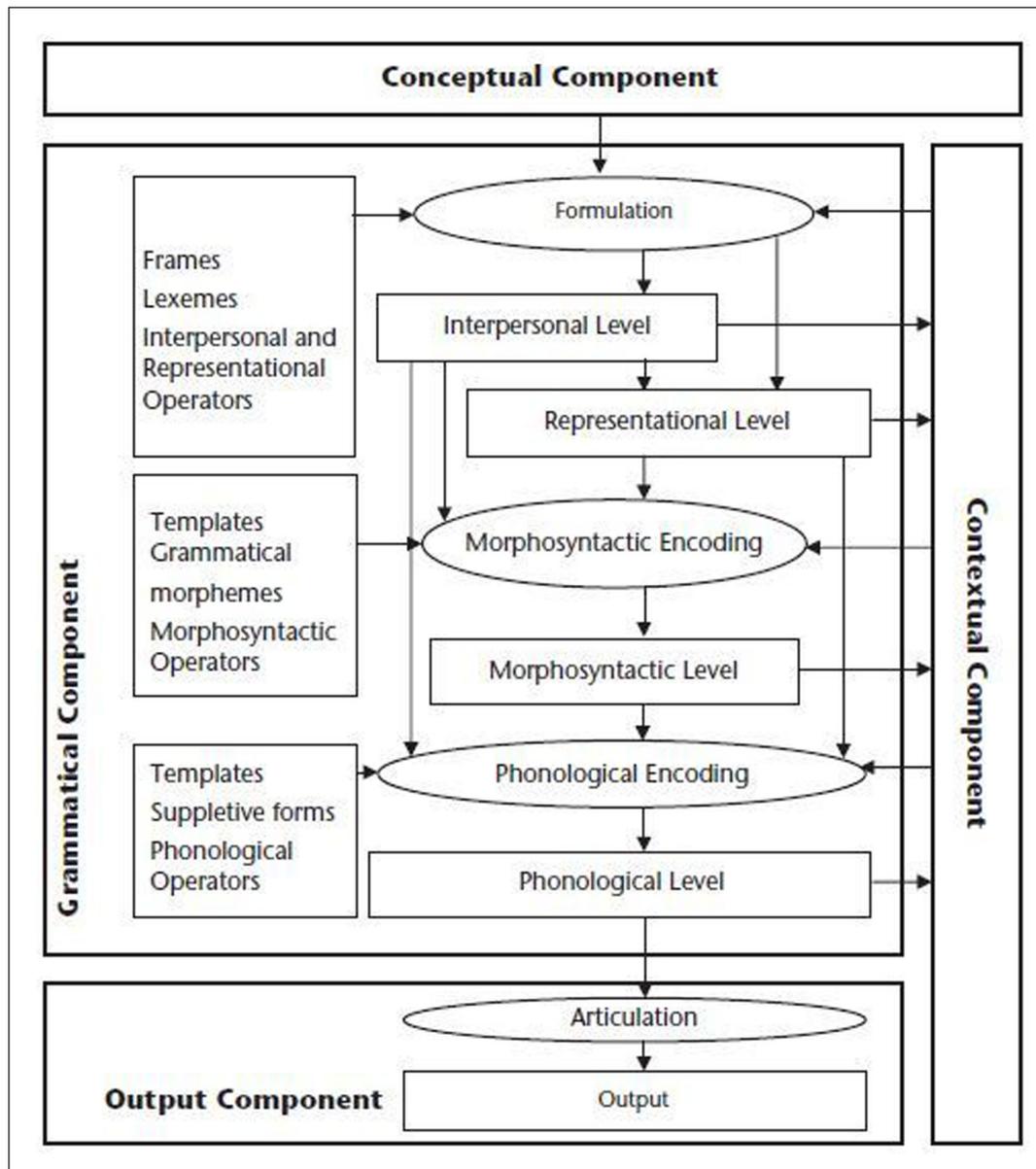
Figure 1: General layout of Functional Discourse Grammar (Hengeveld & Mackenzie 2008: 13).

and phonological structures through the operations of Morphosyntactic and Phonological Encoding, each of which organizes the input received from all of the higher levels into a separate level of formal expression: the Morphosyntactic and the Phonological Level. Finally, the phonological structure elaborated by Phonological Encoding on the basis of the information passed on from all of the higher levels serves as the input for the post-grammatical operation of Articulation, which takes place in the Output Component: the role of Articulation is thus to translate the phonological representation passed on from the Grammatical Component into acoustically perceivable signals.

Each level of the Grammatical Component makes use of a separate set of language-specific *primitives* such as (e.g.) lexemes for the Formulation levels and morphosyntactic and phonological templates for the Encoding Levels. These primitives are the "building blocks" of the grammar (Hengeveld & Mackenzie 2008: 19) and are retrieved from a dedicated storehouse referred to as *the Fund*. The Fund is organized in such a way that, for each language, each contentful element of the Formulation levels is stored in connection with the corresponding expression format at the Encoding levels. For instance, illocutionary values

such as Declarative and Interrogative will be stored as abstract placeholders *DECL*(arative) and *INTER*(rogative) in the subsection of the Fund which hosts the primitives used at the Interpersonal Level: in English, these two abstract interpersonal primitives are connected to two separate templates at the Morphosyntactic Level (characterized by the occurrence of the subject phrase before or after the finite verb) and to two distinct prosodic patterns at the Phonological Level (characterized by falling and rising intonation, respectively). Other languages, however, only distinguish declaratives and yes/no questions by means of different intonational contours (e.g. most Romance languages), and not by morphosyntactic means as in English or Japanese (where a specific particle is used in interrogative utterances). This means that in the former type of languages only the Interpersonal and the Phonological Level are called upon for the expression of Declarative and Interrogative illocution, whereas in English and Japanese Morphosyntactic Encoding is also involved.

2.2 Layered structure

The common feature of all four levels of grammatical analysis is that they share "a hierarchically ordered layered organization and are displayed as a layered structure" (Hengeveld & Mackenzie 2008: 14). This is illustrated in (1)-(2) for the Interpersonal and the Representational Level, respectively – that is, the two levels of the grammar which deal with the content of linguistic utterances:

(1)　　General structure of the Interpersonal Level (adapted from Hengeveld & Mackenzie 2008: 49)

$$
\begin{array}{ll}
(\Pi\ M_{1(+n)}: [& \text{Move} \\
\quad (\Pi\ A_{1(+n)}: [& \text{Discourse Act} \\
\qquad (\Pi\ F_1: \text{ILL}\ (F_1): \Sigma\ (F_1)) & \text{Illocution} \\
\qquad (\Pi\ P_1: \dots (P_1): \Sigma\ (P_1))_S & \text{Speaker} \\
\qquad (\Pi\ P_2: \dots (P_2): \Sigma\ (P_2))_A & \text{Addressee} \\
\qquad (\Pi\ C_{1(+n)}: [& \text{Communicated Content} \\
\qquad\quad (\Pi\ T_{1(+n)}: [\dots]\ (T_1): \Sigma\ (T_{1(+n)}))_\Phi & \text{Subact of Ascription} \\
\qquad\quad (\Pi\ R_{1(+n)}: [\dots]\ (R_1): \Sigma\ (R_{1(+n)}))_\Phi & \text{Subact of Reference} \\
\qquad]\ (C_{1(+n)}): \Sigma\ (C_{1(+n)}))_\Phi & \text{Communicated Content} \\
\quad]\ (A_{1(+n)}): \Sigma\ (A_{1(+n)}))_\Phi & \text{Discourse Act} \\
]\ (M_{1(+n)}): \Sigma\ (M_{1(+n)}))_\Phi & \text{Move}
\end{array}
$$

(2)　　General structure of the Representational Level (adapted from Hengeveld & Mackenzie 2008: 142)

$$
\begin{array}{ll}
(\pi\ p_{1(+n)}: & \text{Propositional Content} \\
\quad (\pi\ ep_{1(+n)}: & \text{Episode} \\
\qquad (\pi\ e_{1(+n)}: & \text{State-of-Affairs} \\
\qquad\quad (\pi\ f_{1(+n)}{}^c: [& \text{Configurational Property} \\
\qquad\qquad (\pi\ v_{1(+n)}: & \text{any semantic category} \\
\qquad\qquad\quad (\pi\ f_{2(+n)}: \blacklozenge\ (f_{2(+n)}): \sigma\ (f_{2(+n)})) & \text{Lexical Property} \\
\qquad\qquad (v_{1(+n)}): \sigma\ (v_{1(+n)}))_\phi & \text{any semantic category} \\
\qquad\quad]\ (f_{1(+n)}{}^c): \sigma\ (f_{1(+n)}{}^c))_\phi & \text{Configurational Property} \\
\qquad (e_{1(+n)}): \sigma\ (e_{1(+n)}))_\phi & \text{State-of-Affairs} \\
\quad (ep_{1(+n)}): \sigma\ (ep_{1(+n)}))_\phi & \text{Episode} \\
(p_{1(+n)}): \sigma\ (p_{1(+n)}))_\phi & \text{Propositional Content}
\end{array}
$$

Each layer of each level is distinguished by its own *variable* and is labelled with reference to its specific functional or formal properties (for the Formulation and the Encoding levels, respectively). In general terms, the maximal form of each layer/variable can be represented as in (3) (Hengeveld & Mackenzie 2006: 671), where *v* is the general symbol for "any variable" (cf. also Smit and van Staden 2007: 144; Hengeveld & Mackenzie 2008: 14; Keizer 2015: 32):

(3) $(\pi \, v_1: [(\text{complex}) \text{ head}] \, (v_1): \sigma \, (v_1))_\phi$

Each variable must bear an index so as to distinguish it from other occurrences of the same type of variable: this index is given in numerical form in general representations and as a letter of the Latin alphabet (starting with *i*) in the analysis of concrete expressions. Further elements introduced in (1)–(3) are the colon (:), indicating a relation of restriction, and the general symbols ♦ for lexemes, *π* for operators, *σ* for modifiers and *φ* for functions. On the whole, the general format in (3) is to be read as follows:

v_1 represents the variable of the relevant layer, which is restricted by a (possibly complex) head that takes the variable as its argument, and may be further restricted by a modifier σ that takes the variable as its argument.[1] The layer may be specified by an operator π and carry a function ϕ. Heads and modifiers represent lexical strategies, while operators and functions represent grammatical strategies. The difference between operators and functions is that the latter are relational, holding between the entire unit and other units at the same layer, while the former are not, applying only to the unit itself. (Hengeveld & Mackenzie 2008: 14)

As an example of a fully developed layer, making use of all the elements in (3), consider the Representational Level analysis of the NP *the young girl* in (4):

(4)   **The young girl** dances.
        $(1 \, x_i: (f_i: \text{girl} \, (f_i)) \, (x_i): (f_j: \text{young} \, (f_j)) \, (x_i))_A$

In this representation, *the young girl* is analyzed as denoting a concrete, "first-order" entity of the class Individual (variable symbol *x*), whose head is restricted by a Lexical Property *girl* (variable symbol *f*). Lexical Properties denote "zero-order" entities, that is, intangible properties that only exist in relation to specific referents: these referents may be concrete, as in this case, but also eventive "second-order" entities such as States-of-Affairs or Episodes (described as "thematically coherent combinations of States-of-Affairs that are characterized by unity or continuity of Time (t), Location (l), and Individuals (x)", Hengeveld & Mackenzie 2008: 133) or more abstract "third-order" entities such as Propositional Contents.[2] The (x_i) variable in (4) is thus to be read as "an Individual (x_i) such that (x_i) has the Property (f_i) of being a girl"; this Individual is further restricted by a modifier *young*, which is again analyzed as a Lexical Property providing further information on the entity designated by the variable. All lexemes inserted at the Representational Level are

---

[1] It is precisely because heads and modifiers are understood as taking the variable as their argument that, in the FDG formalism, the variable symbol is repeated both after the head and after each modifier that applies to the variable.

[2] The classification of semantic categories into first-, second- and third-order referents, which is based on the properties of the corresponding real-world entities, was adopted in Functional Grammar following Lyons (1977); zero-order entities were first introduced in Dik (1989: 50), Keizer (1991) and Hengeveld (1992).

analyzed as Lexical Properties,[3] the specific uses to which a given lexeme can be put being restricted by the inventory of representational frames available for the level in question in a given language (see again Figure 1).

Returning to the representation of the Individual (x_i) in (4), note that this variable is further specified by an operator *1*, i.e. Singular, as expressed in English by the lack of plural inflection on the head-noun *girl*. Finally, the whole unit is assigned a semantic function Actor (represented by the subscript A on the closing variable): this is because the State-of-Affairs described in (4) is a dynamic one, that is, one in which the action designated by the predicate requires an input of energy on the part of one of the participants. Given the general layout of the Representational Level presented in (2), a fully developed analysis of the utterance in (4) can be formalized as shown in (5), where the predicate *dance* (f_j) and its argument *the young girl* (x_i) form a Configurational Property (f_i^c) – that is, a nuclear predication frame divested of any kind of "situatedness" in relation to the real world and of any characterization in terms of the speaker's attitudes. Note further that the whole Episode (ep_i) is assigned an absolute tense operator *pres*(ent).

(5) $(p_i: (pres\ ep_i: (e_i: (f_i^c: [(f_j: dance\ (f_j))\ (1\ x_i: (f_k: girl\ (f_k))\ (x_i): (f_l: young\ (f_l))\ (x_i))_A]$
       $(f_i^c))\ (e_i))\ (ep_i))\ (p_i))$

3 Heads and modifiers
3.1 Types of head

In (4) I gave an example of a lexical head, that is, of a Lexical Property filling the head of another variable at the Representational Level. This, however, is not the only possible type of head. To start with, the head of a certain variable may be occupied by one or more abstract features, which will trigger a specific form at the lower levels. I have already mentioned the case of abstract features such as DECL(arative) or INTER(rogative) for the Illocution layer of the Interpersonal Level; another example is that of the features $\pm S$(peaker) and $\pm A$(ddressee) for the interpersonal layer of *Subacts of Reference*. A Subact of Reference (variable symbol R) is "an attempt by the Speaker to evoke a referent, i.e. a null, singleton, or multiple set of entities or qualities" (Hengeveld & Mackenzie 2008: 88). By specifying the head of a Subact of Reference as $[+S, –A]$ the speaker indicates that the representational unit corresponding to that Subact denotes (a set of entities including or deictically related to) the speaker herself or himself: this will trigger first person marking at the Morphosyntactic Level, if the referent in question is an Individual, or a deictic pro-adverb such as *here* if the referent is an entity of the type Location. Conversely, by specifying a Subact of Reference as $[–S, +A]$, the speaker indicates that the representational unit corresponding to that Subact denotes (a set of entities including or deictically related to) the addressee, which will trigger second person marking (or a pro-adverb such as *there*, to be interpreted as 'there where you are'). Referential Subacts may also be specified as $[+S, +A]$, in which case a first person plural (or dual) inclusive form will be used; finally, a Subact of Reference which does not coincide with or include either of the speech participants may be specified as $[–S, –A]$, triggering third person marking (or, again, a pro-adverb such as *there*, this time in the sense 'there where neither of us is'). Number distinctions, as we saw above, are not a matter for the Interpersonal Level but will be captured at the Representational Level. Thus, whenever a language distinguishes between singular and plural marking in its pronominal and/or agreement system, we need to make reference to both levels of Formulation in analyzing the relevant forms.

---

[3] The only exception, in this regard, is the representation of "pro-Propositional Contents like *yes* and *no*, which are inserted directly into the head of a (p)-variable (see Hengeveld & Mackenzie 2008: 146–147).

Some of the possible combinations are illustrated in (6) for first, second and (deictic)[4] third person pronouns (adapted from Hengeveld & Mackenzie 2008: 118), where IL = Interpersonal Level and RL = Representational Level; in the right column, the operators *1* and *m* distinguish singular from plural number. Note that with first and second person forms the semantic category designated at the Representational Level is represented as an Individual (x_1) (since speech participants are by necessity humans, except of course in fantasy fiction or when the speaker rhetorically addresses a non-human entity); third person pronouns, by contrast, may denote entities of various types, whence the use of the general variable symbol (v_1).

(6)		IL	RL
	First person singular	$(R_1: [+S, -A] (R_1))$	$(1\ x_1)$
	First person plural exclusive	$(R_1: [+S, -A] (R_1))$	$(m\ x_1)$
	First person plural inclusive	$(R_1: [+S, +A] (R_1))$	$(m\ x_1)$
	Second person singular	$(R_1: [-S, +A] (R_1))$	$(1\ x_1)$
	Second person plural	$(R_1: [-S, +A] (R_1))$	$(m\ x_1)$
	Third person singular (deictic)	$(R_1: [-S, -A] (R_1))$	$(1\ v_1)$
	Third person plural (deictic)	$(R_1: [-S, -A] (R_1))$	$(m\ v_1)$

As can be deduced from the Interpersonal Level analysis of personal pronouns in (6), the general frame underlying any variable headed by an abstract feature will take the following form:

(7) $(v_1: [\pm \text{feature}^n] (v_1))$

The above example also serves to illustrate a further possible type of head – or, more accurately, the possibility of *absent heads*, as exemplified in the rightmost column of (6). Abstracting away from the possible, but by no means obligatory presence of operators, the general frame in this case is the simplest possible:

(8) (v_1)

As we will see in Section 4.4, this configuration represents the default scenario for certain layers of the Interpersonal Level. At the Representational Level, however, it only obtains when the variable in question is expressed (i) as a proper name (since proper names are analyzed as heads of Referential Subacts at the Interpersonal Level) or (ii) as a *proform*, for instance a deictic personal pronoun as in (6), a phoric pronoun of whatever type or a pro-adverb like *here* or *there*. Clearly, in all these cases the range of possible referents of the proform is never restricted by lexical means: accordingly, the head of the variable corresponding to the proform is not occupied by a Lexical Property, as in the case of the Individual *girl* in (4), but is simply left unspecified.

   Distinct from the absent head is the possibility of a variable having an *empty head*. This only happens with a specific type of proform, namely, one that anaphorically retrieves a Lexical Property that has been evoked in the preceding discourse: an example is English *one*, as used in (9):

---

[4] Anaphoric, cataphoric and logophoric uses of third person pronouns, on the other hand, are not triggered by abstract features in the head of the corresponding Subact but will be inserted at the Morphosyntactic Level on the basis of the information provided by the preceding (or the following) discourse. I will return to the phoric uses of proforms in Section 4.4.

(9)　　(Hengeveld & Mackenzie 2008: 143)
　　　　Mary wants a goodlooking man but I prefer **an honest one**.

At the Representational Level, such anaphoras can be analyzed as follows:

(10)　　a goodlooking man　　　　　　　　　　…　**an honest one**
　　　　$(1\ x_i: (f_i: man\ (f_i))\ (x_i): (f_j: goodlooking\ (f_j))\ (x_i))_\phi$　　　$(1\ x_j: (f_i)\ (x_j): (f_k: honest\ (f_k))\ (x_j))_\phi$

While the two Individuals (x_i) and (x_j) bear different indexes, reflecting the fact that they designate two separate entities, the Lexical Property (f_i) in the head of (x_j) is co-indexed with that in the head of (x_i) but differs from it in not being lexically specified: it is precisely this circumstance that triggers the anaphoric proform *one*. If the lexeme *man* had been selected from the Fund a second time and inserted into the head of (x_j), the proform would not have been used and we would have had a lexically headed NP *an honest man*. In general terms, the difference between lexically headed and empty-headed variables can be formulated as in (11)–(12):

(11)　　Lexical head
　　　　$(v_1: (f_1: \blacklozenge\ (f_1))\ (v_1))$

(12)　　Empty head
　　　　$(v_1: (f_1)\ (v_1))$

Last but not least, the head of a variable may be *configurational*. This accounts for the possibility of complex heads consisting of a configuration of equipollent units. The prime example of an equipollence relation, at the Representational Level, is the relation between a predicate and its argument(s), each of which bears a different semantic function. As an example, consider the complex NP *the brother of the landlord*, as analyzed in (13):

(13)　　the brother of the landlord
　　　　$(1\ x_i: (f_i^c: [(f_j: brother\ (f_j))\ (1\ x_j: (f_k: landlord\ (f_k))\ (x_j))_{Ref}]\ (f_i^c))\ (x_i))_\phi$

In FDG, relational nouns like *brother* are analyzed as one-place predicates taking the genitive-marked complement as their argument: following Mackenzie (1983), this argument is assigned the semantic function *Reference* (cf. the paraphrase "(x_i) is brother *with reference to* (x_j)", see Hengeveld & Mackenzie 2008: 203). Note that, like *dance* and *the young girl* in (5), the predicate *brother* and its argument *the landlord* are enclosed within square brackets, indicating that their relation is one of equipollence (as opposed to round brackets, which indicate hierarchically asymmetric relations, such as those between a variable and its head or modifier(s)). These two units together constitute the head of a Configurational Property (f_i^c), which in turn is the head of the Individual (x_i) (*the brother of the landlord*). This Individual can therefore also be said to have a configurational head, since the variable (f_i^c) that restricts its denotation is by definition one that consists of a configuration of equipollent units. This means that a configurationally headed variable will be built on one of the two general frames in (14a–b):

(14)　　a.　$(v_1: [(v_2)\ (v_{2+n})^n]\ (v_1))$
　　　　b.　$(v_1: (f_1^c: [...]\ (f_1^c))\ (v_1))$

Summing up, the following types of heads are distinguished in FDG:

(15)   a.   Lexical head: $(v_1: (f_1: \blacklozenge (f_1)) (v_1))$
   b.   Abstract head: $(v_1: [\pm feature^n] (v_1))$
   c.   Absent head: (v_1)
   d.   Empty head: $(v_1: (f_1) (v_1))$
   e.   Configurational head: $(v_1: [(v_2) (v_{2+n})^n] (v_1))$ or $(v_1: (f_1^c: [...] (f_1^c)) (v_1))$

3.2 Modification in Functional Discourse Grammar

As mentioned in Section 2.2, in FDG modifiers are characterized as a lexical strategy for specifying additional information about a certain unit. In this sense, modifiers may be regarded as the lexical counterpart of operators. This is reflected in the fact that each layer is provided with its own, distinct set of operators and modifiers. For instance, the layer of Configurational Properties has phasal aspect and participant-oriented modality among its operators: the former category relates to the internal temporal structure of a State-of-Affairs (Progressive aspect, for instance, indicates that the situation is ongoing at the temporal reference point), whereas participant-internal modality (e.g. Intention or Ability) concerns "the relation between a participant in a State-of-Affairs and the potential realization of that State-of-Affairs" (Hengeveld & Mackenzie 2008: 212). Thus, lexical modifiers specifying duration (e.g. *for a long time*) represent the lexical counterpart of Progressive aspect operators, and lexical modifiers such as *intentionally, involuntarily, reluctantly* or *easily, with some effort, with great difficulty* correspond to the participant-oriented modality operators Intention and Ability, respectively. As is easily seen, modifiers typically express much more specific qualifications of the unit in their scope than are provided by grammatical operators.

It should be stressed that the FDG approach to modification is radically different from that entertained by strictly formal models such as Generative Grammar, where modification is accounted for, alternatively, in terms of adjunction or specification, and often with reference to the concept of syntactic movement (see Alexiadou 2013 for an overview). Note that, as far as the terminology is concerned, a conception of modification as a syntactic operation would also appear to surface with a certain frequency in various functionally-oriented frameworks such as Construction Grammar (e.g. Norde et al. 2014) and Davidse & Breban's (2019) "cognitive-functional approach to the order of adjectives in the English noun phrase", and even in work rooted in the F(D)G tradition: in all these frameworks, reference is often made to, e.g., the modification of a noun, verb or adjective (phrase).[5] Similar notions are also invoked in authoritative works in formal semantics. For instance, McNally (2016: 442) begins her chapter on modification by defining the notion of "modifier" in semantic terms, as something that "adds additional, non-essential descriptive content to that contributed by the expression that it combines with"; however, in the conclusions of the chapter she states that "[t]he definition of a modifier as *a word or phrase* that combines with an expression to yield another of the same semantic type is perhaps the best definition currently available" (2016: 463; emphasis mine).

All such terms and definitions, which more or less explicitly allude to the syntactic nature of modification, are strictly speaking inaccurate from an FDG perspective. On the latter approach, in fact, modification is regarded as a strictly functional notion and as such is only relevant to the Levels of Formulation: at these levels, modification represents a

---

[5] Also note that both Davidse & Breban (2009) and, within the FDG framework, Rijkhoff (2008, 2014) use the cover term "modifier" for any possible subconstituent of a Noun Phrase (except of course the head noun), including clearly grammatical elements such as articles and other determiners.

communicative strategy to supply lexical information about a given pragmatic or semantic unit that is not already specified within the head of that unit. This means that the morphosyntactic constituents expressing the lexical information in question should in no case be thought of as modifiers but such constituents (whatever the morphosyntactic category and layer to which they belong) are regarded as merely formal devices for the encoding of interpersonal or representational modifiers. Once this all-important theoretical matter is adequately clarified, one may of course choose to retain such terms as, e.g., "noun (phrase) modification" as a useful shorthand. It is essential to bear in mind, however, that it is never a noun or noun phrase that is modified by an adjective or adjectival phrase: rather, a nominally-headed variable of the Interpersonal or the Representational Level may be modified by lexical means at the relevant level of functional analysis, in which case the modifier in question will surface at the Morphosyntactic Level as a morpheme, word, phrase or clause of the appropriate type, depending on the underlying unit of Formulation and on typological features of the language.

3.3 The relation between heads and modifiers

As we saw in Section 2.2, in FDG both heads and modifiers are characterized, in quite general terms, as *restrictors*. On a narrow interpretation, this means that both heads and modifiers restrict the denotation of the variable to which they apply, i.e. each restrictor "narrows down the set of potential referents" of the variable (Dik 1997: 133). This is in fact the conception of heads and modifiers enunciated by Dik's Functional Grammar (FG), where heads and modifiers were referred to as first and second restrictors (or primary and secondary restrictors), respectively. In this way, the difference between heads and modifiers is not characterized as an ontological one (like that between modifiers and operators) but as a difference in the order in which each restrictor is applied to the variable in the dynamic construction of meaning. That is, in an expression like *old elephant*, "restrictors are successively "stacked" onto each other through the relation ":", rather than being conjoined with each other" (Dik 1997: 133). It is precisely in the recognition of this dynamic mechanism that the F(D)G approach to the semantics of referential expressions differs from the one usually invoked in logic and truth-conditional semantics, "where expressions of this type are analysed in terms of conjunctions of predicates", so that the referent of the overall expression is understood as an intersection of the sets denoted by the two attributes *elephant* and *old*.[6] These two approaches can be represented as in (16a) and (16b), respectively (adapted from Dik 1997: 132–133):

(16)　　a.　$(x_i: (f_i: \text{elephant} (f_i)) (x_i): (f_j: \text{old} (f_j)) (x_i))_\phi$
　　　　b.　$\text{old elephant} (x_i) = \text{old} (x_i) \ \& \ \text{elephant} (x_i)$

Drawing on the arguments presented in Dahl (1971), Dik explains the difference between these two types of analysis by observing that "[i]f an expression such as *pregnant women* were to be analysed in terms of the intersection of two sets, the following paraphrases should represent its meaning equally well":

(17)　　a.　persons who are female and pregnant
　　　　b.　persons who are pregnant and female

However, Dik observes, "[17b] is redundant in a way in which [17a], and the expression *pregnant women,* are not". This indicates that the way in which the meaning of referential

---

[6] The logic of conjoined predicates has a long-standing tradition, which includes such milestones of the philosophy of language as the writings of John Locke, Bertrand Russell and Ludwig Wittgenstein. See González Escribano (2008: 120–121) for careful discussion and criticism of this tradition.

expressions consisting of a head and a modifier is construed in natural languages is in fact quite different from a logic of conjoined predicates. Whereas the latter consists in identifying two sets and then picking up one or more referents that belong to both sets, "the normal way of defining a set in natural language is to choose a universe and a defining property which singles out a set within that universe" (Dahl 1971: 2, cited in Dik 1997: 134). This difference can also be represented in form of diagrams: while in a logical analysis the expressions *Buddhist Japanese* and *Japanese Buddhist* simply have the same designation (Figure 2), an F(D)G-style analysis in terms of stacked restrictors will represent the way in which the designation of the two expressions is dynamically construed, as shown in Figure 3 (where the larger sets represent the denotation of the head and the smaller subsets are identified by adding a modifier).

This example shows that, depending on the way in which lexeme classes are organized in each individual language, the same lexical expressions may in principle function either as heads or as modifiers: the difference between *Buddhist Japanese* and *Japanese Buddhist,* thus, does not consist in the extension set of each expression (which is ultimately the same, as shown in Figure 2) but only in the order in which each restrictor is applied to the variable in the dynamic construal of meaning.

The F(D)G-style representation of heads and modifiers as consecutively stacked restrictors has been criticized by González Escribano (2008: 131–133), mainly on the argument that once a variable has been restricted by a first (lexical) specification, its denotation will no longer be exactly the same as when the variable was first introduced in formal representation – that is, before the application of the first restrictor. As a consequence, he argues, "each successive occurrence of the "x" variable stands for a different (gradually decreasing) set of entities, i.e., it is a different variable" (2008: 131); in turn, this implies that each further restrictor will never apply to exactly the same variable as that to
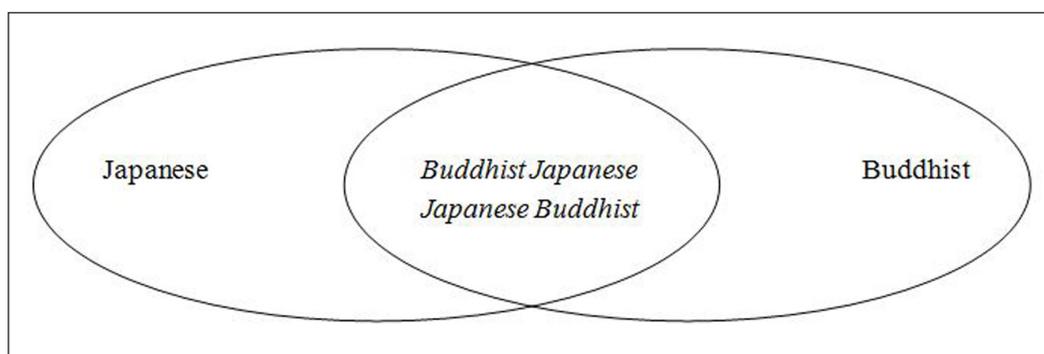

Figure 2: Logical analysis: designation of both *Buddhist Japanese* and *Japanese Buddhist* (Dik 1997: 135).
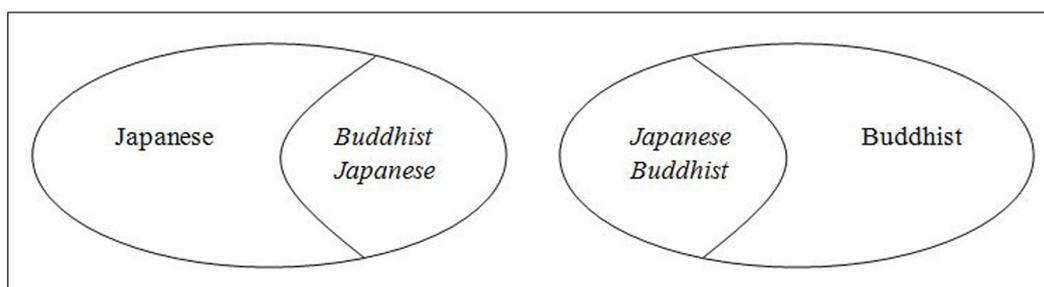

Figure 3: Functional (Discourse) Grammar analysis: dynamic construal of designation for *Buddhist Japanese* and *Japanese Buddhist* (Dik 1997: 135).

which the preceding restrictors apply. In my view, this criticism is ultimately motivated by González Escribano's retention of a logical-semantic (rather than *linguistic*-semantic) approach to designation. This becomes particularly evident where he states that Dik's analysis of the contrast *Japanese Buddhist* vs. *Buddhist Japanese* is based "on the extension of the respective sets involved" (2008: 167): as explained above, however, what Dik is concerned with is not the actual extension of linguistic expressions as such but the linguistic process of "choos[ing] a universe and a defining property which singles out a set within that universe". Also recall that, as stressed in Note 1, the reason why FDG makes use of closing variables is that the variable itself can be understood as an argument of each head or modifier that may be specified for it: one corollary of this conception of the relation between a variable and its head and modifier(s) is that, although each restrictor represented to the right of a colon takes scope on all that occurs to its left (i.e. the variable as a whole), heads and modifiers are actually seen as applying to the relevant variable independently, so that in the end there is no direct relation between the head of a variable and any modifier that may be attached to it.[7] On this approach, there is no reason why each occurrence of a given variable in the FDG metalanguage should be distinguished from the preceding occurrence(s) of the same variable (e.g. by providing each occurrence of the variable in question with a different index), as would follow from González Escribano's argument. As we will see in the next section, this does not mean that the current FDG approach to headedness and modification is immune to any sort of theoretical or analytical problems: just, these problems are not of the type of those pointed out by González Escribano.

4 Modification of absent-headed variables

4.1 The problem

The view of the head/modifier distinction summarized above was originally developed in FG to account for the denotation of head + modifier expressions, and is essentially maintained as such in current FDG. Denotation being a strictly semantic notion, as far as FDG is concerned the conception of heads and modifiers as first and second restrictors most straightforwardly applies to the Representational Level: as we will see shortly, however, even at this level such a view of the head/modifier distinction is not entirely satisfactory. But before turning to the shortcomings of this view of heads and modifiers, it must be stressed that the same type of formal representation illustrated above is also used in FDG for the Interpersonal Level, which is designed to capture the interactional aspects of linguistic communication and as such does not deal with purely semantic matters such as denotation. Why, then, should a formalism which explicitly deals with denotation restriction be applied to the Interpersonal Level? The key to understanding this is provided by a somewhat broader definition of variable structure than has been described above. This is in fact suggested by Dik himself where he points out that, in a notational format such as (3), repeated here as (18), "[t]he colon ":" indicates that the information to the right gives a specification of, a restriction on, the possible values of [the variable], as it has been specified to the left" (1997: 132).

(18) $(\pi\ v_1:\ [(\text{complex})\ \text{head}]\ (v_1):\ \sigma\ (v_1))_\phi$

Note that in this definition there is no explicit reference to denotation as such but only to a *specification* (or restriction) *of the possible values* of a variable. This view of the kind of relation indicated by the colon is neutral between denotation (i.e. semantics)

---

[7] For further, detailed discussion of the stacking of modifier, see Rijkhoff (2008, 2014).

and the interactional function of linguistic expressions (i.e. pragmatics, in the sense relevant to FDG's Interpersonal Level). In this way, the colon simply indicates that the element to its right provides further information about the variable with respect to the element(s) to its left: that is, the head expands on the information indicated by the variable symbol (which already constitutes an initial categorization of the variable itself), and a modifier expands on the information indicated by the variable symbol, plus the head, plus any other, narrower-scope modifier that the expression may contain.

Now, the real problem with a definition of the head/modifier opposition as first *vs.* second restrictors is that it entails that it is impossible to modify a variable which does not have a head. This is because, in the absence of a head, a modifier would become the first restrictor, hence the head itself (Evelien Keizer, p.c.): accordingly, Keizer (2012: 403) claims that "it is not possible to modify Individual-designating units with an absent head". This is also the position held by Hengeveld & Mackenzie (2008: 237–238), according to whom "[w]here the head is empty, it follows that no modification is possible". The authors justify this assumption by observing that any qualification of an entity referred to by means of a proper name "can only be of the interpersonal type", as for instance the adjective *poor* in (19); otherwise, the qualification can only be non-restrictive, as with the apposition in (20a) and the relative clause in (20b). This is because, as mentioned in Section 3.1, proper names are inserted at the Interpersonal Level, and therefore a NP headed by a proper name corresponds to a headless Individual at the Representational Level.

(19)   **Poor** John.

(20)   a.   John, **poor guy**, he has nowhere to stay.
       b.   John, **whose train had been delayed**, finally arrived.

In actual practice, however, it is also possible to modify a proper name by means of an expression which is to all intents and purposes restrictive. Compare (21)–(22), where restrictive modification applies to a NP denoting a person and a place, respectively, both of which are syntactically headed by a proper name and thus correspond to headless variables at the Representational Level:

(21)   **Pre-war Churchill** would be called a wailing Cassandra today. (GloWbE corpus)[8]

(22)   **Clientelistic Italy**, with the allied phenomena of the Mafia and organized crime, at times threatened to overwhelm the country as a whole. **Modern Italy** fought back with prosecutions and Tangentopoli, while part of the North under the guidance of Lega Nord threatened to break away from the South altogether. (GloWbE)

Other modifiers that may be attached to a NP headed by a proper name, such as *wailing* in (21), are not strictly speaking restrictive; their meaning, however, is still clearly representational and not interpersonal. Further examples of non-restrictive modification at the Representational Level are the NPs in boldface in (23)–(24):

---

[8] https://www.english-corpora.org/glowbe/. See Davies & Fuchs (2015) for description.

(23)   Just a few hundred yards from the European headquarters of **bankrupted Lehman Brothers**, a capsizing yacht forms part of an art installation that will be seen on the Thames and around the docks of London. (https://www.standard.co.uk)

(24)   Emma was worried that her underlying illness may have been causing her to fall unwell, although the couple were never been told having IVF would affect this illness. **Devastated Peter**, 33, claims they were never warned of the danger of IVF treatment and is now taking legal action against the hospital involved. (GloWbE)

The very same problem emerges with proforms, which, just like NPs headed by a personal name, are analyzed as absent-headed variables at the Representational Level (see Section 3.1). Nevertheless, many languages allow (certain types of) proforms to be modified by a restrictive relative clause. This is shown in (25a–d) for English third person pronouns, including the use of distal demonstrative pronouns exemplified by (25d), which is neither deictic nor anaphoric:[9]

(25)   (Keizer 2012: 411–412)
    a.   In much wisdom is much grief; and **he that increaseth knowledge** increaseth sorrow.
    b.   **She who rocks the cradle** rules the world.
    c.   **They who do not remember the past** are likely to repeat it.
    d.   **Those who vote against** would you please stand.

4.2 Headedness and modification at the Representational Level

4.2.1 Keizer (2012)

Keizer (2012) is the only FDG account to my knowledge which explicitly acknowledges and addresses the problem posited by the modification of proforms. To account for instances of pronoun modification of the type of (25a–d), Keizer (2012: 417) suggests that "non-phoric third person pronouns be provided with an abstract head consisting of one or more features". She thus proposes the following analyses for the non-deictic and non-phoric uses of English third person pronouns (here in a slightly adapted form), where M = Masculine, F = Feminine and *Hum* = Human.

(26)   he $(1\ x_1: [+M]\ (x_1))$ she $(1\ x_1: [+F]\ (x_1))$
        it $(1\ x_1: [-Hum]\ (x_1))$ they $(m\ x_1: [\pm Hum]\ (x_1))$
        those $(dem\ m\ x_1: [\pm Hum]\ (x_1))$[10]

In this way, Keizer argues, it becomes possible to represent an expression such as (25a) as shown in (27) (again, in a slightly adapted form), where "the Individual-designating unit is restricted by an abstract head ($+M$) and a modifying relative clause (ep_i)". Note that the relative clause is analyzed as an Episode because it is at this layer that deictic tense operators such as *pres*(ent) become relevant (see example (5) above):[11]

---

[9] Note that such non-deictic and non-phoric uses of demonstrative pronouns also allow postmodification by means of a Prepositional Phrase, as in *everyone except those below 18 or over 35 must serve* (Google Books).

[10] In my opinion, there actually is no need for a 'dem(onstrative)' operator in the representational analysis of the non-deictic/non-phoric use of the pronoun *those*: as we shall see below, the difference between *those* and *they*, in the relevant use, may rather be accounted for at the Interpersonal Level (see Note 19).

[11] The dashes delimiting the orthographic rendering of the modifying Episode's head signal that this is a simplified representation, in which further embedded layers are omitted for ease of reading.

(27)   he who increaseth knowledge
        $(1 x_i: [+M] (x_i): (pres ep_i:–who increaseth knowledge–(ep_i)) (x_i))$

This solution could in principle be extended to the modification of other types of pro-forms, including deictic ones. For instance, first and second person pronouns (which may again be modified by relative clauses, e.g. *I who have tried to walk in meekness and righteousness all my days*) might be argued to be necessarily headed by an abstract feature +Hum; correspondingly, one may assume that deictic pro-adverbs (which in English can be postmodified by relative clauses and apposed Prepositional Phrases, e.g. *here where I live/here in Portugal*) are always headed by the feature –Hum.

4.2.2 Abstract features and Lexical Properties: the case of lexical NPs

The representations in (26)–(27) deviate from the standard FDG account of natural gender and ±Humanness specifications in that such grammatically relevant properties of referents (which are stored in the Contextual Component and copied onto the relevant variable of the Representational Level) are usually not analyzed as abstract heads but are represented as superscripts before the variable symbol (i.e. $(^{m/f/\pm Hum}x_1)$). Given that gender and (non-)humanness distinctions are only encoded in the pronominal system in English, representing these grammatical features as abstract heads may perhaps work for this specific language; but such an analysis would be problematic for all those languages in which these distinctions are also systematically encoded in lexically headed NPs by means of lexically general gender markers or classifiers. This is because, in such languages, the grammatical distinctions in question would necessarily have to be formalized in two different ways in pronouns and in NPs with a lexical head, resulting in an undesirable analytical inconsistency. In fact, if natural gender and (non-)humanness were to be represented as abstract features restricting the head of a lexically specified variable, in the same way as this is done for proforms in (26)–(27), then the head of the relevant variable would consist of both an abstract feature and a Lexical Property, and it is far from clear in what kind of relation these two elements would stand with respect to each other. They certainly cannot constitute a bundle of features, as for instance in the case of the grammatical specifications $[\pm S, \pm A]$ in (6), for the very reason that a Lexical Property is a full-fledged variable of the Representational Level and as such cannot be bundled together with an abstract feature. As an alternative, one could speculate that the Lexical Property and the abstract feature form a Configurational Property together, in which case one of these elements should function as a predicate and the other as its argument: this, however, is not a viable solution since a grammatical feature is not a separate variable and hence cannot be used as a predicate or argument. In principle, a third possibility would be to postulate that the relation between the abstract feature and the Lexical Property is not one of equipollence as in the two hypotheses considered above, but one in which one of the two elements modifies the other: but, again, this is not allowed by the theoretical principles of FDG, since abstract grammatical specifications can never occur in a slot reserved for modifiers, nor are such specifications ever liable to lexical modification (on the latter point, see Keizer 2007; Mackenzie 2013; Hengeveld 2017).

Note finally that all of the hypothetical analyses surveyed above would misleadingly suggest that, in lexically headed NPs, abstract features such as +M, +F and ±Hum bear a direct semantic relation to the nominal Property in the head of the relevant variable: this cannot be the case, since in fact both specifications apply to the overall Individual independently. In sum, there appears to be no way in which Lexical Properties and abstract grammatical specifications can be represented together within the head of the variable designated by the whole NP. It follows that, if the analysis of non-deictic/non-phoric

proforms formalized in (26)–(27) were extended to languages which systematically encode natural gender and/or (non-)humanness in lexically headed NPs, then these grammatical distinctions would have to be represented as abstract heads in the relevant type of proforms but necessarily as being external to the head of the variable whenever the head slot is occupied by a lexical noun. As pointed out above, such a solution would represent a blatant analytical inconsistency and is thus most undesirable from a theoretical point of view.[12]

For the same reasons spelled out above, Keizer's proposal cannot be extended to the modification of NPs headed by proper names. Although neither gender nor humanness – nor any other grammatical distinction which may potentially be understood as an abstract head – is explicitly encoded in proper names like *Emma* or *Peter*, it may be argued that the head of the corresponding semantic unit must nevertheless be restricted by a +F or +M feature in order to license anaphoric reference to the same Individual by means of the appropriate personal pronoun. It is clear, however, that in this case the same analysis should be assumed for any lexical NP, which as we have seen is not a viable option. It follows that, even in the case of feminine or masculine proper names, the features +F and +M cannot be placed within the head of the variable (otherwise gender would have to be represented differently depending on whether a NP is headed by a proper name or a noun with representational content). As an alternative, one could hypothesize that gender features need not be reflected at all at in the semantic representation of NPs headed by person names or inherently masculine or feminine nouns like *son* or *aunt,* since in such cases the relevant information is encoded lexically and not grammatically. With family names such as *Churchill*, however, information concerning the gender (and humanness) of the referent is not expressed linguistically at all but can only be supplied by the encyclopaedic knowledge available within a given community: if one had never heard of Winston Churchill, one could not know which pronoun should be used in referring back to the entity named *Churchill,* since gender information is not encoded in English family names, either lexically or grammatically. The gender and ±Human features stored in the Contextual Component must thus be copied onto the relevant representational variable in order for the correct pronoun to be selected for anaphoric reference, but, as argued above, they can in no case be formalized as abstract heads in underlying semantic representation.

4.2.3 Modification of underspecified pronouns: the case of Yucatec Maya

The assumption that a pronoun can only be modified if its head is restricted by an abstract feature predicts that only a pronoun which is inherently specified for gender, (non-)humanness or some other grammatical opposition can ever host a relative clause (or any other kind of representational modifier). In other words, on this approach it would be impossible to account for a language in which an underspecified pronoun can be modified. Such languages, however, do exist, one example being Yucatec Maya. This language has a determiner and pronominal stem *le(l)*, which can be used as an article, a demonstrative determiner or a free-standing pronoun; in all of these uses, *le(l)* is combined with one of a set of phrase-final clitics marking spatial and identifiability distinctions with reference to the speaker or the addressee (roughly: *a'* = speaker-proximal/identifiable, *o'* = addressee-proximal/identifiable, *e'* = distal; see Bohnemeyer 2012 and references therein). In the definite and demonstrative determiner use, the clitics are attached to the

---

[12] An anonymous reviewer suggests that this inconsistency could be avoided by restricting the use of abstract heads to the pronominal system. In my opinion, this is not an acceptable solution: the meaning of natural gender and (non-)humanness specifications is exactly the same regardless of the lexical or pronominal nature of the expression, so it is a matter of theoretical soundness that the grammatical categories in question be represented in exactly the same way in both cases.

nominal head or any modifier that may follow the head, as in (28a–b) and (29a–b) respectively; in the pronominal use, they attach directly to *le(l)*, as shown in (30a–b), illustrating the deictic and anaphoric use of pronominal *le(l)*, respectively.[13] Note, incidentally, that the syntactic distribution of these phrase-final clitics is reminiscent of that of the French proximal and distal markers *ci* and *là* (cf. *ceci/cela*, 'this/that'; *ce (vieil) homme-ci/ce (vieil) homme-là,* 'this (old) man/that (old) man').

(28) *Yucatec Maya* (Gutiérrez-Bravo 2012: 262; Bohnemeyer 2012: 105. My glosses)
  a. tuláakal **le**   meyaj-o'ob = **o'**
    all   DEF worker-PL-ADDR.PROX
    'all the workers'

  b. A = ti'a'l   **le** = nah = **a'**?
    2.ERG/POSS = property DEM = house = SPKR.PROX
    'Is this house yours?'

(29) *Yucatec Maya* (Bohnemeyer 2012: 116; Gutiérrez-Bravo 2012: 257. My glosses)
  a. **le** = x-ch'úup   chak u = nòok' = **o'**
    DEF = F-female red   2.ERG/POSS = garment = ADDR.PROX
    'the woman dressed in red'

  b. **le**   kajtalil way = **a'**
    DEM hamlet here-SPKR.PROX
    'this hamlet here'

(30) *Yucatec Maya* (Bohnemeyer 2012: 106, my glosses)
  a. A = ti'a'l   **lel** = **a'**?
    2.ERG/POSS = property DEM = SPKR.PROX
    'Is this yours?'

  b. Ba'x k'ìin k-uy = úuch-ul   **lel** = **o'**?
    what sun   IMPF-3.ERG/POSS = happen-INCH DEM = ADDR.PROX
    'What day does that usually happen?'

Now, the pronominal use of *le(l)* allows modification by means of a relative clause, as shown in (31)–(33) (all from Gutiérrez-Bravo 2012: 258–263, my glosses):

(31) *Yucatec Maya*
    lekan taa-k-ø   **le**   [máax bi-s-ik-ø   le   paca ti'
    when come-IRR-3.SG.ABS DEM who   go-CAUS-IND-3.SG.ABS DEF bale PREP
    Enlace] = o'
    PN = ADDR.PROX
    'when the one who takes the (henequen) bales to Enlace comes …'[14]
    (Lit. "when that who takes the bales to Enlace comes")

___

[13] Note that *le* is analyzed as a clitic in Bohnemeyer (cf. (28b) and (29a)), but as an unbound element in Gutiérrez-Bravo (cf. (28a) and (29b)); the same goes for the "Set A" ergative/possessive cross-reference pronouns *in, a* and *u(y)* (first, second and third person, respectively). Since such differences are irrelevant for the purpose of our discussion, I simply report each example as transcribed by the respective author. The only change made in the transcriptions concerns the graphic element separating the phrase-final particles *a'/o'/e'* from the preceding words in Gutiérrez-Bravo's examples, which has been changed from '–' to '=' in accordance with the fact that both authors refer to these particles as clitics.

[14] Henequen is a species of Agave whose fibre is much used as a textile by Yucatec-Maya speaking communities.

(32)   *Yucatec Maya*
    le   [ba'ax k-in   tsikbal-t-ik-ø   te'ex] = a'
    DEM   what HAB-1.SG.ERG/POSS chat-TR-IND-3.SG.ABS 2.PL = SPKR.PROX
    'this thing that I'm telling you'
    (Lit. "this which I am telling you")

(33)   *Yucatec Maya*
    le   [tu'ux ts'-u   yáax máan le   meyaj] = o'
    DEM   where TERM-3.ERG/POSS first pass   DEF work = ADDR.PROX
    '[that place] where they first went to work'
    (Lit. "that where they first passed to work")

In each of these utterances a different relative pronoun is used depending on the semantic category of the head (Individual in (31), Propositional Content in (32), Location in (33)) and of further subcategorizations of this semantic category such as + Human in (31). The formal expression of the element *le*, however, is the same in all three cases (cf. also (30b), where *lel* must be analyzed as designating a State-of-Affairs or Episode, since it is only such second-order, eventive entities that may be said to "happen" or "take place"; similarly, in (32) *le* is assumed to designate a Propositional Content because most other types of entities could not be said to be "told"). This clearly indicates that *le(l)* is a pronoun and not a determiner in this type of structures (since relative pronouns occurring in modifying relative clauses require a referential antecedent) and that this form is absolutely neutral with respect to the semantic category of the referent (Individual, Location, etc.), as well as to grammatical oppositions concerning (non-)humanness, gender, number, etc. It is therefore inadequate to assume that the head of the variable designated by pronominal *le(l)* is restricted by one or more abstract features. Further support for this analysis is provided by the fact that the phrase-final particles with which *le(l)* is combined are used with any definite NP, including lexically headed ones, and not only in the pronominal uses of *le(l)* (cf. (28)–(29)): the grammatical distinctions encoded by these particles must therefore be analyzed as full-fledged *proximal* or *distal* operators, taking the whole variable in their scope (see Section 4.2.2 on the impossibility of combining abstract features with Lexical Properties within the head of a variable). In short, all the formal properties of (31)–(33) suggest that the pronoun *le* corresponds to a variable with an absent head: the only difference from *lel* in (30a–b) is that this variable is now modified by a relative clause.

  In principle, it may be objected that in (31)–(33) *le* should be analyzed as a determiner and not as a pronoun and, therefore, the clauses enclosed within square brackets in the above examples function as free (or "headless") relative clauses. In FDG terms, this would mean that it is the whole relative clause that restricts the head of the overall variable. At first glance, this analysis would seem to be in accordance with the fact that the clitic particles are attached at the end of the embedded clause, and not directly to the determiner/pronominal stem *le(l)*, as in (30a–b). This, however, is the only possibility offered by the Yucatec Maya syntax, since as mentioned above these particles are obligatorily phrase-final (cf. (29a–b), where *o'* and *a'* are equally appended to a postnominal modifier). Also note that, according to Vázquez-Rojas Maldonado et al. (2018), the discontinuous sequence *le … o'* (but not *le … a'* or *le … e'*) has grammaticalized as a definite article: if *le…o'* in (31) and (33) were to be interpreted as a determiner, then it could indeed be argued that these are in fact free relatives, as in English *what I'm telling you* or *where they went to work* (cf. Portuguese *o que fizeste*, 'what you did', where both the determiner *o* and the relative pronoun *que* are used). As argued extensively in Gutiérrez-Bravo (2013), however, free relatives have distinct structural properties in Yucatec Maya. Like English,

in fact, Yucatec Maya distinguishes between modifying relative clauses such as (31)–(33), where pronominal *le(l)* is the modified referential unit, and true free relative clauses like (34a–c), which do not make use of the element *le(l)*:

(34)   *Yucatec Maya* (Gutiérrez-Bravo 2013: 29; my glosses)
    a.   Yaan-ø   [máax k'am-ik-ø].
          EX-3.SG.ABS   who   receive-IND-3.SG.ABS
          'There were those who received it.'
          (Lit. "There is who receives it")

    b.   K-o'on-e'ex   il-ik-ø   [ba'ax kan   u
          go-1.PL.ABS-2.PL.ABS see-IND-3.SG.ABS   what   AUX   3.ERG/POSS
          beet-ej-ø].
          do-IRR-3.SG.ABS
          'Let's go see what it (the rain) is going to do.'

    c.   tak   [tu'ux jach ma'alob le   lu'um = o']
          even   where very   good   DEF soil = ADDR.PROX
          'even where the soil is very good'

It is only in such cases that an analysis in terms of free relative clauses can be reasonably assumed. The functional difference between regular restrictive relatives and free relative clauses, in fact, is precisely that the former are invariably used as adnominal modifiers, whereas the latter may be used in various structural positions, e.g. in existential predications as in (34a), as arguments of a verbal predicate as in (34b), as clause-level modifiers as in (34c) and even in predicative function, as in English *Home is [where the heart is]*. It is clear that in such constructions there is no (pro)nominal head for the relative clause to modify but it is this clause itself that restricts the head of an autonomous representational variable. Thus, regardless of whether the semantic unit underlying the relative clause designates an Individual (x) as in (34a), a State-of-Affairs (e) as in (34b) or a Location (l) as in (34c), all three constructions share one and the same general structure at the Representational Level – namely, $(v_1: (e_1: [\dots] (e_1)) (v_1))$.[15] In (31)–(33), by contrast, the relative clause functions as *a modifier* of the headless variable designated by the pronoun *le*, which provides the referential antecedent for the relative marker occurring within the embedded clause. Applying the usual formalism for variable modification, this analysis leads to the representations in (35)–(37) for (31)–(33) – where the closing bracket before the first colon indicates that the unit following that colon is a modifier (and not the head) of the variable to its left:[16]

(35) $(^{+hum}\text{prox } x_i): (e_i: [\dots] (e_i)) (x_i))$

(36) $(\text{prox } p_i): (e_i: [\dots] (e_i)) (p_i))$

(37) $(\text{prox } l_i): (e_i: [\dots] (e_i)) (l_i))$

---

[15] Note that the semantic unit underlying the relative clause is assumed to constitute a State-of-Affairs (e_i) because, at least in the Yucatec Maya examples considered here, the relative clause never hosts an absolute tense marker or other operators of the Episode layer (cf. the English example in (27), where the verb of the relative clause is marked for present tense and is accordingly analyzed as an Episode).

[16] In all three representations, *prox* = proximal. As regards the opposition between speaker-proximal *a'* and addressee-proximal *o'*, this is not a matter for the Representational Level but will be captured at the Interpersonal Level by means of the usual [±S, ±A] features in the head of the relevant Subact of Reference.

Similarly, the English pronoun + relative clause constructions in (25a–d) would all be derived from the basic frame in (38), and the proper name + lexical adjective constructions in (21)–(24) from the frame in (39); finally, the modification of non-phoric demonstrative pronouns by means of a Prepositional Phrase (see Note 9) would exploit the general frame given in (40), where the postmodifying Prepositional Phrase is analyzed as a Configurational Property:

(38)　　$(x_1): (ep_1: [...] (ep_1)) (x_1))$

(39)　　$(v_1): (f_1: \blacklozenge (f_1)) (v_1))$

(40)　　$(x_1): (f_1^c: [...] (f_1^c)) (x_1))$

4.3 A revised approach to the modification of headless variables

The representations in (35)–(40) correctly capture the fact that the lexical, phrasal or clausal modifiers in the corresponding constructions apply to a variable whose head is left unspecified. All these representations, however, run into the notational problem that the number of opening and closing brackets for the overall variable does not add up (there are too many closing brackets).[17] In theory, a possible solution could be to assume that the representation of absent-headed variables as (v_1) should actually be understood as a simplified form of the representation in (41):

(41)　　$(v_1: \emptyset (v_1))$

where the head of the variable is in fact not absent, but is restricted by a null element. This would make it possible to represent the modification of such variables as shown in (42):

(42)　　$(v_1: \emptyset (v_1): \sigma (v_1))$

This, however, would be an *ad hoc* solution explicitly designed to solve a notational problem, which does not actually add any descriptive accuracy to FDG's account of the relation between headedness and modification. It is clear, in fact, that for a variable to be restricted by a null head or not to be restricted by any head at all is exactly the same thing from a notional point of view.

　Once the assumption that only headed variables can be modified is rejected, however, the problem does indeed become a merely notational one, and as such can be solved by introducing a minimal adjustment to the formalism: namely, whenever a representational or interpersonal variable takes a modifier but there is no grammatical evidence that a head of any type should be present in underlying representation, a second opening bracket will be added before the first occurrence of the modified variable, so as to show that this variable and its modifier belong together at the relevant level of Formulation. As a result, any modification of a headless variable will be accounted for as an instantiation of the general representational frame in (43):

(43)　　$((v_1): \sigma (v_1))$

---

[17] Again, I must thank Evelien Keizer for pointing this out to me.

Thus, the English constructions with a proper name and a representational adjective in (21)–(24) will all be derived from the frame in (44a), and the English and Yucatec Maya constructions with a pronoun and a relative clauses (i.e. (25a–d) and (31)–(33)) will be derived from the frame in (44b).

(44) a. $((v_1): (f_1: \blacklozenge (f_1)) (v_1))$
      b. $((v_1): (e_1/ep_1: […] (e_1/ep_1)) (v_1))$

Regardless of the restrictive or non-restrictive nature of the modifier, the nominal expressions in (21)–(25) and (31)–(33), repeated below, will all be derived from one of these two general frames, and can thus be analyzed at the Representational Level as shown in (45)–(52):

(45) a. pre-war Churchill
          $((^m1\ x_i): (f_i: \text{pre-war} (f_i)) (x_i))_\phi$

      b. wailing Cassandra
          $((^f1\ x_i): (f_i: \text{wail} (f_i)) (x_i))_\phi{}^{18}$

(46) a. clientelistic Italy
          $((1\ l_i): (f_i: \text{clientelistic} (f_i)) (x_i))_\phi$

      b. modern Italy
          $((1\ l_i): (f_i: \text{modern} (f_i)) (l_i))_\phi$

(47) bankrupted Lehman Brothers
      $((1\ x_i): (f_i: \text{bankrupt} (f_i)) (x_i))_\phi$

(48) devastated Peter
      $((^m1\ x_i): (f_i: \text{devastate} (f_i)) (x_i))_\phi$

(49) a. he that increaseth knowledge
          $((^m1\ x_i): (\text{pres}\ ep_i{:}\text{–who increaseth knowledge–}(ep_i)) (x_i))_\phi$

      b. she who rocks the cradle
          $((^f1\ x_i): (\text{pres}\ ep_i{:}\text{–who rocks the cradle–}(ep_i)) (x_i))_\phi$

      c. they who do not remember the past
          $((^{+hum}m\ x_i): (\text{pres}\ ep_i{:}\text{–who do not remember the past–}(ep_i)) (x_i))_\phi$

      d. those who vote against
          $((^{+hum}m\ x_i): (\text{pres}\ ep_i{:}\text{–who vote against–}(ep_i)) (x_i))_\phi{}^{19}$

---

[18] Note that the Lexical Property in the head of the (x_i) variable is not given in the participial form *wailing* but as the base form of the verb *wail*. This is because participial endings are regarded here as *support morphemes* serving structural coercion (see Hengeveld & Mackenzie 2008: 403–404, 413): that is, such morphemes are not part of the lexical entry as stored in the Fund of primitives but are inserted at the Morphosyntactic Level in order to allow a verbal lexeme to be used in adjectival function. The same analysis applies to the past participle ending *-ed* in *bankrupted* and *devastated* in (47)–(48).

[19] As pointed out by Keizer (2012: 412), the functional difference between the non-deictic/non-phoric uses of *they* and *those* is that "*those* tends to be used in specific rather than generic constructions; the opposite seems to hold for *they*". If this is so, the contrast is pragmatic, and not semantic in nature (it concerns reference, rather than designation): as such, it can be captured at the Interpersonal Level, where the Referential Subacts expressed by *those* and *they* will be assigned a +*s*(pecific) and a –*s*(pecific) operator, respectively.

(50)   le   [máax bi-s-ik-ø   le   paca ti'   Enlace] = o'
        DEM   who   go-CAUS-IND-3.SG.ABS DEF bale PREP PN = ADDR.PROX
        "that who takes the bales to Enlace"
        (($^{+hum}$prox x_i): (e_i:–máax bisik le paca ti' Enlace–(e_i)) (x_i))$_\phi$

(51)   le   [ba'ax k-in   tsikbal-t-ik-ø   te'ex] = a'
        DEM   what   HAB-1.SG.ERG/POSS chat-TR-IND-3.SG.ABS 2.PL = SPKR.PROX
        "this (thing) which I am telling you"
        ((prox p_i): (e_i:–ba'ax kin tsikbaltik te'ex–(e_i)) (p_i))$_\phi$

(52)   le   [tu'ux ts'-u   yáax máan le   meyaj] = o'
        DEM   where TERM-3.ERG/POSS first pass DEF work = ADDR.PROX
        "that (place) where they first passed to work"
        ((prox l_i): (e_i:–tu'ux ts'u yáax máan le meyaj–(e_i)) (l_i))$_\phi$

As regards the fact that proper names are not available for modification by a restrictive relative clause, this does not depend on the fact that the corresponding representational variable does not have a head but naturally follows from the discourse-pragmatic status of the referent. In fact, the *raison d'être* of restrictive relative clauses is that they are required in order to help the addressee identify a referent; entities referred to by means of proper names, however, are by definition uniquely identifiable: it is therefore entirely to be expected that proper names should be incompatible with restrictive relative clauses (unlike the personal and demonstrative pronouns in (49)–(52), whose referents are *not* uniquely identifiable from the start).[20]

Finally, it must be remarked that the possibility of headless variable modification is not limited to (pro)nominal expressions, as might be inferred from the foregoing discussion. First, I pointed out above that pro-adverbs like *here* or *there* may also be modified at the Representational Level, as in the case of appositional or relative structures such as *here in Portugal* and *here where I live*. Applying the same formalism as I have used in (45)–(52) for the modification of absent-headed (pro)nominal expressions, such constructions may be represented as in (53a–b) (where (l_i) = *here* and (l_j) = *Portugal*):

(53)   a.   here in Portugal
              ((l_i): (f_i^c: [(f_j: in (f_j)) (l_j)$_{Ref}$] (f_i^c)) (l_i))$_\phi$[21]
        b.   here where I live
              ((l_i): (ep_i:–where I live–(ep_i)) (l_i))$_\phi$

Furthermore, verbal proforms like *do*, *do so* or *do it* are liable to modification by the same types of adverbs as apply to lexical predicates. Thus, if a verbal predicate is retrieved anaphorically by means of one of these proforms, nothing prevents the proform in question from being modified by a manner adverb that may as well apply to the retrieved

---

[20] A reviewer points out that the same could be said of the possibility (or, indeed, the necessity) that proper names be combined with definite articles, as happens in several languages (e.g. Portuguese). The crucial difference is that, unlike restrictive relative clauses, definite articles do not help the addressee identify a referent but *mark* unique identifiability – that is, they merely signal that the referent in question is a uniquely identifiable one, without contributing any interpersonal or descriptive qualification of the entity in question.

[21] As noted above, a Prepositional Phrase that postmodifies a non-phoric demonstrative pronoun will similarly be analyzed as a Configurational Property: thus, in *everyone except those below 18*, the NP *those below 18* will be represented as (($^{+hum}$m x_i): (f_i^c: [(f_j: below (f_j)) (f_k: eighteen (f_k))$_{Ref}$] (f_i^c)) (x_i))$_\phi$.

predicate, as for instance in *The young girl dances: she does it beautifully*. The same analysis applies to (54), where the lexical predicate *act* is retrieved by the pro-predicate *do so* and this is modified by the manner adverb *effectively*:

(54)   While some persons have been questioning the usefulness of Friday's protests, Harriott believes that such actions, though symbolic, show that people want their Government to act, and to **do so effectively**. (GloWbE)

Once again, the modification of verbal proforms is a case of headless-variable modification, since, like any other proform, pro-predicates have no lexical content whatsoever, nor may they be argued to be headed by any type of abstract feature. Accordingly, expressions like *does it beautifully* or *do so effectively* will be represented as in (55), where the absent-headed Lexical Property (f_i) corresponds to the proform and the lexically specified adjectival Property (f_j) is attached to the former in modifier function:[22]

(55) $((f_i): (f_j: \text{beautiful/effective } (f_j)) (f_i))$

Last but not least, note that the case of verbal pro-predicates is not the only one in which an absent-headed Lexical Property may be modified. Among the adjectival lexemes that may be inserted at the Representational Level, there is a subset of adjectives which can be used to modify the nominal head of a higher-layer variable of whatever type: the specific function of such adjectives is that of restricting the extent or the domain in which the modified nominal Property applies to the variable it heads. Compare for instance the adjectives *rich* and *former*, as used in (56)–(57) (adapted from Hengeveld & Mackenzie 2008: 220). In (56), *rich* serves as a qualification of the Individual *the neighbour*, not of the Lexical Property *neighbour* (that is, one may be rich as a person, but not in one's quality of being a neighbour); in (57), by contrast, *former* only modifies the Lexical Property *neighbour*, without affecting the Individual as such (that is, the person in question may no longer be a neighbour, but will in any case still be an individual!):

(56)   the rich neighbour
        $(1 \, x_i: (f_i: \text{neighbour } (f_i)) (x_i): (f_j: \text{rich } (f_j)) (x_i))_\phi$

(57)   the former neighbour
        $(1 \, x_i: (f_i: \text{neighbour } (f_i): (f_j: \text{former } (f_j)) (f_i)) (x_i))_\phi$

As noted by Hengeveld & Mackenzie (2008: 254), a distinctive feature of adjectives that modify nominal Properties is that they may not be used in predicative position (cf. **The neighbour is former*), whereas this is perfectly possible with other types of adjectives (e.g. *The neighbour is rich*). Similarly, in the Location-designating expression *the main road* and the Proposition-designating expression *linguistic theory*, the adjectival Properties *main* and *linguistic* do not modify the Location or Propositional Content as a whole but only the nominal Properties in the head of those expressions (cf. **The road is main, *This theory is linguistic*). Once it is established that the adjectives *former, main* and *linguistic* function as modifiers of the Lexical Property in the nominal expressions considered here, it may be asked whether such adjectives may also be combined with Lexical Properties whose head is left unspecified. The answer is clearly affirmative. Recall, in fact, that nominal Lexi-

---

[22] Again, the adverbializing suffix *-ly* is analyzed as a support morpheme.

cal Properties may be retrieved by such anaphoric proforms as English *one* (see (9)–(10) in Section 3.1): it is thus immediately evident that in a sentence like (58) the adjectival Property *former* only modifies the retrieved nominal Property *neighbour*:

(58)　　I like the new neighbours but I preferred **the former ones**
　　　　the new neighbours　　　　　　　　　　…　　the former ones
　　　　$(m\ x_i: (f_i: neighbour\ (f_i): (f_j: new\ (f_j))\ (f_i))\ (x_i))_\phi$　　$(m\ x_j: ((f_i): (f_k: former\ (f_k))$
　　　　　　　　　　　　　　　　　　　　　　　　　　$(f_i))\ (x_j))_\phi$

As shown in this representation, such structures constitute yet another case of headless variable modification at the Representational Level.

4.4 *Headedness and modification at the Interpersonal Level*

At the Interpersonal Level, the modification of headless variables is maximally relevant to the layer of Subacts of Ascription. Like any other layer of the Interpersonal Level, Subacts of Ascription are defined in interactional terms, more specifically, as attempts made by the speaker to ascribe a given property – as opposed to Subacts of Reference, which, as explained in Section 3.1, are understood as attempts to evoke a referent. In the default case, a property will be ascribed to a referent (of whatever type):[23] for instance, a simple nominal expression like *the horse* will be analyzed at the Interpersonal Level as a Subact of Reference whose head is restricted by a Subact of Ascription (that is, a referent is evoked to which the property *horse* is ascribed). This analysis is formalized in (59a), where each Subact is explicitly connected to the corresponding representational unit (operators of both levels are omitted for ease of reading). Similarly, if more than one property is ascribed to the same referent, the head of the corresponding Subact of Reference will be displayed as a configuration of equipollent Subacts of Ascription, as shown in (59b) for the NP *the white horse*: this reflects the fact that the different statuses of the properties *horse* and *white* is not a matter for the Interpersonal Level but only emerges at the Representational Level, where the Lexical Property *white* is analyzed as a modifier of the Individual whose head is restricted by the Property *horse*:

(59)　　a.　　the horse

　　　　　　　IL:　$(R_I: [(T_I)]\ (R_I))$
　　　　　　　　　　　│　／
　　　　　　　RL:　$(x_i: (f_i: horse\ (f_i))\ (x_i))$

　　　　　b.　　the white horse

　　　　　　　IL:　$(R_I: [(T_I)\ (T_J)]\ (R_I))$
　　　　　　　　　　　│　／
　　　　　　　RL:　$(x_i: (f_i: horse\ (f_i))\ (x_i): (f_j: white\ (f_j))\ (x_i))$

---

[23] In the case of zero-place predications like *It is raining*, however, the property *rain* is not ascribed to any specific referent but may be said to be "simply 'ascribed'" (Hengeveld & Mackenzie 2008: 88). In more formal terms, this means that such expressions do not contain any Subact of Reference but consist of a single Subact of Ascription.

As is evident in these representations, the head of a Subact of Ascription is by default absent: this is because the semantic category to which each Subact corresponds can only be specified at the Representational Level, since this aspect of meaning concerns the descriptive, not the interactional content of the expression. Yet, modification of a Subact of Ascription is a very common lexical operation. Typical modifiers of this layer are interpersonal adverbs or adjectives with emphatic, reportative or evaluative meaning such as those exemplified in (60a–d):

(60)   (Hengeveld & Mackenzie 2008: 111)
      a.   a **really** nice example
      b.   an **allegedly** defamatory article
      c.   the **so-called** buffet
      d.   a **fortunately** slim publication

To obviate the problem posited by such expressions, Hengeveld & Mackenzie depart from FDG's usual avoidance of null categories (see Section 1) and suggest that the modified Subact of Ascription be provided with a null head, represented graphically as "[ ]":

(61) $(T_I: [ ] (T_I): really/allegedly/so-called/fortunately (T_I))$

It is clear, however, that this representation is merely a variant of the ø-strategy considered in (41)–(42): as argued above, such analyses may avoid the notational inconvenient stemming from the assumption that headless variables are not liable to any kind of modification, but, in actual fact, they do not help solve the theoretical problem inherent in that assumption. Now, as pointed out in Section 4.1, the assumption in question is a direct consequence of the fact that in the F(D)G tradition heads and modifiers are conceived of as first and second restrictors respectively, so that the absence of a first restrictor logically entails that no second restrictor may be present either. This approach to headedness and modification, however, is specifically designed to account for the mechanisms whereby the denotation of linguistic expressions may be restricted by lexical means: there is therefore no reason why the same approach should be extended to situations to which the very notion of denotation is irrelevant – that is, first and foremost, at the Interpersonal Level. It follows that rejecting the assumption that headless variables cannot be modified not only eliminates all the theoretical and notational problems connected to that notion but also ties in very well with the very nature of FDG's Interpersonal Level, where linguistic expressions are analyzed in terms of their interactional properties and not with respect to their denotation. In this way, it becomes possible to formalize the modification of headless interpersonal variables in the very same way as was done for representational variables in the previous section: accordingly, the modified Subacts of Ascription in (60) can unproblematically be analyzed as shown in (62), in accordance with the notational convention introduced in Section 4.3:

(62) $((T_I): really/allegedly/so-called/fortunately (T_I))$

A further case of headless variable modification at the Interpersonal Level concerns the layer of Subacts of Reference. As shown in (59), lexical expressions which are used as Subacts of Reference are analyzed at the Interpersonal Level as being headed by a (con-

figuration of) Subact(s) of Ascription.[24] Referential proforms, on the other hand, do not express any lexical information but, in their deictic uses, are triggered by an appropriate configuration of abstract features $[\pm S, \pm A]$, as explained in Section 3.1 for personal pronouns. For anaphoric, cataphoric and logophoric proforms, however, there is no need to assume that the head of the Referential Subact is restricted by such abstract features: what triggers such proforms, in fact, is merely the presence of a semantic unit coreferential with that designated by the proform in the preceding or following discourse (coreferentiality being captured at the Representational Level by assigning the same index to the two variables, see Hengeveld & Mackenzie 2008: 119–121). It follows that any phoric use of a referential proform will be represented at the Interpersonal Level as an absent-headed Subact of Reference, that is as (R_i). Now, phorically used proforms are available for modification by interpersonal lexemes which provide additional – typically, evaluative – information on the Subact of Reference, such as the non-descriptive uses of adjectives like *poor*, *lucky*, *dear*, *little* or *(good) old*. In (63a–b), for instance, *poor* and *old* are clearly evaluative interpersonal modifiers expressing commiseration and endearment respectively, and do not refer to the financial situation or age of the referent (see Butler 2008: 227):

(63)   a.   Some people may look at these couples and think "What a waste, she had an amazing job, now they live on a tight budget. How unhappy they$_i$ must be, **poor them**$_i$!" (GloWbE)

          b.   The programme makers immediately put their hands up, and said yes, they'd got it wrong – but had decided Kennedy$_i$ could keep his dosh. **Lucky old him**$_i$. (GloWbE)

Once again, the only way in which such instances of interpersonal modification may be accounted for without invoking *ad hoc* theoretical constructs such as that of "null head" is by accepting the idea that modification does not necessarily presuppose headedness. Formally, the modification of absent-headed Referential Subacts will again be represented by inserting an additional opening bracket at the beginning of the interpersonal unit formed by the Subact and its modifier(s), as shown in (64a–b). Note that this solution can also account for cases such as (63b), where two interpersonal modifiers are attached to the same Subact: in such cases, the two modifiers will be distributed in such a way that the one with higher scope (here, *lucky*) takes the outermost position in formal representation:

(64)   a.   poor them
              $((R_I): poor (R_I))$

          b.   lucky old him
              $((R_I): old (R_I): lucky (R_I))$

5 Discussion and conclusions

In the preceding sections I have illustrated the practical advantages of an approach to headedness and modification in which any type of interpersonal and representational unit is in principle available for lexical modification, including variables whose head is not specified by any lexical or grammatical means. At this point, the theoretical question must

---

[24] The only exception here is represented by NPs headed by a proper name, since, as we saw above, proper names are inserted directly into the head of Subacts of Reference at the Interpersonal Level.

be addressed of how this proposal can be brought together with a definition of heads and modifiers as "first" and "second restrictors", respectively.

As will be clear from the above, these two positions are simply impossible to reconcile. The very idea that headless variables cannot be modified, in fact, is a logical corollary of the habit of defining the head/modifier opposition in terms of first *vs.* second restrictors of a variable's denotation. However, we have seen that such a definition is untenable whenever the variable in question is interactional and not denotational in nature (that is, at the Interpersonal Level), as well as when the relation between a representational variable and its modifier(s) is not one of denotation restriction, as in the case of the modifiers *wailing, bankrupted* and *devastated* in (21)–(24). In the light of this consideration, I would like to suggest that FDG should just give up the assumption that the difference between heads and modifiers lies in the order in which both are applied to a given variable, accepting instead that heads and modifiers simply have different statuses, from a communicative point of view, in the linguistic process of information packaging – at both the Interpersonal and the Representational Level. In a nutshell, the proposal is that FDG shift from a definition of the head/modifier distinction as first *vs.* second restrictors to one in terms of *internal* vs. *external* specifications of a representational or interpersonal variable: this definition correctly captures the fact that, in the FDG formalism, heads are specified right after the variable symbol, whereas modifiers always occur after a closing bracket following the variable symbol.

The main consequence of this revised approach to the head/modifier opposition is that, being structurally external to the representational or interpersonal variable to which they are attached, modifiers no longer presuppose the presence of a variable-internal specification (i.e., a head). In other words, if modifiers are no longer thought of as second (third, and so on) restrictors, there suddenly ceases to be any reason why a variable that lacks a "first" restrictor should not be liable to the attachment of modifiers. This proposal is thus not only theoretically justified by the fact that several types of modifiers are interactional, or in any case non-restrictive in nature, but is also capable of accounting for the modification of headless variables in a consistent way, and by only introducing a minimal adjustment to the current FDG formalism (namely, the addition of a second opening bracket before the variable symbol). Finally, an additional advantage of the proposed approach is that it reinforces the parallel between modifiers and operators (on which see Section 3.2): operators too, in fact, provide additional, variable-external specifications of the units in their scope, and as such resemble modifiers and crucially differ from heads in terms of their structural position. One consequence of this is that both operators and modifiers can be left out in anaphoric reference, whereas heads must always be retrieved from short-term operational memory in interpreting the anaphora. In (58) above, for instance, the modifier *new* is not retrieved by the proform *one* together with the head-noun *neighbour*; likewise, in *The reasons to use a personal vaporizer are different for ex-smokers and current ones* (https://www.vapingpost.com/2015/06/25/), anaphoric *one* does not retrieve the operator *ex* but only the Lexical Property *smoker*.

It is important to stress that, as in the case of the stacked restrictors *vs.* conjoined predicates approaches to designation described in Section 3.3, the difference between the notion of first/second restrictors and that of internal/external specifications must be understood in *communicative* terms and not in merely ontological ones. From an ontological point of view, in fact, it is clear that a representational modifier such as *old* in *an old elephant* could also be characterized as a further subcategorization of the entity named *elephant*; the point, however, is that heads and modifiers are not handled in the same way by the grammatical system, namely in that both types of specification are inserted

into different slots in the structure of interpersonal and representational layers. In other words, it is not just *the order* in which each lexeme is attached to the variable that is different, but the very communicative process whereby the specification in question is provided in linguistic interaction.[25]

As for the questions why the grammatical system should distinguish between the two processes of internal and external specification of a linguistic unit, or how these two notions should be described in cognitive or conceptual terms, all we can do is speculate. In doing so, it is crucial to bear in mind that in a theory like FDG, which draws a sharp separation between prelinguistic conceptualization and the grammatical operation of Formulation, the conceptual representation of meaning should be kept rigidly separate from the ways in which the Grammatical Component organizes such conceptual content into underlying pragmatic and semantic structures (to be translated into morphosyntactic and phonological configurations through the operation of Encoding); for further discussion of this point, see Hengeveld and Mackenzie (2016) on the experiential rather than linguistic nature of meaning. That said, it may perhaps be argued that, at a prelinguistic level, the processes of internal and external specification of a linguistic variable correspond to different ways of conceptualizing the referent or communicative action underlying the variable in question. From this point of view, one possibility would be to assume that, in the case of variable-internal specification, the relevant ideational or interactional entity is conceptualized in terms of the experiential unit of information to be verbalized as the lexical head of the corresponding grammatical variable; further specifications that may be attached to a variable in the form of modifiers might correspondingly be conceived of, again at a prelinguistic level, as accessory, non-inherent properties or qualifications of the entity in question. Pushing the speculation a bit farther, a linguistic unit that lacks a lexical head may possibly be assumed not to be conceptualized in terms of any specific bit of experiential information, but rather as an unspecified or underspecified mental representation of the referent or communicative action in question – of course with no prejudice to the possibility that such un(der)specified mental representations may be assigned some non-inherent characterization(s), to be verbalized as interpersonal or representational modifier(s). These and other questions concerning the cognitive roots of the linguistic notions of headedness and modification are certainly intriguing, but, as stressed above, any guesses about the status of prelinguistic constructs and processes in abstract mental representation are, and are bound to remain pure philosophical speculations. Indeed, as Jackendoff (2012: 99) puts it,

> when we talk about the rules of grammar or of phonological structure being in the mind, we're not talking about anything conscious. Speakers can't tell you what the principles are, and no process like psychotherapy can uncover them. The principles are as inaccessible to introspection as the condition of your spleen.

It is my contention that the very same point can be made as regards the structure of meaning representation at the conceptual level and the certainly existing, but ultimately

---

[25] One of the reviewers suggests that the distinction between internal and external specification as separate communicative processes could be brought in connection with Rijkhoff's (2014) proposal to redefine the interpersonal status of modifiers as a third type of Subact, termed *Subact of Modification* (irrespective of the interpersonal or representational function of the modifier itself). An evaluation of Rijkhoff's suggestion is outside the scope of this paper, but I would like to make clear that, when I speak of head-filling and modification as separate communicative processes, the term "communicative" does not equal "interpersonal" but refers to the dynamic implementation of the Formulation levels. More specifically, the two communicative processes in question represent two separate strategies which the Grammatical Component may adopt in supplying lexical information about a given interpersonal or representational variable.

inaccessible links between conceptualization and grammar. Briefly, as pointed out by Mackenzie (2014), "a functionalist account [of grammar] needs to recognize the inaccessibility of conceptualization" and to restrict mapping relations to within the Grammatical Component. This entails that it is not a task for the grammarian to try and speculate what conceptual oppositions and cognitive mechanisms underlie such communicative processes as those of head-filling and modification: as far as the status of heads and modifiers is concerned, all that we linguists can tell is that these are indeed treated differently from each other in the grammatical system. Once this is established, adherents of any given grammatical framework should try and characterize the notions of head and modifier in accordance with the theoretical premises of the linguistic model in question. In this regard, given a layered approach to language structure such as FDG's, where certainly not all heads and modifiers are of the restrictive type, but all layers and variables have rigidly demarcated external boundaries, defining heads and modifiers as internal *vs.* external specifications of the variable to which they apply seems much sounder than holding on to the notion of first *vs.* second restrictors. As shown in this paper, however, this proposal is not merely a theoretically-driven one but offers decisive empirical advantages when it comes to the description and analysis of actual language facts, allowing FDG to overcome the problem posited by the modification of headless units at both the Interpersonal and the Representational Level.

Abbreviations

1 = first person, 2 = second person, 3 = third person, ABS = absolutive, ADDR = addressee, AUX = auxiliary, CAUS = causative, DEF = definite, DEM = demonstrative, ERG = ergative, F = feminine, HAB = habitual, = IMPF = imperfective, INCH = inchoative, IND = indicative, IRR = irrealis, PL = plural, PN = proper name, POSS = possessive, PREP = preposition, PROX = proximal, SG = singular, SPKR = speaker, TERM = terminative, TR = transitive.

Acknowledgements

Competing Interests

The author has no competing interests to declare.

References

Alexiadou, Artemis. 2013. Adverbial and Adjectival Modification. In Marcel den Dikken (ed.), *The Cambridge handbook of Generative Syntax*, 458–84. Cambridge: Cambridge University Press. DOI: https://doi.org/10.1017/CBO9780511804571.017

Bohnemeyer, Jürgen. 2012. Yucatec demonstratives in interaction: Spontaneous vs. elicited data. In Andrea C. Schalley (ed.), *Practical theories and empirical practice* (Human Cognitive Processing 40), 99–128. Amsterdam and Philadelphia, PA: John Benjamins. DOI: https://doi.org/10.1017/9781108333818.009

Butler, Christopher S. 2008. Interpersonal meaning in the noun phrase. In García Velasco & Jan Rijkhoff (eds.), *The noun phrase in Functional Discourse Grammar* (Trends in Lin-

guistics: Studies and Monographs 195), 221–262. Berlin and New York, NY: De Gruyter Mouton. DOI: https://doi.org/10.1515/9783110205374.221

Dahl, Östen. 1971. Nouns as set constants. *Gothenburg Papers in Theoretical Linguistics* 3.

Davidse, Kristin & Tine Breban. 2019. A cognitive-functional approach to the order of adjectives in the English noun phrase. *Linguistics* 57(2). 327–371. DOI: https://doi.org/10.1515/ling-2019-0003

Davies, Mark & Robert Fuchs. 2015. Expanding horizons in the study of World Englishes with the 1.9 billion word Global Web-Based English Corpus (GloWbE). *English World-Wide* 36. 1–28. DOI: https://doi.org/10.1075/eww.36.1.01dav

Dik, Simon C. 1989. *The theory of Functional Grammar* (Functional Grammar Series 9). Dordrecht: Foris.

Dik, Simon C. 1997. *The theory of Functional Grammar, Part I: The structure of the clause* (Functional Grammar Series 20). 2nd revised edition, edited by Kees Hengeveld. Berlin and New York, NY: De Gruyter Mouton. DOI: https://doi.org/10.1515/9783110218367

Giomi, Riccardo. 2014. Grammar, context and the hearer: A proposal for an addressee-oriented model of Functional Discourse Grammar. *Pragmatics* 24(2). 275–296. DOI: https://doi.org/10.1075/prag.24.2.05gio

Giomi, Riccardo. 2020. *Shifting structures, contexts and meanings: A Functional Discourse Grammar account of grammaticalization*. Lisbon: University of Lisbon dissertation. (https://www.academia.edu/42851062/Shifting_structures_contexts_and_meanings_A_Functional_Discourse_Grammar_account_of_grammaticalization).

González Escribano, José Luis. 2008. On noun phrase structure in Functional (Discourse) Grammar: Some conceptual issues. In García Velasco & Jan Rijkhoff (eds.), *The noun phrase in Functional Discourse Grammar* (Trends in Linguistics: Studies and Monographs 195), 117–180. Berlin and New York, NY: De Gruyter Mouton. DOI: https://doi.org/10.1515/9783110205374.117

Gutiérrez-Bravo, Rodrigo. 2012. Relative clauses in Yucatec Maya: Light heads vs. null domain. In Bernard Comrie & Zarina Estrada (eds.), *Relative clauses in languages of the Americas: A typological overview* (Typological Studies in Language 102), 253–268. Amsterdam and Philadelphia, PA: John Benjamins. DOI: https://doi.org/10.1075/tsl.102.12gut

Gutiérrez-Bravo, Rodrigo. 2013. Free relative clauses in Yucatec Maya. *STUF: Language Typology and Universals* 66(1). 22–39. DOI: https://doi.org/10.1524/stuf.2013.0003

Hengeveld, Kees. 1992. Parts of speech. In Michael Fortescue, Peter Harder & Lars Kristoffersen (eds.), *Layered structure and reference in a functional perspective* (Pragmatics & Beyond New Series 23), 29–55. Amsterdam and Philadelphia, PA: John Benjamins. DOI: https://doi.org/10.1075/pbns.23.04hen

Hengeveld, Kees. 2017. A hierarchical approach to grammaticalization. In Kees Hengeveld, Heiko Narrog & Hella Olbertz (eds.), *The grammaticalization of tense, aspect, modality and evidentiality: A functional perspective* (Trends in Linguistics: Studies and Monographs 311), 13–38. Berlin and New York, NY: De Gruyter Mouton. DOI: https://doi.org/10.1515/9783110519389-002

Hengeveld, Kees & J. Lachlan Mackenzie. 2006. Functional Discourse Grammar. In Keith Brown (ed.), *Encyclopedia of language and linguistics*, 2nd edition, Volume IV, 668–676. Oxford: Elsevier. DOI: https://doi.org/10.1016/B0-08-044854-2/02035-6

Hengeveld, Kees & J. Lachlan Mackenzie. 2008. *Functional Discourse Grammar: A typologically-based theory of language structure*. Oxford and New York, NY: Oxford University Press. DOI: https://doi.org/10.1093/acprof:oso/9780199278107.001.0001

Hengeveld, Kees & J. Lachlan Mackenzie. 2014. Grammar and context in Functional Discourse Grammar. *Pragmatics* 24(2). 203–227. DOI: https://doi.org/10.1075/prag.24.2.02hen

Hengeveld, Kees & J. Lachlan Mackenzie. 2016. Reflections on the lexicon in Functional Discourse Grammar. *Linguistics* 54(5). 1135–1161. DOI: https://doi.org/10.1515/ling-2016-0025

Jackendoff, Ray. 2012. *A user's guide to thought and meaning.* Oxford and New York, NY: Oxford University Press.

Keizer, Evelien. 1991. Referring in Functional Grammar: How to define reference and referring expressions. *Working Papers in Functional Grammar* 43. (http://home.hum.uva.nl/fdg/Publications_web-papers.html) (Accessed 2020-04-23).

Keizer, Evelien. 2007. The lexical-grammatical dichotomy in Functional Discourse Grammar. *Alfa: Revista de Lingüística* 51(2). 35–56.

Keizer, Evelien. 2012. Proforms in Functional Discourse Grammar. *Language Sciences* 34(4). 400–420. DOI: https://doi.org/10.1016/j.langsci.2012.02.009

Keizer, Evelien. 2015. *A Functional Discourse Grammar for English.* Oxford and New York, NY: Oxford University Press.

Levelt, Willem J. M. 1989. *Speaking: From intention to articulation.* Cambridge, MA: MIT Press. DOI: https://doi.org/10.7551/mitpress/6393.001.0001

Lyons, John. 1977. *Semantics*. Cambridge: Cambridge University Press. DOI: https://doi.org/10.1017/CBO9781139165693

Mackenzie, J. Lachlan. 1983. Nominal predicates in a Functional Grammar of English. In Simon C. Dik (ed.), *Advances in Functional Grammar* (Publications in Language Sciences 2), 31–51. Dordrecht: Foris.

Mackenzie, J. Lachlan. 2013. Spatial adpositions between lexicon and grammar. In J. Lachlan Mackenzie & Hella Olbertz (eds.), *Casebook in Functional Discourse Grammar* (Studies in Language Companion Series 137), 67–94. Amsterdam and Philadelphia, PA: John Benjamins. DOI: https://doi.org/10.1075/slcs.137.04mac

Mackenzie, J. Lachlan. 2014. Constructions and the lexicon in Functional Discourse Grammar. *Plenary lecture given at the Third International Conference on Meaning and Knowledge Representation* (Valencia, 2–4 July 2014).

McNally, Louise. 2016. Modification. In Maria Aloni & Paul Dekker (eds.), *The Cambridge handbook of formal semantics*, 442–466. Cambridge: Cambridge University Press. DOI: https://doi.org/10.1017/CBO9781139236157.016

Norde, Muriel, Bernard De Clerck & Timothy Colleman. 2014. The emergence of non-canonical degree modifiers in non-standard varieties of Dutch: A constructionalization perspective. In Ronny Boogaart, Timothy Colleman & Gijsbert Rutten (eds.), *Extending the scope of Construction Grammar* (Cognitive Linguistics Research 54), 207–250. Berlin and New York, NY: De Gruyter Mouton. DOI: https://doi.org/10.1515/9783110366273.207

Rijkhoff, Jan. 2008. Layers, levels and contexts in Functional Discourse Grammar. In García Velasco & Jan Rijkhoff (eds.), *The noun phrase in Functional Discourse Grammar* (Trends in Linguistics: Studies and Monographs 195), 63–116. Berlin and New York, NY: De Gruyter Mouton. DOI: https://doi.org/10.1515/9783110205374.63

Rijkhoff, Jan. 2014. Modification as a propositional act. In María de los Ángeles Gómez González, Francisco José Ruiz de Mendoza Ibáñez & Francisco Gonzálvez-García (eds.), *Theory and practice in functional-cognitive space* (Studies in Functional and Structural Linguistics 68), 129–150. Amsterdam and Philadelphia, PA: John Benjamins. DOI: https://doi.org/10.1075/sfsl.68.06rij

Smit, Niels & Miriam van Staden. 2007. Representational layering in Functional Discourse Grammar. *Alfa: Revista de Lingüística* 51(2). 143–164.

Vázquez-Rojas Maldonado, Violeta, Josefina García Fajardo, Rodrigo Gutiérrez-Bravo & Julia Pozas Loyo. 2018. The definite article in Yucatec Maya: The case of le … o'. *International Journal of American Linguistics* 84(2). 207–242. DOI: https://doi.org/10.1086/696197