Research Article

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Similatives are Manners, comparatives are Quantities (except when they aren't)

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Abstract: This article proposes a fine-grained semantic analysis of similative and comparative constructions within the framework of Functional Discourse Grammar (FDG). The core idea is that, when used in their prototypical modifying functions, the two types of constructions are built upon two semantic frames that share an identical structure but differ as regards the semantic category that underlies the whole modifying expression – whence the title of the article: similatives are Manners and comparatives are Quantities. At the same time, I argue that similatives can also be put to modifying and predicative uses in which they do not express a Manner but a Configurational Property (i.e., a "nuclear predication") and that comparatives do not express a Quantity when occurring as arguments of lexical(ized) ditransitive predicates like *prefer* or *would rather*, nor when the two terms of the comparison are introduced by a specific type of temporal expression. Finally, the paper refines previous FDG approaches to the alternation between analytic and synthetic expression of comparison in such languages as English and Latin, proposing that the English comparative suffix *-er* is liable to being modified by narrow-scope measure expressions and is therefore a partly lexical element and not a fully grammaticalized marker of comparison.

Keywords: semantics, Functional Discourse Grammar, similative constructions, comparison, analytic and synthetic comparison, temporal comparison

1 Introduction

In the reference book for the theory of Functional Discourse Grammar (FDG), Hengeveld and Mackenzie (2008, 264) do not draw a formal distinction between similative and comparative constructions but state that "[i]n English, Comparison is typically signalled by the preposition *like*". In this way, similatives like (1) are explicitly equated with comparative structures such as (2):

(1) *She sings like a nightingale.*
(2) *John is more intelligent than his brother.*
(Hengeveld and Mackenzie 2008, 264, 455)

The main goal of this article is to demonstrate that similative and comparative constructions of the type of (1)–(2) are indeed similar in that both function as modifiers at the Representational Level, but crucially differ as regards the semantic category (i.e., the layer of semantic organization) that underlies each type of modifier. More specifically, I will argue that similatives of the type of (1) are best accounted for as Manner expressions, whereas comparative modifiers belong to the category of Quantities. On the one hand, this is in

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accordance with the conceptual, typological and diachronic connections between the two types of constructions. Fuchs (2014), for instance, conceives of both similatives and comparatives as falling within a single overarching category, referring to the former as qualitative comparison and to the latter as quantitative comparison. As regards typology, similatives and (equative) comparatives are known to make use of the same connective elements in various languages (especially, but not exclusively in Indo-European languages, see Haspelmath and Buchholz 1998, Haspelmath and The Leipzig Equative Constructions Team 2017), which in turn is tightly interconnected with the grammaticalization of similative markers as markers of comparison (e.g., Kuteva et al. 2019, 236). At the same time, the approach proposed in this article exploits the fine-tuned hierarchical approach to semantic organization endorsed by FDG to bring out both the similarities and the differences between similative and comparative modifiers in a more precise way than is done in less formalized frameworks.

This article is structured as follows. In Section 2, I introduce the general features of the FDG model and the elements of its formalism which will be employed in the following sections. In Section 3, I present my analysis of similative constructions, focusing first on similative modifiers that correspond to the expression of Manners and then on other uses of similatives to which such an analysis does not apply. Section 4 opens with a survey of previous FDG accounts of comparison and then moves on to proposing an alternative approach (first for nonequative comparatives, then for equative ones) and to the alternation between analytic and synthetic comparatives in such languages as English or Latin. Section 5 addresses comparative constructions which differ from the former in not involving the semantic category of Quantities, with special attention to temporal comparison. The main proposals put forth in Sections 2–5 are rounded off in Section 6. Throughout this article, I will mainly make use of English data, but also occasionally take into account evidence from Latin and the modern Romance languages.

2 The representational level in FDG

FDG is a typologically-based theory of language structure which takes a *form-oriented function-to-form approach* to linguistic analysis (Hengeveld and Mackenzie 2008, 39). "Function-to-form" means that the flow of information within the grammar is assumed to proceed in a top–down fashion from the formulation of pragmatic and semantic representations to the encoding of these meaningful representations in the form of morphosyntactic and phonological structures. Accordingly, the Grammatical Component of the model is divided into four levels of grammatical analysis, the Interpersonal (pragmatic), Representational (semantic), Morphosyntactic and Phonological Levels, which are hierarchically organized in such a way that each level governs all of the following. At the same time, the term "form-oriented" points to the fact that FDG is only concerned with those pragmatic and semantic aspects of meaning that are directly and systematically reflected in the morphosyntactic and phonological form of linguistic expressions (which Keizer 2015, 15, 21, 24 refers to as the "Principle of Formal Encoding"). An important corollary of this is that the formalism used in FDG "should not be confused with the formal languages employed by truth-conditional semanticists and in radical formalism" but is exclusively "a means to the end of insightful analysis of linguistic phenomena" (Hengeveld and Mackenzie 2008, 42).

All four levels of grammatical analysis recognized by FDG are in turn organized hierarchically in terms of a number of layers, recursively embedded within one another. In more formal terms, this means the head of each layer is restricted by a hierarchically lower layer, or a configuration thereof. Since the account of similatives and comparatives developed in the following sections focuses on the Represenational Level, I will now illustrate the principles of layering and the formalism used in FDG representations with reference to this particular level. Several specific instantiations of these general principles and formalism will be provided in the remaining sections, when analyzing concrete linguistic utterances.

The general layout of the Representational Level is given in (3) (adapted from Hengeveld and Mackenzie 2008, 142):

(3) (π $p_{1(+n)}$:	Propositional Content
(π $ep_{1(+n)}$:	Episode
(π $e_{1(+n)}$:	State-of-Affairs
(π $f_{1(+n)}{}^{c}$: [	Configurational Property
(π $v_{1(+n)}$:	any semantic category
(π $f_{2(+n)}$: ✦ ($f_{2(+n)}$): σ ($f_{2(+n)}$))	Lexical Property
($v_{1(+n)}$): σ ($v_{1(+n)}$))$_{\varphi}$	any semantic category
]($f_{1(+n)}{}^{c}$): σ ($f_{1(+n)}{}^{c}$))$_{\varphi}$	Configurational Property
($e_{1(+n)}$): σ ($e_{1(+n)}$))$_{\varphi}$	State-of-Affairs
($ep_{1(+n)}$): σ ($ep_{1(+n)}$))$_{\varphi}$	Episode
($p_{1(+n)}$): σ ($p_{1(+n)}$))$_{\varphi}$	Propositional Content

Since the Representational Level deals with the linguistic representation of extra-linguistic entities, each layer in this hierarchical structure is intended to correspond to (the mental representation of) a distinct type of entity. Propositional Contents (p) are mental constructs that may be characterized in terms of their truth, falsehood, degree of likelihood, etc. Episodes (ep) are connected series of one or more States-of-Affairs (e), which "are characterized by unity or continuity of Time (t), Location (l), and Individuals (x)" (Hengeveld and Mackenzie 2008, 133). Both Episodes and States-of-Affairs may be characterized in terms of their location in time or space: deictic spatial and temporal location is a property of Episodes, whereas location in relative time and space applies to States-of-Affairs. Configurational Properties (f^{c}) (also referred to as "nuclear predications") are abstract predication frames constituted by a predicate and its argument(s) and divested of any kind of "situatedness" in relation to the real world or characterization in terms of the speaker's attitudes. Within the Configurational Property, any type of semantic category/layer (represented by the general variable symbol "v") may be used as a predicate or argument; when these categories are lexically specified, they will be restricted by a Lexical Property (f). This means that any lexeme (✦) inserted into the Representational Level, no matter what its meaning, will be represented as a Lexical Property (f). Note finally that the units occurring inside the Configurational Property are enclosed together within square brackets: this indicates that such units are functionally equipollent (they do not stand in a hierarchical relation to each other). Hierarchical embedding, by contrast, is represented by round brackets.

The additional, layer-specific characterizations that may be provided for the various semantic categories can be expressed grammatically, by means of *operators* (general symbol "π"), or lexically, by means of (possibly complex) *modifiers* (general symbol "σ"). As shown in (3), operators are conventionally represented before the variable symbol and take the form of an abstract placeholder (e.g., "pres" for Present Tense at the Episode layer); modifiers are represented after the first closing bracket of the modified variable, being separated from it by a colon. Finally, any type of semantic category may take a *semantic function* specifying its role within the configuration in which it occurs; the general symbol for semantic functions is a subscript "φ" attached at the end of the relevant layer. Typical functions of core arguments are Actor, Undergoer and Recipient, whereas the functions of modifiers vary depending on the layer (e.g., Purpose for States-of-Affairs, Cause for Episodes, Concession for Propositional Contents).

Further semantic categories distinguished by FDG are Individuals (x), Times (t), Locations (l), Manners (m), Quantities (q) and Reasons (r). These layers are not represented in (3) because they do not form part of the vertically organized "backbone" of the Representational Level but can only occur (i) within the Configurational Property, as predicates or arguments, or (ii) as modifiers of other layers. Note that, in recognizing these categories as separate layers of the Representational Level, FDG differs from most other approaches to semantic representation, which regard most of them as semantic functions that may be assigned to state-of-affairs participants or modifiers. There are three main reasons why these six notions are understood as separate representational layers and not as semantic functions. First, languages may have dedicated proforms (pronouns or pro-adverbs) for Individuals, Times, Locations, Manners, Quantities and Reasons but not for notions like, say, condition, concession or addition (e.g., English: *who, when, where, how, how much/how many, why*, but not **whif*, **whalthough*, **whapart*: Hengeveld and Mackenzie 2008,

135). Likewise, a variety of natural languages have nominalization patterns specifically reserved for Individuals, Times, Locations, Manners, Quantities and Reasons, but not for the expression of the notions that FDG regards as semantic functions (Hengeveld and Mackenzie 2008, 134). Finally, expressions denoting any of these six categories may occur in specificational (identifying) sentences in which they are equated with another expression of the same category, as illustrated in (4) and (5) for Manners and Quantities, respectively:

(4) *The way that I approached the lion was cautiously/with great caution.*
(5) *The rate that I examined the students was at three an hour.*
(Hengeveld and Mackenzie 2008, 135)[1]

The fact that both Manner and Quantities are conceived of as distinct layers of semantic organization is especially important for this article, since, as I mentioned in Section 1, it is precisely in terms of these two categories that similative and comparative modifiers will be analyzed in the following sections.

3 Similatives

3.1 Similatives are manners

According to Hengeveld and Mackenzie (2008), Manner expressions can occur as modifiers of two layers: the Lexical Property (6) and the Configurational Property (7). Such modifiers are explicitly distinguished from modifiers expressing Instrument (8), Means (9) and Circumstance (10). Note that, in these and all following examples, only those layers of analysis which are strictly relevant to the phenomena under discussion are explicitly represented. Also note the placeholder "1" preceding the Individual variable "x", which represents the number operator Singular, and the use of dashes to indicate that further internal layers have been omitted for simplicity (e.g., in (6), the Lexical Property corresponding to the lexeme *slow* within the head of the Manner expression (m_i)):

(6) *John walked **slowly**.*
(f_i^c: [(f_j: walk (f_j): (m_i:–slow–(m_i)) (f_j)) ($1x_i$)$_A$] (f_i^c))
(7) *John **angrily** left the room.*
(f_i^c: [(f_j: leave (f_j)) ($1x_i$)$_A$ ($1l_i$:–room–(l_i))$_U$] (f_i^c): (m_i:–angry–(m_i)) (f_i^c))
(8) *John cut the meat **with a knife**.*
(f_i^c:–John cut the meat–(f_i^c): ($1x_i$:–knife–(x_i))$_{Instr}$ (f_i^c))
(9) *John started the engine **by turning the ignition switch.***
(f_i^c:–John started the engine–(f_i^c): (f_j^c:–turning the ignition switch–(f_j^c))$_{Means}$ (f_i^c))
(Hengeveld and Mackenzie 2008, 208–9, 263)
(10) *The boy entered the room **dancing**.*
(f_i^c:–the boy entered the room–(f_i^c): (f_j^c:–dancing–(f_j^c))$_{Circ}$ (f_i^c))[2]

1 Previous work on Manner expressions in Functional (Discourse) Grammar includes Dik (1975), García Velasco (1996, 2013), Mackenzie (1998) and Salazar García (2008). For Quantities, see further Portero Muñoz (2021, 2022) and Keizer (2022).

2 Hengeveld and Mackenzie (2008, 264) regard adverbial clauses of the type of *dancing* in (10) as modifiers of the State-of-Affairs (cf. their analysis of Spanish *El balón subió por la chimenea **flotando***, lit. "The balloon rose through the chimney floating"). Here, both the main and the modifying clause are understood as Configurational Properties that jointly describe one and the same State-of-Affairs, first because both nuclear predications must necessarily involve the same participants and second because no relative tense specification is allowed in the modifying clause (e.g. … **having danced*), which should be possible if this clause corresponded to a separate State-of-Affairs.

The distinction between Manner and the other types of modifiers exemplified in (8)–(10) is not new in itself. Rather fine-grained classifications of the types of adverbials generally encompassed by the umbrella-term "manner" have been proposed, for instance, in generative accounts such as Ernst (2002) and Haumann (2007), as well as in functionally oriented ones such as Luraghi (2003, 2014) and Narrog (2014). What is characteristic of FDG, however, is the recognition of Manner as a layer of semantic organization in its own right, as well as the association of each type of modifier with a nucleus pertaining to a specific layer of underlying semantic structure.

As pointed out by Hengeveld and Mackenzie (2008, 263–4), both Manner modifiers of the type of (6)–(7) and the various types of modifiers exemplified in (8)–(10) can be used to answer the question *How?* (e.g., *How did he walk? – Slowly; How did he cut the meat? – With a knife;* etc.). *How* questions are therefore not a good test for identifying Manner expressions with certainty. A more effective criterion is "the possibility of paraphrasing the expression with a phrase of the form *in a … way*. This excludes expressions of Instrument and Means [as well as Circumstance, RG]" (Hengeveld and Mackenzie 2008, 264). Compare

(11) a) *slowly* b) *in a slow way*
c) *angrily* d) *in an angry way*
e) *with a knife* f) **in a knife way*
g) *by turning the switch* h) **in a switch-turning way*
i) *dancing* j) **in a dancing way*
(adapted from Hengeveld and Mackenzie 2008, 264)

Although Hengeveld and Mackenzie (2008, 264–5) argue that similatives of the type of (1) are in fact comparisons, they also point out that in (1) "the manner of her singing is understood figuratively, through the similative *like a nightingale*. It is then a small step to reinterpreting *like* as a literal marker of Manner". That such reinterpretations are indeed likely is evident when one considers that the preposition *like* is etymologically related to the adverbializing suffix *-ly*, which allows an adjectival Lexical Property to occur as the head of a Manner and thus functions as a *bona fide* Manner marker. And, according to Hengeveld and Mackenzie (2008, 265), the function of *like* in such fixed expressions as *like this*, *like that* is precisely that of marking anaphoric or cataphoric reference to a Manner (e.g., *She talks to everyone like that*; *The argument runs like this: …*).

In most of its uses, however, *like* cannot be regarded as a grammaticalized Manner marker but clearly behaves as a lexical preposition. First, it can undergo a number of derivational processes (e.g., *unlike, likewise, likeness, liken*: see Keizer 2007 on availability for lexical derivation as a criterion for lexical status). Second, as argued by Portero Muñoz (2016), *-like* is productively used as a bound root, with no semantic difference with respect to the unbound prepositional use (e.g., *affix-like, prison-like*). Neither of these properties is shared by the grammaticalized preposition/conjunction *as*, which is functionally rather similar to *like* but is not available for derivation or compounding (e.g., **un-as, *as-wise, *as-ness, *as-en*; **affix-as, *prison-as*).

At first glance, it would also appear as though PPs headed by *like* do not function as Manner expressions. Like Instrument, Means and Circumstance modifiers, and unlike Manner ones, such phrases cannot be paraphrased as *in a…way*:

(12) a) *He boxes **like a veteran**.*[3]
b) **in a veteran way*

3 Note that I deliberately avoid using Hengeveld and Mackenzie's (2008) example reported in (1) because of the idiomatic meaning of the expression *sing like a nightingale*. Various types of similative-based idioms, in fact, may need to be set apart from non-ready made, analytically produced similatives of the type of (12a). This is particularly evident in the case of expressions which have fossilized with a (more or less transparent) intensifying or deintensifying meaning – e.g. *like crazy/like mad/like hell, eat like a horse/like a bird, smoke like a chimney, sell like hotcakes*.

Paraphrase tests, however, should be handled *cum grano salis*. The problem, in this specific case, is that the paraphrase cannot be applied to *like a veteran* in the very same way as it is applied to the expressions in (11), i.e., by simply replacing a preposition or affix by the phrase *in a…way*. This is because if *like* is not a grammatical element but a lexical preposition, then this preposition should be regarded as a predicate and as such it should be included in the paraphrase, just as the predicate *turning* is included in (11h). As soon as the test is applied in this way, the result is no longer ungrammatical or unacceptable as a paraphrase of *like a veteran*:

(13) a) *like a veteran* b) *in a veteran-like way*

It might be objected that the results yielded by the *in a…way* test are not always straightforward. For instance, a phrasal Manner modifier like *with care* cannot of course be paraphrased as **in a care way*. The reason for this, however, is clearly a syntactic one (the fact that *care* is a noun and not an adjective) and as such is totally unrelated to the semantics of the construction. As soon as this syntactic hindrance is got rid of by converting the noun into an adjective, just like in (13b), the result of the test is indeed the expected one (*He cut the meat in a careful way*). The other way round, with non-Manner modifiers morphological modification does not change the result of the paraphrase test (cf. **in a knifeful/knifey/knife-using way*), not even when the resulting expression is syntactically well formed as in (11h) or (11j) (cf. also *with a hammer ≠ in a hammering way*). As a further proof of the reliability of the *in a…way* test, consider an ambiguous sentence such as *He said good morning with a smile*. In this case, the PP *with a smile* might be interpreted either as a Manner (i.e., he said "good morning" while smiling) or as an Instrument or Means (he did not utter the words *good morning* but just smiled as a form of greeting); however, as soon as the sentence is paraphrased as *He said good morning in a smiling way*, only the Manner reading remains available.

Further evidence that PPs headed by *like* are in fact Manners is provided by the fact that such expressions can occur in so-called specificational or identificational predications such as (14) and (15), where the other term is a (headed or headless) Manner clause:

(14) *It's definitely an informal market.* ***The way it works is like a silent auction.***
(https://www.huffpost.com/entry/dc-food-swap_n_1900820. Accessed 04-30-2021.)

(15) *CityCoin is a Raffle run by municipalities to augment their income to help fund education, public works, and special projects.* ***How it works is like a decentralized lottery built on-top of Metronome.***
(https://metronometoken.medium.com/world-crypto-con-2018-and-met-hackathon-wrap-up-52ff3a25fb5c. Accessed 04-30-2021.)

A possible objection, in this case, is that certain non-Manner expressions may pass the specificational sentence test, e.g., Instrument-PPs like *with…provider* in *the best way to do this is with* a *legitimate email service provider*.[4] However, it does not seem possible for actual Manner expressions to *fail* the test in question: that is, I cannot think of a Manner expression that cannot enter an identificational predication where the other term is a relative clause headed by the noun *way* or a headless relative clause introduced by *how*. In other words, this test for Manner status may give false positives, but it would not seem to ever give false negatives.

There are in sum strong indications that similatives are indeed Manners, as in fact has been argued before (e.g., by Haspelmath and Buchholz 1998, 279–80). That similative constructions are a subtype of Manner expressions is after all also intuitively suggested by the functional similarity between, e.g., *He boxes like a veteran* and *He boxes well*. The difference between the modifiers *like a veteran* and *well* is that the latter has a lexical head (the adverbial Property *well*), whereas the former has a configurational head consisting of the predicate *like* together with its argument:

4 https://www.campaignmonitor.com, accessed 11-11-2021.

(16) *He boxes well.*
(f_i^c: [(f_j: box (f_j)): (m_i: (f_k: well (f_k)) (m_i)) (f_j)) ($1x_i)_A$] (f_i^c))

(17) *He boxes like a veteran.*
(f_i^c: [(f_j: box (f_j)): (m_i: (f_k^c:–like a veteran–(f_k^c)) (m_i)) (f_j)) ($1x_i)_A$] (f_i^c))

The question, at this point, concerns the internal structure of the Manner modifier *like a veteran* in (17). As mentioned earlier, the head of this Manner consists of a Configurational Property formed by a lexical preposition and its argument: more specifically, then, the question concerns the nature of this argument. At first glance, the most intuitive answer would seem to be that the argument of *like* is the semantic unit underlying the NP *a veteran*, i.e., an Individual. This solution, however, clashes with the semantics of the construction, since what is being likened in (17) is not merely the Individuals *he* and *a veteran* but rather the way in which he boxes and the way in which a veteran boxes. In other words, if we try and expand (17) into a more explicit sentence, what we obtain is something along the lines of *He boxes in a way that is like the way a veteran boxes*. The latter paraphrase reveals two important facts about the structure in (17). First, the argument of *like* is not the Individual *veteran* but a second Manner, corresponding to *the way a veteran boxes*; second, this further Manner must also have a configurational head, corresponding to *a veteran boxes*. Note finally that, as an argument of the predicate *like*, this second Manner must bear a distinct semantic function: however, since the semantic role of this argument is not explicitly marked by a dedicated preposition or conjunction, it will be formalized as the general semantic function Reference (on which see Mackenzie 1983, 28, Hengeveld and Mackenzie 2008, 203). By expanding the representation in (17) in the way suggested here, we obtain (18):

(18) *He boxes like a veteran.*
(f_i^c: [(f_j: box (f_j)): (m_i: (f_k^c: [(f_l: like (f_l)) ($m_j)_{Ref}$] (f_k^c)) (m_i)) (f_j)) ($1x_j)_A$] (f_i^c))
Where (m_j) = '(the way) a veteran (boxes)'

This, in turn, is a simplified version of the full representation in (19) (displayed on several rows for ease of reading):[5]

(19) (f_i^c: [(f_j: box (f_j)): (m_i:
(f_k^c: [(f_l: like (f_l)) (m_j: (f_m^c: [((f_j): (m_j) (f_j)) ($1x_i$:–veteran–(x_i))$_A$] (f_m^c))
(m_j))$_{Ref}$
] (f_k^c))
(m_i))
(f_j)) ($1x_j)_A$
] (f_i^c))

Note that the internal structure of the configurational head of (m_j) is the same as in a headless relative clause. Interestingly, a structural parallel between similatives and headless relative clauses has also been noted in a formal-semantics study by Anderson and Morzycki (2015, 816), although on very different premises. In FDG terms, the only difference between the embedded Manner (m_j) in (19) and the overall Manner variable in (20) is that, being expressed as a finite clause marked for present tense, the latter must be headed by a whole Episode (since this is precisely the layer to which absolute tense operators apply):

5 Notice the introduction of a second opening bracket before the embedded predicate (f_j) in the second row, which is necessary to accommodate the modification of this absent-headed unit. While FDG does not usually make provision for the modification of headless variables, Giomi (2020a) argues that there are various types of constructions which cannot be accounted for without allowing for this possibility.

(20) *I admire* ***how you live***.
(m_i: (pres ep_i: (e_i: (f_i^c: [(f_j: live (f_j): (m_i) (f_j)) $(1x_i)_\varphi$] (f_i^c)) (e_i)) (ep_i)) (m_i))
(adapted from Hengeveld and Mackenzie 2008, 266)

In the "gapped" structure *like a veteran*, by contrast, there is no need to assume the head of the embedded Manner expression to contain a full-fledged predication: rather, the head of this Manner will be directly restricted by a Configurational Property, represented in (19) as (f_m^c).

While in (17)–(19) the similative *like a veteran* modifies a Lexical Property, we saw earlier that Manners can also be used as modifiers of a Configurational Property. Similative modifiers are no exception: accordingly, the lexically headed Manner *angrily* in (7) can be easily replaced by a similative, in which case this modifier will be built on the same representational frame as *like a veteran* in (19) but occur in the structural position occupied by *angrily* in (7):

(21) *John left the room* ***like his brother*** (*that is, angrily*).
(f_i^c: [(f_j: leave (f_j)) $(1x_i)_A$ $(1l_i$:–room–$(l_i))_U$] (f_i^c): (m_i: (f_k^c: [(f_l: like (f_l)) (m_j:–his brother (left the room)–$(m_j))_{Ref}$] (f_k^c)) (m_i)) (f_i^c))

Note that, without the final parenthetical disjunct, (21) would more likely be interpreted as *Like his brother, John also left the room*. This reading corresponds to a different underlying structure, which will be discussed in Section 3.2. Once the clarificational parenthesis is added, however, it becomes clear that *like his brother* is to be interpreted as a Manner modifier of the Configurational Property, just like *angrily* in (7).

Precisely because similatives can modify a Configurational Property, nothing prevents such expressions from replacing other types of modifiers of the same layer, even when the latter are not Manner expressions. Compare (8)–(10) with (22)–(24) – where, again, the clarificational Discourse Act between parenthesis brings out the intended interpretation unambiguously:

(22) *John cut the ham* ***like a butcher*** (*that is, with a professional machine*).
(23) *John started the engine* ***just like everyone else*** (*that is, by turning the ignition switch*).
(24) *The boy entered the room* ***like his brother had left the garden*** (*that is, dancing*).[6]

The last example also illustrates the possibility that the predication embedded within the Manner argument of *like* may not involve the same predicate and arguments as the main predication. A full analysis of (24) is given in (25) (note the Absolute and Relative Tense operators "past" and "ant(erior)" on the relevant Episodes and State-of-Affairs):

(25) (past ep_i: (e_i: (f_i^c: [(f_j: enter (f_j)) ($1x_i$:–boy–$(x_i))_A$ $(1l_i$:–room–$(l_i))_U$] (f_i^c): (m_i: (f_k^c: [(f_l: like (f_l)) (m_j: (past ep_j: (ant e_j: (f_m^c: [(f_n: leave (f_n)) ($1x_j$:–his brother–$(x_j))_A$ $(1l_j$:–garden–$(l_j))_U$] (f_m^c): (m_j) (f_m^c)) (e_j)) (ep_j)) $(m_j))_{Ref}$] (f_k^c)) (m_i)) (f_i^c)) (e_i)) (ep_i))

Manner expressions, however, cannot modify a State-of-Affairs, Episode or Propositional Content: therefore, a similative clause cannot replace a modifier of any of those layers, e.g., an expression of purpose or spatial location (σ^e) (cf. Anderson and Morzycki 2015, 810), absolute time (σ^{ep}) or propositional attitude (σ^p):

(26) *He boxes like his father* (*that is, *for a living/*on the street/*on Saturdays/*probably*).

Summing up, the similative constructions considered above behave in all respects like Manners. They can be paraphrased by means of the phrase *in a…way*, be used as modifiers of a Lexical or Configurational Property (but not of other semantic units) and occur in identificational predications in which they are equated to another Manner expression. As regards their internal structure, these

6 Normative grammars of English often stigmatize the conjunctional uses of *like* with finite clauses. In reality, such structures are common in spontaneous speech (especially in American English), see Huddleston and Pullum (2002, 1158).

similative modifiers consist of the lexical preposition *like* and a second Manner, which functions as an argument of the latter.

Before moving on to similative constructions which do *not* denote Manners, let us briefly consider the case of Manner expressions that are not introduced by a lexical preposition/conjunction but rather by a grammaticalized element such as English *as* or the Romance descendants of Latin *quomodo* (Fr. *comme*, It. *come*, Pt., Sp. *como*). The latter can be used as interrogative or relative proforms equivalent to English *how* and introduce headless Manner clauses occurring as arguments or modifiers. This is illustrated in (27)–(28) for Portuguese (where newly introduced elements of the FDG formalism are the aspectual operator "imperf(ect)" and the zero-quantification operator "ø" on the Individual (x_j), *ninguém*):

(27) *Sempre* *gostei* *de* ***como*** ***escrevia*** ***o***
always like.IND.PST.PFV.1.SG of how write.IND.PST.IPFV.3.SG DET.M.SG
Fernando ***Pessoa.***
Fernando Pessoa
'I have always liked how Fernando Pessoa used to write.'
(f_i^c: [(f_j: gostar (f_j)) ($1x_i$)$_A$ (m_i: (past ep_i: (e_i: (imperf f_k^c: [(f_l: escrever (f_l): (m_i) (f_l)) ($1x_i$)$_A$] (f_k^c)) (e_i)) (ep_i)) (m_i))$_{Ref}$] (f_i^c))

(28) *Ninguém* *escreve* ***como*** ***escrevia*** ***o*** ***Fernando***
nobody write.IND.PRS.3.SG how write.IND.PST.IPFV.3.SG DET.M.SG Fernando
Pessoa.
Pessoa
'Nobody writes as Fernando Pessoa used to write.'
(f_i^c: [(f_j: escrever (f_j): (m_i: (past ep_i: (e_i: (imperf f_k^c: [(f_j: escrever (f_j): (m_i) (f_j)) ($1x_i$)$_A$] (f_k^c)) (e_i)) (ep_i)) (m_i)) (f_j)) (Ø x_j)$_A$] (f_i^c))

The difference between the two clauses in boldface lies in the role that they occupy in argument structure: in (27), the Manner clause is an argument of the predicate *gostar*, and in (28), it modifies the predicate *escrever*. As regards their internal structure, however, the two clauses are identical: unlike the similatives considered earlier, these Manner expressions do not contain a second Manner embedded as an argument of a lexical preposition or conjunction. The reason for this is that Portuguese *como* is not a lexical predicate but a grammaticalized element which indicates that the clause it introduces expresses a configurationally headed semantic unit of the type Manner. A further, crucial difference from the Manner expressions considered above is that the Manner clauses in (27)–(28) are strictly speaking *not* similatives. In fact, the correct paraphrase for (28) is not *Nobody writes in a way that is like* (*or "similar to"*) *the way Fernando Pessoa used to write* but rather *Nobody writes in the* (*same*) *way* (*as*) *Fernando Pessoa used to write*. The latter paraphrase is consistent with the fact that, unlike in the previous examples, in (28) the (m)-unit that modifies the main predicate is coindexed with that which modifies the predicate of the embedded predication. Exactly the same analysis and paraphrase apply to English Manner modifiers introduced by the grammaticalized preposition and conjunction *as* (e.g., the translation of (28)).

3.2 When similatives are not Manners

In the previous section, we saw that similative modifiers establish a relation between two (Lexical or Configurational) Properties by indicating that these Properties are modified by two Manners which resemble each other. By contrast, in a property-assigning predication such as *He is like a veteran*, the Individual *he* is likened to a veteran directly, without specifying in which respect he can be said to resemble a veteran. This means that, unlike in *He boxes like a veteran*, the predicate *like* takes the Individual 'veteran', and not a Manner, as its argument. In turn, the Configurational Property (f_j^c) formed by the

preposition and its argument does not head a Manner expression, but it is directly predicated of the Individual *he*:

(29) *He is like a veteran.*
(f_i^c: [(f_j^c: [(f_k: like (f_k)) ($1x_i$:–veteran–(x_i))$_{Ref}$] (f_j^c)) ($1x_j$)$_U$] (f_i^c))

Even in modifier similatives, however, the argument of the relational predicate *like* is not necessarily a Manner. In utterances of the type of *He is a boxer like his father*, the speaker does not assert that the Property 'boxer' applies in the same manner to both Individuals but simply states that both participate in the same type of situation. In other words, it is the whole nuclear predication 'he be a boxer' that is said to resemble the nuclear predication 'his father be a boxer'. It is thus the latter Configurational Property that occurs as an argument of *like*. This analysis is represented in (30):

(30) *He is a boxer like his father.*
(f_i^c: [(f_j: boxer (f_j)) ($1x_i$)$_U$] (f_i^c): (f_k^c: [(f_l: like (f_l)) (f_m^c: [(f_j) ($1x_j$:–his father–(x_j))$_U$] (f_m^c))$_{Ref}$] (f_k^c)) (f_i^c))

As shown in this analysis, the Configurational Property (f_k^c) functions as a modifier of the main Configurational Property (f_i^c), that is, it specifies an additional descriptive property of the main nuclear predication. It may be objected that this specification is not of the restrictive type, i.e., it does not narrow down the set of possible referents for (f_i^c) and therefore has no bearing on the truth value of the utterance. Note, however, that one could reply to (30) by saying *That's not true: his father was not a boxer*. At any rate, I have proposed elsewhere that not all representational modifiers are restrictive in nature, arguing that this assumption is a relic of traditional Functional Grammar and should be abandoned in FDG (see Giomi 2020a, where I discuss adnominal modifiers of the type of *devastated Peter* and *a wailing Cassandra*). See Keizer (2019) for a different treatment of non-truth-conditional representational modification.

Like Manner similatives, this type of similative modifiers can also contain an embedded Episode. In (31), the *like*-clause bears past tense and includes a modifier expressing absolute time location (namely, the Time (t_i), 'in 1992', which bears the semantic function 'L(ocation)'); hence, the underlying semantic category must be an Episode and not a Configurational Property:

(31) *Euro 2020: Full Of Premier League Quality,* ***Denmark Can Make History Like They Did In 1992****.*
(https://www.newsnow.co.uk/h/Sport/Football/International/Denmark. Accessed 08-05-2021.)
(f_i^c:–Denmark can make history–(f_i^c): (f_j^c: [(f_k: like (f_k)) (past ep_i:–they did–(ep_i): (t_i:–in 1992–(t_i))$_L$ (ep_i))$_{Ref}$] (f_j^c)) (f_i^c))

A further type of modification structure in which the expression headed by *like* does not designate a Manner is exemplified by (32) (where the "m" preceding the Individual (x_i), *people*, represents a Plurality operator):

(32) *Needless to say,* ***people like Veiseh*** *are of great interest to neuroscientists hoping to understand the way the brain records our lives.*
(https://www.bbc.com/future/article/20160125-the-blessing-and-curse-of-the-people-who-never-forget. Accessed 05-02-2021.)
(m x_i:–people–(x_i): (f_i^c: [(f_j: like (f_j)) ($1x_j$)$_{Ref}$] (f_i^c)) (x_i))$_\varphi$

In this context, *like Veiseh* may be paraphrased as *similar to Veiseh* or *of the type of Veiseh*.[7] The underlying semantic structure of the *like*-phrase is thus the same as underlies *like a veteran* in (29);

7 As argued in Giomi (2020b, 183), it is a small step for such structures to be reinterpreted as expressing the rhetorical function Exemplification at the Interpersonal Level (e.g. *We all have been inspired by young activists* ***like Greta Thunberg, Malala Yusufzai*** *to "think about injustice"*: https://tribesforgood.com/about-us/, accessed 05-16-2022).

the obvious difference is that in (32), this phrase is not a predicate but a modifier of the Individual to which it relates.

3.3 Interim summary

Similative constructions can be broadly divided into predicative and modifier similatives. The former are constructions of the type of (29), where the Configurational Property formed by an adposition/conjunction and its argument is predicated of another semantic unit (of whatever type). Modifier similatives may in turn be split into two subtypes. In Manner similatives, the whole modifying expression corresponds to a Manner headed by a Configurational Property and, within the latter, a second Manner occurs as an argument of a lexical predicate of the type of English *like*. The second type of modifier similatives does not express a Manner but a Configurational Property, within which the predicate slot is again occupied by a lexical adposition or conjunction. Depending on whether the modified unit is itself a Configurational Property or a nominally headed semantic unit of whatever other category, such similatives may surface either as (reduced) adverbial subordination structures like (30) and (31) or as Adpositional Phrases like (32) (where the argument-NP obligatorily belongs to the same category as the modified unit).

4 Comparatives

4.1 Comparatives in FDG: Previous approaches

In Hengeveld and Mackenzie (2008, 455; 2021, 52), comparative modifiers are represented as shown in (33):

(33) *John is much/markedly/noticeably more intelligent than his brother.*
$[(f_1^c\text{: } (f_2\text{: } \blacklozenge_{Adj})\ (f_2))\text{: } (f_3\text{: more}_{Adv})\ (f_3))\text{: } (f_4\text{: } \blacklozenge_{Adv})\ (f_4))\ (f_3))\ (f_2))\ (x_1)_{Standard}))\ (f_1^c))\ (x_2)_U)]$

The representation of the degree word *more* as a Lexical Property correctly captures the fact that such elements can be modified by adverbs like *much*, *markedly*, etc. (since grammatical elements are not usually modifiable, see Keizer 2007, Giomi 2020b, 309–15). Abstracting away from the presence of such secondary modifiers, this leads to the following analysis for the utterance in (33):

(34) $(f_i^c\text{: } [(f_j^c\text{: } [(f_k\text{: intelligent } (f_k))\text{: } (f_l\text{: more } (f_l))\ (f_k))\ (1x_i\text{:}-\text{his brother}-(x_i))_{Standard}]\ (f_j^c))\ (1x_j)_U]\ (f_i^c))$

In my view, the representations in (33) and (34) present a number of problems. One of these is that they suggest that *intelligent* is only modified by *more* (not by *more than his brother*) and that *his brother* is an argument of the modified Property (f_k), *more intelligent* (not of *more* only), bearing the function Standard of Comparison. If this were so, it should be possible to omit *more* and say **John is intelligent than his brother*. That comparative degree words like *more* are in fact predicates taking the Standard of Comparison as their argument has been suggested by Nagamura (2018a), who proposes the following general frame for English comparisons targeting an adjectival predicate:

(35) $(f_1^c\text{: } [(f_2\text{: } \blacklozenge_{Adj})\ (f_2))\text{: } (f_3\text{: } [(f_4\text{: more/less/as } (f_4))\ (x_1)_{Standard}]\ (f_3))\ (f_2))\ (x_2)_U]\ (f_1^c))$

Nagamura's analysis is thus that the predicate (f_2) is not modified by *more/less/as* alone, but by a Configurational Property (f_3) which is formed by the comparative word together with its Standard-of-Comparison argument.

4.2 Comparatives are Quantities

While I agree with the principles underlying Nagamura's proposal, the general frame in (35) still falls short of solving the second drawback that I believe to be inherent in (33)–(34). Namely, all three representations overlook the fact that comparison is after all one specific type of degree modification, as explicitly argued, among others, by Haspelmath and Buchholz (1998, 279–80). Degree modifiers are analyzed in FDG as "indicating the Quantity of application of their head" (Hengeveld and Mackenzie 2008, 270), i.e., they function as lexical heads of variables of the (q) type:

(36) *highly intelligent*
(f_i: intelligent (f_i): (q_i: (f_j: high (f_j)) (q_i))$_\varphi$ (f_i))$_\varphi$
(Hengeveld and Mackenzie 2008, 270)

The rationale behind this analysis is that degrees and quantities are not fundamentally different in notional terms but both pertain to the overarching domain of quantification. And the same goes for other inherently quantificational notions such as for instance rates or volumes (see Hengeveld and Mackenzie 2008, 270–1). From this point of view, speaking of an amount or set of Individuals, the degree to which a Property applies and the rate at which or extent to which a State-of-Affairs takes place are all different ways of referring to Quantities.

Now, since FDG conceives of degrees of application as a subtype of Quantities, it seems straightforward to conclude that comparatives like *more than his brother*, which likewise indicate the degree of application of their head, should also be represented as Quantities. This is consistent with the fact that words explicitly referring to Quantities are used as comparative markers in several languages, e.g., Italian *Giovanni è piu intelligente di* ***quanto*** *lo sia suo fratello*, lit. "Giovanni is more intelligent than how-much his brother is" (see Fleischhauer 2016 for further examples). Note finally that, as they introduce the notion of Quantity as a distinct layer of semantic organization, Hengeveld and Mackenzie (2008, 268) do indeed acknowledge that "Quantities arise from the hypostatization of the results of measurement (whether that be counting, estimation *or comparison*)" (emphasis added). This hint, however, is not taken up again in their discussion of comparatives.

The failure to capture the functional similarity between comparisons and degrees of application is directly related to a further problem with the analysis in (33)–(34). This concerns the assignment of the function Standard to *his brother*, which suggests that the two terms of the comparison are precisely the Individuals 'John' and 'John's brother.' This, however, is not the real meaning of such constructions: rather, a comparison is established between the degree to which the Lexical Property 'intelligent' applies to John and the degree to which the same Property applies to John's brother. While this point is ignored in current FDG accounts of comparison, it has often been made in the formal-semantics literature. For instance, by applying the formalism used in Kennedy (2006, 692), we obtain the following truth conditions for *John is more intelligent than his brother* (cf. also Heim 2000):

(37) $\max\{d \mid \text{intelligent}(j) \geq d\} > \max\{d' \mid \text{intelligent}(jb) \geq d'\}$
where "max" = maximalization operator, "d" = degree, "j" = John, "jb" = John's brother.

(37) is to be read as *The maximal degree to which John is intelligent is greater than the maximal degree to which John's brother is intelligent*. Abstracting away from the issue of maximalization (to which I return in footnote 9 below), this representation correctly captures the fact that the terms of the comparison are not two Individuals but two degrees of application (i.e., two Quantities in FDG terms, as explained earlier). (37) being a strictly logical representation, however, it does not capture the fact that the role of *more than his brother* in grammatical structure is that of a modifier of the predicate *intelligent*. Once this all-important grammatical fact is taken into account, a more accurate paraphrase for *John is more intelligent than his brother* is *John is intelligent* [*to a degree* (q_i) *such that* (q_i) *is greater than the degree* (q_j) *to which John's brother is intelligent*] (where the bracketed part corresponds to the modifier). A satisfactory FDG analysis of comparatives targeting an adjectival predicate must necessarily do justice to the two fundamental aspects of such structures that are reflected in this paraphrase – the modifying function of the comparative and its

quantificational semantics. This analysis leads to a representation that exploits the same type of semantic frame as was proposed in (19) for similative modifiers, but differs from the latter in that the modifier corresponds to a Quantity and not to a Manner:

(38) *John is more intelligent than his brother.*
(f_i^c: [(f_j: intelligent (f_j): (q_i:
(f_k^c: [(f_l: more (f_l)) (q_j: (f_m^c: [((f_j): (q_j) (f_j)) ($1x_i$:–his brother–(x_i))$_U$]
(f_m^c))
(q_j))$_{Standard}$
] (f_k^c))
(q_i))
(f_j)) ($1x_j$))$_U$
] (f_i^c))[8]

This structural isomorphism in the underlying semantic representation of similative and comparative modifiers ties in in a natural way with the typological and diachronic connections between the two types of constructions (see Section 1). In this regard, it is in line with the findings of formal semanticists like Rett (2008, 2011) and Anderson and Morzycki (2015). At the same time, the explicit assignment of the two expression types to two mutually irreducible representational layers (Manners and Quantities) provides a more economical explanation for their different interpretations than the aforementioned accounts, which postulate different kinds of hidden operators and semantic-type shifts. Such null elements and transformational notions have no right of citizenship in a functional model like FDG (see also Section 4.4) and are anyway rendered otiose by the dissociation between semantic categories and semantic frames.

Returning to the structure in (38), note that the embedded Quantity (q_j) is built on the same frame as underlies a headless relative clause (i.e. *how intelligent John's brother is*), just like the embedded Manner in similative modifiers (cf. (19)–(20) above). Unlike in similatives, however, the argument embedded within the overall modifier does not contract the semantically general function Reference but the construction-specific function Standard of Comparison. For languages such as English, this analysis is justified by the fact that this semantic function is indicated explicitly by the dedicated preposition/conjunction *than*.

Before turning to further types of comparisons, it is worth addressing the well-known fact that a sentence including a comparative modifier of an adjectival predicate does not entail that the predicate in question is true of its argument (see, e.g., Kennedy 2006, 692). For instance, while *John is intelligent* predicates the Property 'intelligent' of the Individual 'John', by saying *John is more intelligent than his brother* one is not necessarily saying that John is intelligent – both he and his brother may be incredibly dull. Since this does not usually happen with most types of modifiers (e.g., by removing *slowly* from *John walks slowly*, the Property 'walk' is still predicated of John), one may wish to conclude that comparatives are in fact not modifiers at all. Note, however, that the same is not true of comparatives that target other types of unit than an adjectival predicate: for instance, *John drinks more than his brother* and *John drinks more beer than his brother* undeniably entail "John drinks" and "John drinks beer", respectively. Analyzing these, but not the former, as modifiers would seem at the very least contradictory.

An even more compelling argument for analyzing both types of comparatives as modifiers is that, even though (38) does not entail "John is intelligent", the function of *more than his brother* is still undisputedly that of specifying the degree to which the Property 'intelligent' applies to John – namely, a degree which is greater than the degree to which John's brother is intelligent. Whether this degree is understood to be greater or equal to zero exclusively depends on the available extralinguistic knowledge concerning the

8 At the time of writing of Giomi (2020b), where this analysis was first proposed, I had not yet had access to Nagamura (2018b). When I later came to read that contribution, I was pleased to find out that, as a possible direction for future research, Nagamura asks precisely the following question: "Since comparisons are a matter of degree, should they always be the head of a Quantity variable?".

intelligence of John's brother and is therefore not a matter for the Representational Level of FDG, which is only concerned with formalizing those underlying semantic specifications that have demonstrable consequences for the formal encoding of the utterance (see Section 2). The grammar, in other words, does not care about such entailments and presuppositions, which are merely a matter of world knowledge and not one of linguistic structure.[9] If one rejects this premise and chooses to follow the line of reasoning illustrated earlier, thus denying (some) comparatives the status of modifiers, then one would be forced to conclude that adjuncts like *apparent*(*ly*) or *pretended* (e.g., *an* ***apparently*** *good idea*, *her* ***pretended*** *concern*) should likewise not be analyzed as modifiers – although they are to all intents and purposes encoded as such in morphosyntactic terms – because omitting these elements produces the same type of effect as results from the omission of *more than his brother* in (38). And the same should go for conditional adjuncts – which by definition turn the truth value of the main proposition to "unknown" – as well as, *a fortiori*, for all negative polarity and zero-quantificational adjuncts (e.g., *I* ***never*** *lie*, *a* ***by no means*** *agreeable situation*). To my mind, there is no purely linguistic reason why all these expressions should not be regarded as modifiers, on a par with the comparative constructions dealt with in this article.

Returning to the semantic structure of comparatives, the same type of analysis proposed for (38) can be assumed for comparisons that do not modify a predicate but an argument or another modifier. Consider (39), where the target of the comparison is the Undergoer (x_j), *candies*:

(39) *John eats more candies than his brother.*
(f_i^c: [(f_j: eat (f_j)) ($1x_i$)$_A$ (m x_j: (f_k: candy (f_k)) (x_j): (q_i: (f_l^c: [(f_m: more (f_m)) (q_j: (f_n^c: [(f_j) ($1x_k$:–his brother–(x_k))$_A$ (m x_l: (f_k) (x_l): (q_j) (x_l))$_U$] (f_n^c)) (q_j))$_{Standard}$] (f_l^c)) (q_i)) (x_j))$_U$] (f_i^c))

In (39), it is not only the predicate (f_j), 'eat', that occurs both in the matrix predication (f_i^c) and in the Configurational Property which heads the Standard of Comparison (i.e., (f_n^c)); the lexical head of the Undergoer, (f_k), 'candy', is also the same in both predications. This argument, however, bears a different index in the main and in the embedded predication (i.e., (x_j) and (x_l), respectively), since it is of course not the case that the two brothers eat the very same candies. Conversely, in (40), both the predicate and the lexical head of the Undergoer are different in the two nuclear predications; in such cases, the head of (q_j) is restricted by a whole Episode:

(40) *John drinks more beers than his brother eats candies.*
(f_i^c: [(f_j: drink (f_j)) ($1x_i$)$_A$ (m x_j: (f_k: beer (f_k)) (x_j): (q_i: (f_l^c [(f_m: more (f_m)) (q_j: (pres ep_i: (e_i: (f_n^c [(f_o: eat (f_o)) ($1x_k$:–his brother–(x_k))$_A$ (m x_l: (f_p: candy (f_p)) (x_l): (q_j) (x_l))$_U$] (f_n^c)) (e_i)) (ep_i)) (q_j))$_{Standard}$] (f_l^c)) (q_i)) (x_j))$_U$] (f_i^c))

In other cases, the head of the Standard of Comparison has a much simpler structure. Consider, for instance, (41):

(41) *Jon Jones Has* ***More Enemies Than Friends*** *In The UFC.*
(https://www.thethings.com/jon-jones-has-more-enemies-than-friends-in-the-ufc/. Accessed 05-02-2021.)
(f_i^c: [(f_j: have (f_j)) ($1x_i$)$_A$ (m x_j:–enemy–(x_j): (q_i: (f_k^c: [(f_l: more (f_l)) (q_j: (m x_k:–friend–(x_k)) (q_j))$_{Standard}$] (f_k^c)) (q_i)) (x_j))$_U$] (f_i^c))

9 For this very same reason, a function-to-form, form-oriented model of grammatical structure like FDG must refrain from making use of such elements as the "maximalization operator" formalized in (37) in its semantic representations. Likewise, unexpressed standards of comparison for gradable adjectives, which are usually included in the logically-oriented formulae of formal semanticists (e.g. Kennedy and McNally 2005, Gehrke and Castroviejo 2015), cannot find their way into the Representational Level of the grammar (*contra* García Velasco 2022), although they are presumably relevant to some pre-linguistic level of conceptualization.

In this case, there is no need to assume that the Individual 'friends' participates in an embedded predication. The Quantity (q_j) is thus structurally identical to a *wh*-phrase like *how many friends*. The same principles are relevant to comparisons that modify the subject-argument or another modifier, as in (42) and (43)–(44), respectively:

(42) *More boys than girls sent flowers to him today.*
(Osborne 2009, 428)
(f_i^c: [(f_j: send (f_j)) (m x_i:–boy–(x_i): (q_i: (f_k^c: [(f_l: more (f_l)) (q_j: (m x_j:–girl–(x_j)) (q_j))$_{Standard}$] (f_k^c)) (q_i)) (x_i))$_A$ (m x_k:–flower–(x_k))$_U$ (1x_l)$_R$] (f_i^c))

(43) *John speaks more loudly than wisely.*
(f_i^c: [(f_j: speak (f_j)): (m_i: (f_k: loud (f_k)): (q_i: (f_l^c: [(f_m: more (f_m)) (q_j: (m_j:–wisely–(m_j)) (q_j))$_{Standard}$] (f_l^c)) (q_i)) (f_k)) (m_i)) (f_j)) (1x_i)$_A$] (f_i^c))

(44) *John runs more slowly than he walks.*
(f_i^c: [(f_j: run (f_j)): (m_i: (f_k: slow (f_k)): (q_i: (f_l^c: [(f_m: more (f_m)) (q_j: (pres ep_i: (e_i: (f_n^c: [(f_o: walk (f_o)): (m_j: ((f_k): (q_j) (f_k)) (m_j)) (f_o)) (1x_i)$_A$] (f_n^c)) (e_i)) (ep_i)) (q_j))$_{Standard}$] (f_l^c)) (q_i)) (f_k)) (m_i)) (f_j)) (1x_i)$_A$] (f_i^c))

Abstracting away from the semantic contrasts captured by the aforementioned representations, all the comparative modifiers considered earlier are built on the general frame (45):

(45) (v_1: [...] (v_1): (q_1: (f_1^c: [(f_2: more (f_2)) (q_2)$_{Standard}$] (f_1^c)) (q_1)) (v_1))$_{\{\varphi\}}$

The differences between the utterances in (38)–(44) concern the semantic category of the unit modified by the comparative, the structural role that is fulfilled by that variable (argument, predicate or modifier) and the internal structure of the Standard-of-Comparison argument of 'more.' But, in any case, both the modifier as a whole and the unit that contracts the function Standard of Comparison are invariably Quantities.

4.3 Equative comparisons

It is fairly obvious that, in all the examples discussed in the previous section, the lexical predicate *more* could be replaced by *less* with no change to the representational structure of the utterance. At this point, it should be asked whether the same holds true of equative comparisons marked by *as* ... *as*.

From a logical or conceptual viewpoint, there would not seem to be any particular reason why this should not be the case. As mentioned in Section 3.1, however, *as* differs from *like* in being a grammatical and not a lexical element: it is therefore not available for derivational and compounding processes. The same difference exists between *as* and the comparative degree words *more* and *less* (e.g., *lesser, lessen, lessness;* (*n*)*evermore, furthermore, anymore, moreover, moreness, moresome*). As regards availability for modification, the issue is complicated by the ever-recurring difficulty of assessing whether a modifier co-occurring with a head-dependent structure applies to the whole expression or only to the head (see Keizer 2007, 42). In the specific case of constituents introduced by *as*, it is worth noting that such constituents can be combined with far fewer types of modifiers than phrases headed by *more* or *less*. Another indication that *as* is indeed a grammatical element is the fact that this word, whether on its own or in such combinations as *exactly as*, *twice as*, etc. is much less readily available for the prosodic expression of information-structural distinctions than bare or pre-modified *more* and *less* (e.g., *John is* (*much/markedly*) *MORE intelligent than Peter* vs #*John is* (*exactly/twice*) *AS intelligent as Peter*).[10] The reason why this can be taken as an indicator of grammatical status is that

10 In the latter example, it probably sounds more natural for pitch accent to fall on the adjective *intelligent* or the adverb *exactly/twice*, indicating that pragmatically salient status can be assigned to these lexical elements, but not to *as* itself. Whether this status corresponds to Emphasis, Focus or Contrast will usually have to be determined in context.

pragmatic operators or functions like Emphasis, Focus and Contrast can only be assigned to elements that constitute a separate variable at the Interpersonal Level. Thus, if *as* cannot bear such interpersonal specifications, it seems safe to conclude that this word does not constitute a Subact of its own – i.e., it has no ascriptive function, which is a further distinctive property of grammaticalized items, as opposed to lexical ones (Keizer 2007, Giomi 2020b, 288–304). Finally, it can be adduced that, when combined with a Negation operator, *more* and *less* trigger the form *no* (*no more/no less Adj than*; when the form *not* is used, the scope of the negator appears to be broader). This is not the case with *as* (cf. **no as Adj as*), suggesting that in the former case Negation applies to the Lexical Property *more*/*less*, but in the latter, it has scope over the whole expression *as Adj as*.

If *as* is indeed a grammatical element, then it certainly cannot be represented as a Lexical Property taking the Standard of Comparison as its argument. Instead, one may want to analyze equative-comparison modifiers by analogy with Manner modifiers introduced by *as* or its Romance counterparts (see (28)), that is, as Quantity expressions with no second Quantity embedded within them. This tentative analysis is formalized in (46):

(46) *John is as intelligent as his brother.*
(f_i^c: [(f_j: intelligent (f_j)): (q_i: (f_k^c: [((f_j): (q_i) (f_j)) (1x_i:–his brother–(x_i))$_U$] (f_k^c)) (q_i)) (1 x_j)$_U$] (f_i^c))

The problem with this representation is that it does not bring out the comparative meaning that is inherent in expressions of the type of (46). Recall from 3.1 that, in Manner modifiers introduced by *as* (or Portuguese *como*), the relation between the Manner of action of the main and the subordinate predication is not one of resemblance but one of identity. Equative comparisons, however, are akin to nonequative ones in making reference to two separate amounts or degrees: hence, (46) can be felicitously paraphrased as *John is intelligent to a degree* (q_i) *such that* (q_i) *is equal to the degree* (q_j) *to which John's brother is intelligent*.[11] For this similarity to be reflected in the underlying semantic representation of (46), a second Quantity (q_j) must again be embedded within the modifying Quantity (q_i). As in the corresponding nonequative comparison, this Quantity (q_j) indicates "the degree to which John's brother is intelligent" and bears the semantic function Standard of Comparison.

The question, at this point, is which predicate assigns this function to the Quantity (q_j). An important hint for answering this question is provided by the formal isomorphism between equative and nonequative comparatives. Both types of comparison, in fact, surface in the format *X Adj Y NP*. This is illustrated in (47)–(48):

(47) *more intelligent than his brother*
where X = more
Adj = intelligent
Y = than
NP = his brother

(48) *as intelligent as his brother*
where X = as_1
Adj = intelligent
Y = as_2
NP = his brother

As we saw in 4.2, *more* and *than* function as a predicate and a marker of the function Standard of Comparison, respectively. If the isomorphism between (47) and (48) is to be taken as a semantically significant one, it follows that the elements occurring in the corresponding slots in (48) should be

11 Where the word "equal" must not be interpreted as a mathematical expression, that is, as necessarily meaning "exactly equal". This allows for the optional addition of adverbials like, say, *approximately, almost* or *at least*, none of which would cause the paraphrase to become contradictory.

understood as serving exactly the same functions – i.e., the first *as* is the predicate and the second *as* marks the argument of the former as a Standard of Comparison. What we still need to decide is how to represent the first *as* (the one functioning as a predicate), that is, what type of semantic unit is encoded by this element. To arrive at this decision, let us consider the case of equative comparisons that modify a verbal, rather than an adjectival predicate. This use of equative comparatives is illustrated in (49), where only the comparative modifier (in bold) is represented in the formal analysis:

(49) *John drinks **as much as his brother.***
(q_i: (f_i^c: [(q_i) (q_j: (f_j^c:–his brother (drinks)–(f_j^c)) (q_j))$_{Standard}$] (f_i^c)) (q_i))

In (49), *as much* serves the very same function as *more* in the examples considered above, that is, it occurs as a predicate that takes as its argument the Quantity (q_j) (i.e., the amount (of alcohol) that John's brother drinks). Rather than being a *lexical* predicate, however, *as much* is grammatically a proform denoting a further semantic unit of the category Quantity (see Section 2). Accordingly, *as much* is represented in (49) as an absent-headed Quantity (q_i), i.e., a Quantity that lacks lexical content (see Hengeveld and Mackenzie 2008, 269): the distinctive feature of equative comparisons, in this respect, is that this headless Quantity (q_i) is predicated of a second Quantity (q_j) and is co-indexed with the overall Quantity denoted by the whole comparative phrase or clause.

If we now return to (46) and (48) with this analysis in mind, it will be clear that the first instance of *as* in those structures serves exactly the same function as *as much* in (49). The fact that *as* rather than *as much* must be used in equative comparisons that modify an adjectival predicate is a purely morphosyntactic constraint of the English language, which has no bearing on the semantics of the construction – and in fact is not found in many other languages, where the very same form occurs in all types of equative comparison, regardless of the type of element that the expression serves to modify. It follows that the analysis given earlier for (49) can unproblematically be extended to utterances of the type of (46), where the comparative expression modifies the adjectival predicate *intelligent*. As regards the internal structure of (q_j), this is of course the same as in the corresponding nonequative comparison (38). By representing this internal structure in its full form, the complete analysis in (50) is obtained; needless to say, the same reasoning applies to (49), whose full representational analysis is given in (51):

(50) *John is as intelligent as his brother.*
(f_i^c: [(f_j: intelligent (f_j)): (q_i: (f_k^c: [(q_i) (q_j: (f_l^c: [((f_j): (q_j) (f_j)) ($1x_i$:–his brother–(x_i))$_U$] (f_l^c)) (q_j))$_{Standard}$] (f_k^c)) (q_i)) (f_j)) ($1x_j$)$_U$] (f_i^c))

(51) *John drinks as much as his brother.*
(f_i^c: [(f_j: drink (f_j)): (q_i: (f_k^c: [(q_i) (q_j: (f_l^c: [((f_j): (q_j) (f_j)) ($1x_i$:–his brother–(x_i))$_A$] (f_l^c)) (q_j))$_{Standard}$] (f_k^c)) (q_i)) (f_j)) ($1x_j$)$_A$] (f_i^c))

Summing up, the underlying frame of equative comparisons used as modifiers is as follows:

(52) (v_1: [...] (v_1): (q_1: (f_1^c: [(q_1) (q_2)$_{Standard}$] (f_1^c)) (q_1)) (v_1))$_{\{\varphi\}}$

Compare now (52) with the general frame for nonequative comparison (45), repeated here as (53):

(53) (v_1: [...] (v_1): (q_1: (f_1^c: [(f_2: more/less (f_2)) (q_2)$_{Standard}$] (f_1^c)) (q_1)) (v_1))$_{\{\varphi\}}$

As is evident in (52)–(53), we have now arrived at a representation that not only correctly captures the functional and structural similarity of equative and nonequative comparatives but also brings out the crucial differences: the grammatical *vs* lexical nature of the embedded predicate – a headless Quantity in equative comparatives, a Lexical Property in nonequative ones – and the fact that in equative comparison this predicate is coindexed with the Quantity which underlies the whole expression. The equative meaning of frame (52) results precisely from the absence of a nonequative element like *more* or *less*, which triggers the second instance of *as* to mark the semantic function Standard of Comparison (instead of the nonequative relator *than*). Also note that (52) does not include mathematical symbols like " =", which makes it

compatible with different contextually determined readings pointing to exact or non-exact equivalence, as well as with the addition of overt modifiers like *exactly, approximately* and the like.

Just as (53) for nonequative comparatives, (52) also underlies equative comparatives that modify semantic units other than an adjectival or verbal predicate. (54) and (55) illustrate this general point for comparisons that target a unit used in argument position (triggering the form *as many…as* because the referent is a countable entity) and a unit that in turn modifies another element:

(54) *John drinks as many beers as his brother eats candies.*
(f_i^c: [(f_j: drink (f_j)) ($1x_i$)$_A$ (m x_j:–beer–(x_j): (q_i: (f_k^c: [(q_i) (q_j: (pres ep_i: (e_i: (f_l^c: [(f_m: eat (f_m)) ($1x_k$:–his brother–(x_k))$_A$ (m x_l:–candy–(x_l): (q_j) (x_l))$_U$] (f_l^c)) (e_i)) (ep_i)) (q_j))$_{Standard}$] (f_k^c)) (q_i)) (x_j))$_U$] (f_i^c))

(55) *John walks as slowly as his brother.*
(f_i^c: [(f_j: walk (f_j): (m_i: (f_k: slow (f_k)): (q_i: (f_l^c: [(q_i) (q_j: (f_m^c: [((f_j): (m_j: ((f_k): (q_j) (f_k)) (m_j)) (f_j)) ($1x_i$:–his brother–(x_i))$_A$] (f_m^c)) (q_j))$_{Standard}$] (f_l^c)) (q_i)) (f_k)) (m_i)) (f_j)) ($1x_j$)$_A$] (f_i^c))

Once again, it is crucial that the two terms of the comparison, (q_i) and (q_j), be assigned different indexes, so as to show that the relation between the two is one of equivalence and not one of sameness/identity. If the latter had been the case, this could have been signaled explicitly by means of the adjective *same* (e.g., *John drinks the same* (*amount of beer*) *as his brother*). The difference is admittedly a subtle one, but the formal apparatus of FDG offers the means to capture it in a straightforward and consistent way.

4.4 Synthetic marking of nonequative comparison

For Hengeveld and Mackenzie (2008, 454–5), the same analysis given in 4.1 for *more intelligent* applies when the suffix *-er* is used instead of the word *more*. On this approach, the alternation between English analytic and synthetic comparatives is not a semantically based one but merely depends on the phonological shape of the adjectival predicate.[12] The choice between *more* and the suffix *-er* is therefore regarded as a matter for the Phonological Level, whereas at the Representational Level, the lexical predicate 'more' is present in both *more intelligent* and *bigger*. In Hengeveld and Mackenzie's view, this also means that, at the Morphosyntactic Level, *John is bigger than his brother* "will appear as though it were (the ill-formed) **John is more big than his brother*. It is the Phonological Level which, having access to the phonological structure of the Utterance, applies the appropriate form, as a suffix".

A different account of synthetic comparatives is suggested by Keizer (2015, 239), who analyses the Affix *-er* as a Comparative operator:

(56) *Bigger*
(comp f_1: big_A)

Nagamura (2018a) endorses Hengeveld and Mackenzie's (2008) observation that, in such structures as *much/markedly bigger*, the adverbs "indicate the degree of difference in exactly the same way as *more* is modified in [*much/markedly more intelligent*]". On these grounds, Nagamura concludes that the analysis in (56) is to be rejected because representing *-er* as a grammatical operator is incompatible with the possibility of modifying the degree of difference. In a recent work, however, Hengeveld and Mackenzie (2021) have returned to the issue of English comparatives and developed an account which incorporates Keizer's (2015) analysis of synthetic comparison. The authors compare the two utterances in (57) and (58) and develop the argument reported below:

12 The alternation between Latin Adj-*ior*/Adv-*ius* and *magis* Adj/*magis* Adv is remarkably similar, also as regards the existence of lexical idiosyncrasies and oscillations (see Ernout and Thomas 1964, 172).

(57) *John is noticeably more intelligent than his brother.*

(58) *John is noticeably bigger than his brother.*

> [I]n [57] modification of the degree expressed by *more* is indeed possible, but in [58], with the suffixal expression, it is not. One of the readings of [57] is that the property *intelligent* holds to a higher extent for John, and that this extent is noticeable. The reading in [58], however, is that John's being bigger than his brother is noticeable. Thus, in [58], *noticeably* modifies *bigger* as a whole, and not just the *-er* suffix. This is due to the fact that the comparative suffix is triggered by an operator (Comp), a grammatical element that cannot be modified [...]. As a result, [57] and [58] have different semantic representations. (Hengeveld and Mackenzie 2021, 52)

Hengeveld and Mackenzie (2021) also point out that their earlier analysis of *bigger* as being semantically identical to *more intelligent* "requires a transformation at ML, in that first the [Adverbial Word] *more* is inserted, which subsequently is changed into the Aff[ix] *-er*. Such transformations are dispreferred in a functional approach". Therefore, they propose an alternative solution according to which the choice between the Lexical Property 'more' and the Comparative operator *-er* takes place via a look-ahead process between the Representational and the Phonological Level, whereby the Formulator checks "the phonological properties of the lexeme selected for the [predicate] slot" to select the appropriate representational frame.

A first remark to be made about Hengeveld and Mackenzie's new proposal is that, on one reading at least, *noticeably* functions as an evidential adverb of event perception. On that reading, it is indeed the case that in (58) *bigger* as a whole falls within the scope of the adverb; however, it is *not* the case that "*noticeably* modifies *bigger*". Rather, the adverb would modify the whole State-of-Affairs, which may create *the impression* that what is in the scope of *noticeably* is the expression *bigger* as such.[13]

A further counterargument to regarding *noticeably* as modifying "*bigger* as a whole" is that, if this reading were possible for (58), then one would expect a similar interpretation to be accessible not only in (57) but also in comparatives targeting verbal, rather than adjectival predicates. In an utterance like *John drinks noticeably more than his brother*, however, *noticeably* could hardly be argued to modify the predicate and the comparative element together (i.e., *drinks more*) but is more naturally understood as only modifying *more*, or at best the whole phrase *more than his brother*.

That said, even if one admits that *noticeably* can indeed be interpreted as modifying the (supposed) property *bigger*, but not as a narrower-scope modifier that only targets the comparative element, this reasoning cannot be extended to all the types of modifiers that may occur in synthetic comparatives. This is a logical consequence of Hengeveld and Mackenzie's statement that the reading of (58) is that "John's being bigger than his brother is noticeable": in fact, as soon as one turns to such structures as *John is much/two times/two inches bigger than his brother*, it becomes evident that these expressions cannot be rendered as "*John's being bigger than his brother is much/two times/two inches" (or any paraphrase thereof, e.g., "*John's being bigger than his brother is great/triple/by two inches"). With such modifiers, the only reasonable interpretation is that the measure modifier makes the difference in size between the two brothers more precise by quantifying over the comparative element itself (i.e., its scope is narrower than the whole unit *bigger*),[14] in the very same way as this happens in *much/two times/two inches more Adj than his brother*. What this indicates is that a comparative element capable of being modified must necessarily be

13 Also note that, strictly speaking, if *noticeably bigger than his brother* means "John's being bigger than his brother is noticeable", then *noticeably* could at best be regarded as modifying *bigger than his brother* (and not just *bigger*, as claimed by Hengeveld and Mackenzie).

14 The reason for this is presumably that the semantics of a comparative element, be it expressed lexically as *more* or inflectionally as *-er*, is inherently relational: such elements point to a difference in the degree to which a Property applies to different referents. It therefore makes sense for these elements to be quantified over by degree or measure modifiers specifying the exact difference. By contrast, the larger units *bigger than his brother* and *bigger* (assuming again that the latter is indeed a single semantic unit) do not merely indicate a relation but denote Properties which are assigned to referents (and which are in turn constructed with a relational element plus one or more other semantic units). See Giomi (2020b, 312) for a similar argument concerning the modification of spatial and temporal adpositions.

present in the representational frame underlying synthetic comparatives: were it not so, it would not be possible for a degree or measure modifier to quantify over the difference between the two terms of the comparison. It follows that the semantic trigger for the *-er* suffix cannot indeed be formalized as a grammatical operator 'Comp', as pointed out by Nagamura (2018a). At the same time, as argued by Hengeveld and Mackenzie (2021), it is also not possible to represent this element as a Lexical Property, since a non-transformational model like FDG cannot assume such an element to be inserted at the Representational Level and then suppressed during Morphosyntactic or Phonological Encoding.

Luckily enough, modifiability is not the only criterion of which FDG avails itself to determine the lexical or grammatical nature of linguistic elements. Other important parameters are the (im)possibility of the item participating in morphological processes of derivation and compounding and its (un)availability for the assignment of Focus and Emphasis (see Sections 3.1 and 4.3). As soon as these parameters are brought into the picture, it becomes clear that a bound morpheme like the comparative suffix cannot be regarded as an entirely lexical element (it cannot be emphasized or focalized, nor can it be the input for further processes of derivation or compounding). However, it is not a fully grammatical element either, since as argued earlier it can be modified, at the very least, by expressions of measure or degree. Since Keizer (2007), elements that share properties of both lexical and grammatical items have been classified in FDG as *lexical operators*: such elements resemble lexical items in being inserted in their phonemic form already at the Interpersonal or the Representational Level, but at the same time are akin to grammatical operators in not heading a separate variable of the level in question (precisely because they are not liable to processes that presuppose the status of an independent variable such as derivation, compounding or the assignment of operators and functions). Thus, by analyzing *-er* as a lexical operator, it becomes possible to do justice to the mix of lexical and grammatical properties displayed by this element. The other important advantage of this analysis is that it is perfectly compatible with Hengeveld and Mackenzie's (2021) revised approach to synthetic comparatives, which introduces the notion of look-ahead computation involving the Representational and the Phonological Level, thus eliminating the "dispreferred" transformationalist assumption that underlay the account proposed in Hengeveld and Mackenzie (2008).

As regards the formal representation of synthetic comparatives, if *-er* is analyzed as a lexical operator it of course becomes impossible to postulate an identical representational frame for analytic and synthetic comparatives (since in the latter, there is no lexical predicate like *more* to take the second Quantity as its argument). At the same time, the underlying representation of analytic and synthetic comparatives must capture the fact that both constructions are functionally equivalent. This is the same situation as we encountered in 4.3 when comparing the syntax and semantics of equative and nonequative comparatives.[15] Drawing upon the argument developed in that section, the general representational frame for synthetic comparatives can at this point be formalized as in (59), where the lexical operator *-er* is inserted as such (and not as an abstract placeholder) in accordance with the notational convention introduced by Keizer (2007):

(59) $(v_1\text{: [...]}\ (v_1))\text{: }(q_1\text{: }(f_1^c\text{: [(-}er\ q_1)\ (q_2)_{\text{Standard}}]\ (f_1^c))\ (q_1))\ (v_1))_{\{\varphi\}}$.

Once again, then, by focusing on the functional commonality between the various types of comparative structures and on the specific properties of the linguistic elements that occur in these constructions, we have arrived at a formal representation in which both the similarities and the differences between the various types of comparatives are adequately reflected.

15 The only significant difference is that, rather than *X Adj Y NP*, synthetic comparatives display the surface format *Adj-X Y NP* (where *X* = *-er* and *Y* = *than*). This is a consequence of the fact that *X* is in this case a partially grammaticalized element, i.e. a lexical operator.

5 When comparatives are not Quantities

The common property of the comparative expressions considered so far is that they all correspond to a semantic unit of the category Quantity. However, just as not all similatives are Manners, not all comparatives are adequately analyzed as Quantities. One case in which this is not so is that of lexical(ized) predicates like *prefer* and *would rather*, which take the two terms of comparison as their arguments:

(60) *I prefer tea to coffee.*

(61) *I would rather have tea than coffee.*

With such predicates, an interpretation in terms of amounts or degrees is inappropriate (unless one decomposes the meaning of *prefer* into more basic semantic features, obtaining "like X to a greater degree than the degree to which one likes Y"; this, however, is not how FDG approaches lexical meaning. See Hengeveld and Mackenzie 2016 on why meaning definitions for individual lexemes are not included within the Grammatical Component of the FDG model). It follows that the semantic function Standard of Comparison cannot be assigned to a (q)-variable in such cases. Rather, in (60), the Standard is the Individual *coffee*, and in (61), it is the Configurational Property 'I have coffee,' as shown in (62) and (63):

(62) $(f_i^c\text{: } [(f_j\text{: prefer } (f_j))\ (1x_i)_A\ (x_j\text{:}-\text{tea}-(x_j))_U\ (x_k\text{:}-\text{coffee}-(x_k))_{Standard}]\ (f_i^c))$

(63) $(f_i^c\text{: } [(f_j\text{: would\_rather } (f_j))\ (1x_i)_A\ (f_k^c\text{: } [(f_l\text{: have } (f_l))\ (1x_i)_A\ (x_j\text{:}-\text{tea}-(x_j))_U]\ (f_k^c))_U\ (f_m^c\text{: } [(f_l)\ (x_i)_A\ (x_k\text{:}-\text{coffee}-(x_j))_U]\ (f_m^c))_{Standard}]\ (f_i^c))$

A further type of comparison which would not appear to involve Quantities is that of temporal expressions introduced by *earlier/later than* and *sooner than*. Consider the last sentence in (64):

(64) *So if the two arrive at the same moment, the light from A must have left earlier than the light from B to give it greater time to cover the greater distance to get to the midpoint. That is,* ***the flash at A happened earlier than the flash at B****.*
(https://sites.pitt.edu/~jdnorton/teaching/HPS_0410/chapters/Special_relativity_rel_sim/index.html. Accessed 05-18-2022)

The most intuitive interpretation of this utterance would seem to be that the two terms of comparison are two intervals of time – the time when the flash at A happened and the time when the flash at B happened. From an ontological point of view, *the flash at A happened earlier than the flash at B* is not much different from *the flash at A happened before the flash at B*. Grammatically, however, no explicit marker of comparison is present in the latter utterance, whereas *earlier* is the comparative form of the adverb *early* and is followed by the comparative preposition/conjunction *than*. Hence, the semantic analysis of *earlier than* should capture the comparative nature of the expression. Now, if the two terms of the comparison are indeed two intervals of time, then both the overall modifying expression and the Standard of Comparison should be represented as Times (t) rather than as Quantities.

However, there is a possible objection to this analysis. In fact, the comparative expression (*earli*)*-er than the flash at B* may be understood as indicating the Quantity of application of its head (i.e., the Lexical Property 'early'), just like the comparative modifiers considered in Section 4. In other words, what is being compared is not the Time at which each flash happened but the extent to which the Lexical Property 'early' applies to each of these time intervals. On this line of reasoning, the literal meaning of *the flash at A happened earlier than the flash at B* is the cumbersome (yet, accurate) *The flash at A happened at a time* (t_i) *such that* (t_i) *was early to a degree* (q_i) *such that* (q_i) *was greater than the degree* (q_j) *to which the time* (t_j) *when the flash at B happened was early*. On the latter approach, the comparison is not between two Times but again between two Quantities, as shown in (65) – where *-er* is again represented as a lexical operator:

(65) *the flash at A happened earlier than the flash at B*
(e_i:–the flash at A happened–(e_i): (t_i: (f_i: early (f_i): (q_i: (f_j^c: [(-*er* q_i) (q_j: (e_j:–the flash at B (happened)–(e_j): (t_j: ((f_i): (q_j) (f_i)) (t_j))$_L$ (e_j)) (q_j)$_{Standard}$] (f_j^c)) (q_i)) (f_i)) (t_i))$_L$ (e_i))

All the same, there also are languages in which an analysis of time comparisons as Quantities is clearly unfeasible. In Latin, one way of expressing the temporal relation between two States-of-Affairs is by means of the preposition/conjunction *ante* ('before') or *post* ('after'), in conjunction with the Standard-of-Comparison marker *quam* (yielding *ante* (…) *quam* and the univerbated form *postquam*, respectively). As an example, consider (66):

(66)

Censes	***ante***	*coronam*	*herbae*	*exstitisse*	***quam***
think.IND.PRS.2.SG	before	crown.ACC.F.SG	herb.GEN.F.SG	exist.INF.PERF	than
conceptum		*esse*	*semen?*		
conceive.PTCP.PST.NOMACC.N.SG		be.INF	seed.NOMACC.N.SG		

'And do you think the crown of herbs appeared before their seeds were formed?'
(Cicero, *De divinatione* 2.68. Pinkster 2021, 718)

The crucial difference from English *earlier/later* is that *ante* and *post* are not comparative forms; nevertheless, the relation between *ante* and *conceptum esse semen* is specified by the explicit Standard-of-Comparison marker *quam*. This suggests that it is the conjunction itself that takes the Time of the second event as its argument, whereas *quam* marks the semantic function Standard of Comparison (as it also does elsewhere). This analysis is represented in (67) (note that the comparative structure occurs within a Propositional Content (p_i), which is the Undergoer argument of the cognition verb *censēre*, 'think'):

(67) (f_i^c: [(f_j: censēre (f_j)) ($1x_i$)$_A$ (p_i: (past ep_i: (e_i:–coronam herbae exstitisse–(e_i): (t_i: (f_k^c: [(f_l: ante (f_l)) (t_j:–conceptum esse semen–(t_j))$_{Standard}$] (f_k^c)) (t_i))$_L$ (e_i)) (ep_i)) (p_i))$_U$] (f_i^c))

As is evident from this representation, Latin temporal comparisons with *ante* (…) *quam* are adequately analyzed without recourse to the notion of Quantity.[16] Similar constructions are also possible (or, in some cases, obligatory) in modern Romance languages. Consider (68), from Portuguese:

(68)

E	*se*	***antes***	***do que***	***eu***	*levares*	*o*	*óbolo*
and	if	before	than	1.NOM.SG	bring.SBJV.FUT.2.SG	DET.M.SG	obol.M.SG
ao	*barqueiro*	*sombrio* […].					
to.DET.M.SG	boatman.M.SG	somber.M.SG					

'And if before me you pay the fare to the boatsman of the Shades …'
(Fernando Pessoa, *Odes de Ricardo Reis*. English translation by Rip Cohen)

Again, the lexical preposition *antes* is not a comparative form and the linking element *do que* is an explicit marker of Standard of Comparison, just like Latin *quam*. The conclusion must again be that *antes* takes a Time as its argument, whereas *do que* marks this argument as a Standard of Comparison (just as it does in non-temporal comparisons). Note finally that *antes do que eu* (lit. "before than I") could well be replaced by *antes de mim* ('before me'), in which case we would not be dealing with a temporal comparison – there is no explicit marker of Standard of Comparison – but with a simple time-location modifier, just like English *before me*.

16 By contrast, the form *prius* is morphologically a comparative of the adverb and preposition *prae* ('first$_{Adv}$, before, in front of'). Hence, the temporal conjunctions *prius…quam* and *priusquam* may be analysed in the same way as English *earlier/later/sooner than*.

6 Conclusions

As mentioned in Section 1, connections between similatives and comparatives have often been noticed in the literature. In this article, I have built on FDG's conception of Manners and Quantities as distinct layers of the Representational Level to develop an analysis of these two types of constructions capable of capturing their similarities in a systematic and consistent way, while also accounting for their differences. In doing so, I have incorporated insights from the typological and formal-semantics literature and suggested that the FDG approach to similatives and comparatives be refined in the following ways:

(i) by assigning the same type of underlying semantic frame to similative and comparative modifiers, but analyzing the former as Manners (with the exceptions acknowledged in Section 3.2) and the latter as Quantities (or, more rarely, Times);
(ii) by discriminating between modifying and predicative uses of similative expressions, on the one hand, and on the other hand between comparative modifiers of Quantity or Time and arguments of inherently comparative predicates such as *prefer* and *would rather* (which may belong to any semantic category);
(iii) by explicitly distinguishing between equative and nonequative comparatives;
(iv) by introducing a lexical operator into the underlying representational frame to account for the use of comparative suffixes instead of Adverbial Words like English *more* or Latin *magis*.

It is hoped that the proposals summarized above will open the way to a more encompassing FDG treatment of similatives and comparatives, which may possibly be extended to closely related construction types such as superlatives. Necessary steps in this research program will have to include the analysis of these types of constructions at the remaining levels of the grammar and an investigation of the typological applicability of the proposals put forth in this article.

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References

Anderson, Curt and Marcin Morzycki. 2015. "Degrees as kinds". *Natural Language & Linguistic Theory* 33, 791–828.
Dik, Simon C. 1975. "The semantic representation of manner adverbials". *Linguistics in the Netherlands* 1972–1973, 96–121.
Ernout, Alfred and François Thomas. 1964. *Syntaxe latine* (2nd edition). Paris: Klincksieck.
Ernst, Thomas. 2002. *The syntax of adjuncts* (Cambridge Studies in Linguistics 96). Cambridge: Cambridge University Press.
Fleischhauer, Jens. 2016. *Degree gradation of verbs* (Dissertations in Language and Cognition 2). Düsseldorf: Düsseldorf University Press.
Fuchs, Catherine. 2014. *La comparaison et son expression en Français*. Paris: Ophrys.
García Velasco, Daniel. 1996. "English manner satellites in Functional Grammar". *Atlantis* 18, 149–64.

García Velasco, Daniel. 2013. "Degree words in English: A Functional Discourse Grammar account". *Revista Canaria de Estudios Ingleses* 67, 79–96.
García Velasco, Daniel. 2022. "Modification and context". *Open Linguistics* 8(1), 524–44. doi: 10.1515/opli-2022-0206.
Gehrke, Berit and Elena Castroviejo. 2015. "Manner and degree: An introduction". *Natural Language & Linguistic Theory* 33, 745–90.
Giomi, Riccardo. 2020a. "Headedness and modification in Functional Discourse Grammar". *Glossa: A Journal of General Linguistics* 5(1), 118.
Giomi, Riccardo. 2020b. *Shifting structures, contexts and meanings: A Functional Discourse Grammar account of grammaticalization*. PhD thesis. Lisbon: University of Lisbon, Portugal.
Haspelmath, Martin and The Leipzig Equative Constructions Team. 2017. "Equative constructions in world-wide perspective". In *Similative and equative constructions: A cross-linguistic perspective* (Typological Studies in Language 117), edited by Treis, Yvonne and Martine Vanhove, p. 9–32. Amsterdam: John Benjamins.
Haspelmath, Martin and Oda Buchholz. 1998. "Equative and similative constructions in the languages of Europe". In *Adverbial constructions in the languages of Europe* (Empirical Approaches to Language Typology 20-3), edited by van der Auwera, Johan and Dónall P. Ó Baoill, p. 277–334. Berlin: Mouton De Gruyter.
Haumann, Dagmar. 2007. *Adverb licensing and clause structure in English* (Linguistik Aktuell/Linguistics Today 105). Amsterdam: John Benjamins.
Heim, Irene. 2000. "Degree operators and scope". In *Proceedings of semantics and linguistic theory 10*, edited by Jackson, Brendan and Tanya Matthews, p. 40–64. Ithaca: CLC Publications.
Hengeveld, Kees and J. Lachlan Mackenzie. 2008. *Functional Discourse Grammar: A typologically-based theory of language structure*. Oxford: Oxford University Press.
Hengeveld, Kees and J. Lachlan Mackenzie. 2016. "Reflections on the lexicon in Functional Discourse Grammar". *Linguistics* 54(5), 1135–61.
Hengeveld, Kees and J. Lachlan Mackenzie. 2021. "Interfaces, mismatches, and the architecture of Functional Discourse Grammar". In *Interfaces in Functional Discourse Grammar: Theory and applications* (Trends in Linguistics - Studies and Monographs 354), edited by Contreras-García, Lucía and Daniel García Velasco, p. 15–56. Berlin: Mouton de Gruyter.
Huddleston, Rodney D. and Geoffrey K. Pullum. 2002. *The Cambridge grammar of the English language*. Cambridge: Cambridge University Press.
Keizer, Evelien. 2007. "The lexical-grammatical dichotomy in Functional Discourse Grammar". *Alfa: Revista de Lingüística* 51(2), 35–56.
Keizer, Evelien. 2015. *A Functional Discourse Grammar for English*. Oxford: Oxford University Press.
Keizer, Evelien. 2019. "The problem of non-truth-conditional, lower-level modifiers: A Functional Discourse Grammar solution". *English Language and Linguistics* 24(2), 365–92.
Keizer, Evelien. 2022. "Adjective-numeral word order in the English NP: An FDG analysis". *Open Linguistics* 8(1), 545–72. doi: 10.1515/opli-2022-0207.
Kennedy, Christopher. 2006. "Semantics of comparatives". In *Encyclopedia of language and linguistics* (2nd edition), edited by Brown, Keith, p. 690–94. Oxford: Elsevier.
Kennedy, Christopher and Louise McNally. 2005. "Scale structure, degree modification, and the semantics of gradable predicates". *Language* 81(2), 345–81.
Kuteva, Tania, Bernd Heine, Bo Hong, Haiping Long, Heiko Narrog and Seongha Rhee. 2019. *World Lexicon of grammaticalization* (2nd edition). Cambridge: Cambridge University Press.
Luraghi, Silvia. 2003. *On the meaning of prepositions and cases: A study of the expression of semantic roles in ancient Greek* (Studies in Language Companion Series 67). Amsterdam: John Benjamins.
Luraghi, Silvia. 2014. "Plotting diachronic semantic maps: The role of metaphors". In *Perspectives on semantic roles* (Typological Studies in Language 106), edited by Luraghi, Silvia and Heiko Narrog, p. 99–150. Amsterdam: John Benjamins.
Mackenzie, J. Lachlan. 1983. "Nominal predicates in a Functional Grammar of English". In *Advances in Functional Grammar* (Publications in Linguistic Science 11), edited by Dik, Simon C., p. 31–51. Dordrecht: Foris.
Mackenzie, J. Lachlan. 1998. "On referring to manners". In *English as a human language: To honour Louis Goossens* (Lincom Studies in Germanic Linguistics 4), edited by van der Auwera, Johan, Frank Durieux, and Ludo Lejeune, p. 241–51. Munich: Lincom.
Nagamura, George H. 2018a. "The representation of comparative and superlative adjectives in FDG". Abstract submitted to the *Fifth International Conference on Functional Discourse Grammar*, Salvador, July 26–28.
Nagamura, George H. 2018b. The representation of comparative and superlative adjectives in FDG. Paper presented at the *Fifth International Conference on Functional Discourse Grammar*, Salvador, July 26–28.
Narrog, Heiko. 2014. "The grammaticalization chain of case functions: Extension and reanalysis of case marking vs. universals of grammaticalization". In *Perspectives on semantic roles* (Typological Studies in Language 106), edited by Luraghi, Silvia and Heiko Narrog, p. 69–97. Amsterdam: John Benjamins.
Osborne, Timothy. 2009. "Comparative coordination vs. comparative subordination". *Natural Language & Linguistic Theory* 27(2), 427–54.
Pinkster, Harm. 2021. *The Oxford Latin syntax, Volume II: The complex sentence and discourse*. Oxford: Oxford University Press.
Portero Muñoz, Carmen. 2016. "Bound lexical formatives: Lexicon, grammar or somewhere in between: An FDG perspective". *Linguistics* 54(5), 1017–53.

Portero Muñoz, Carmen. 2021. “The English “time-measurement construction” as a case of gradience: A Functional Discourse Grammar approach”. In *Interfaces in Functional Discourse Grammar: Theory and applications* (Trends in Linguistics - Studies and Monographs 354), edited by Contreras-García, Lucía and Daniel García Velasco, p. 303–6. Berlin: Mouton De Gruyter.
Portero Muñoz, Carmen. 2022. “‘It’s way too intriguing!’ The fuzzy status of emergent intensifiers: A Functional Discourse Grammar account”. *Open Linguistics* 8(1), 618–49. doi: 10.1515/opli-2022-0210.
Rett, Jessica. 2008. *Degree modification in natural language*. PhD thesis. New Brunswick, NJ: Rutgers University, USA.
Rett, Jessica. 2011. “Exclamatives, degrees and speech acts”. *Linguistics and Philosophy* 34, 411–42.
Salazar García, Ventura. 2008. “Degree words, intensification, and word class distinctions in Romance languages”. *Studies in Language* 32, 701–26.