The English 'Time-measurement construction' as a case of gradience: an FDG approach.

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1. Introduction

The aim of this paper is to show the adequacy of the architecture of Functional Discourse Grammar (FDG) to account for a case of gradience: a Time-measurement construction that expressions like *three months (maternity) leave* instantiate (Bell and Portero, 2019). These expressions pose a challenge to linguistic theories, as they show the overlap between different categories, which can be seen as concerning the interface between two Levels of FDG's architecture, the Representational (that is, semantic) and the Morphosyntactic Levels. Thus, these cases resemble modifier-head (compound-like) constructions. For example, if we want to talk about a postgraduate course lasting three years, a *three-year post-graduate course* is used. In this case, the absence of number marking on *year* indicates that it is a specific type of unit, a compound or compound-like sequence where 'three year' modifies the head noun. However, expressions like *three months maternity leave* (or alternative expressions with an apostrophe like *three months' maternity leave*) are ambiguous between a modifier-head and a pseudo-partitive interpretation, that is, they can be analysed in a similar way to compounds as well as grammatical constructions used to indicate that only a part or fraction of a whole entity is referred to (such as *a slice of bacon, ten years of marriage*).

The contrast between pseudo-partitive expressions and modifier-head sequences is therefore blurred by the existence of cases with a plural (or -s ending) pre-modifying noun but no preposition, such as *three months maternity leave* (or the related *three months' maternity leave*). These might be regarded to provide a 'bridging construction' (Rosenbach 2006: 101) between modifier-head sequences and pseudo-partitive constructions. It will be shown that the description of this construction can benefit from the use of some of the basic principles of the theory, such as FDG's levels of linguistic description. More specifically, FDG's refined typology of entities will be shown to be crucial to provide an accurate account of the construction.

The present investigation is based on previous research in which the pattern under study was analysed in depth by using corpus data (Bell and Portero 2019). As a result of this, it was claimed to constitute an independent construction with a number of diagnostic properties. Taking this research as a starting point, the purpose of this paper is to make a proposal for the analysis of these expressions within FDG.

The paper is structured as follows. Section 2 will introduce the notion of linguistic gradience and will present the construction under study as a case of gradience and as a relevant case study for the issue of linguistic interfaces. In Section 3, a proposal will be made for the analysis of the construction from the perspective of the theory of FDG. Basic notions of the theory will be introduced in Section 3.1. Section 3.2 explains the analytical proposal using the FDG framework, focusing on the interfaces between different levels. A final short conclusion is given in Section 4.

2. An interface issue: the Time-measurement construction as a case of gradience

2.1. Introduction: the notion of gradience

A number of current grammatical approaches support the position that categorization should be based on prototypes, rather than on clear-cut criteria, as the boundaries between categories are fuzzy and classifications of linguistic data are not completely accurate. A thorough overview of different approaches to gradience is provided by Aarts (2004b). As a reaction to theoretical frameworks that put few limits on fuzziness in grammar, Aarts (2004a: 1) argues that 'gradience *should* have a role to play in language studies (both descriptive and theoretical)' and he adopts a mid-way position between the Aristotelian, that is, all-or-none approach, and the cognitivist, prototype-based, conceptions of categorisation. Thus, he supports the proposition that gradience should be allowed, but that there must still be clear-cut boundaries between categories. Aarts points out that there are two types of gradience, which he refers to as Subsective Gradience and Intersective Gradience. The first type involves the members within a category, which can vary in degree of prototypicality. By contrast, the second type obtains in cases of inter-categorial resemblance, when two form types converge with each other. In the latter case, there is a continuum between two sets of elements A and B. The less A-like an element is, the more B-like it will be.

Different cases of Intersective Gradience have been put forward in the literature: between word classes like adverbs, prepositions and conjunctions (Bolinger 1971: 26–27, Jacobsson 1977: 40–41); between phrases, like noun and adjective phrases (Leech and Li 1995); and between constructions, like imperatives and declaratives (Givón 1986: 96), the nominal or verbal gerund and coordination and subordination (Quirk 1965). An often-cited example of a hybrid construction is the English gerund (Quirk et al. 1985:1290–1291), which fluctuates between a nominal and a verbal analysis, as can be seen in (1):

(1) Nominal

some paintings of Brown's
Brown's paintings of his daughters
The painting of Brown is as skilful as that of Gainsborough.
Brown's deft painting of his daughter is a delight to watch.

↑

Brown's deftly painting his daughter is a delight to watch.
I dislike Brown's painting his daughter.

↓

Verbal

I dislike Brown painting his daughter.
I watched Brown painting his daughter.
Brown deftly painting his daughter is a delight to watch.
Painting his daughter, Brown noticed that his hand was shaking.
Brown painting his daughter that day, I decided to go for a walk.
The man painting the girl is Brown.
The silently painting man is Brown.

Brown is painting his daughter.

The two fuzzy examples in the middle display nominal properties (the presence of a possessive) with verbal properties (the presence of a complement).

Drawing on Aarts (2004a, 2004b), Rosenbach (2006: 100) defines gradience as 'the mismatch in the mapping of meaning (in the sense of function) to form, and vice versa' and applies this notion to her analysis of the descriptive genitive in English. In Rosenbach's (2006: 103) view, the fact that we find *lawyer's fees* alongside *lawyer fees*, and *museum's shop* alongside *museum shop* (although in different frequencies) shows that there is overlap between the two constructions, which illustrate a mismatch in the mapping from function to form. In addition, the different interpretations of the indefinite dependent in cases like *a solicitor's office* as a determiner genitive ([a solicitor]'s office) or a classifying genitive (a [solicitor's office]) illustrate a mismatch from form to function. A similar approach will be pursued in this paper as regards time-measurement expressions.

2.2. The Time-measurement construction as a case of gradience

In this section, I will present three different cases that result in the fuzziness of the time-measurement construction and justify its treatment as a case of gradience (see Rosenbach 2006: 113).

(i) Compounds

As mentioned earlier, the construction illustrated by *three months (maternity) leave* is at first sight formally similar to modifier-head sequences (compound-like or phrasal) (e.g. *three-year post-graduate course*), as they both include a numeral followed by a noun, optionally an adjective, and a second noun, where the numeral makes a unit with the first noun and the adjective makes a unit with the second noun. However, on closer inspection, they are formally and semantically different. Formally, unlike in compounds, in the construction under study the first noun has a final inflectional mark 's'. As regards meaning, the largest sets of nouns occupying the first noun slot in these expressions are temporal nouns and they appear to share the denotation of a measure meaning with pseudo-partitives or they are at least semantically ambiguous *a priori*. Compare examples (2a) and (2b).

(2)

a. *according to the Rocky Mountain Family Council, it's easier to get out of* ***a ten-year marriage*** *than it is to be rid of an employee hired one week ago.*

   (COCA)[1]

b. *We are getting divorced after* ***thirty-five years marriage****, I have no place even to stay now.* (COCA)

While *a ten-year marriage* in (2a) designates 'a marriage lasting ten years', in (2b) the meaning of *thirty-five years marriage* seems to be 'thirty-five years of being married'.

[1] Corpus of Contemporary American English.

(ii) The genitive of measure

In addition to compounds, there is quite a common construction of the form: number + time measure Noun + apostrophe + Noun (e.g. *ten days' work*), which appears to be very similar semantically to the construction with no apostrophe, so that they can be seen as variants of the same construction.

The form with an apostrophe is very common with time expressions, that is, the first noun is one of the following: *years, months, weeks, days, nights, afternoon, hours, minutes, seconds* (e.g. *20 years' imprisonment, eight months' work*). Quirk et al. (1985: 322) include these cases within the semantic group 'genitive of measure' (see also Biber et al. 1999: 296), in their semantic classification of the genitive, since the meaning in these cases is not possession. Instead, the genitive expresses a certain period of time associated to the second noun. The nature of this association is not very clear, however.

Quirk et al. (1985: 1333) make reference to the closeness between these different expressions, pointing out that in quantitative expressions there is possible variation, as shown in (3).

(3) *a ten day absence*
a ten-day absence
a ten days absence
a ten days' absence

According to Quirk et al. (1985: 325, n.b), the apostrophe is "sometimes omitted" with temporal nouns. It should be noted, however, that the presence of the indefinite article in all these expressions indicates that the head noun is pre-modified by the preceding temporal expression. Therefore, the meaning of all these expressions would not be pseudo-partitive ('ten days of absence') but rather 'an absence lasting ten days.'

Biber et al. (1999: 293) note that this situation arises with plural expressions of measure with an uncountable head noun, and they point out that the choice between the form with and without an apostrophe involves a choice between genitive or common case, rather than alternative spellings of the genitive. By contrast, singular expressions of measure are regularly expressed in the genitive form, with an apostrophe (e.g. *an hour's discussion*), and in expressions with a countable head noun the modifying noun is usually in the singular (e.g. *a two-week period*).

Payne and Huddleston (2002: 470) analyse these cases as 'attributive' genitives, since they can be preceded by determiner and occupy attributive position, as shown in (4).

(4) *this [hour's delay], a second [one hour's delay]*

Payne and Huddleston observe, however, that in other cases the genitive can occupy determiner position, as shown in (5), though *an hour's delay* would still be interpreted as 'delay of one hour' according to these authors.

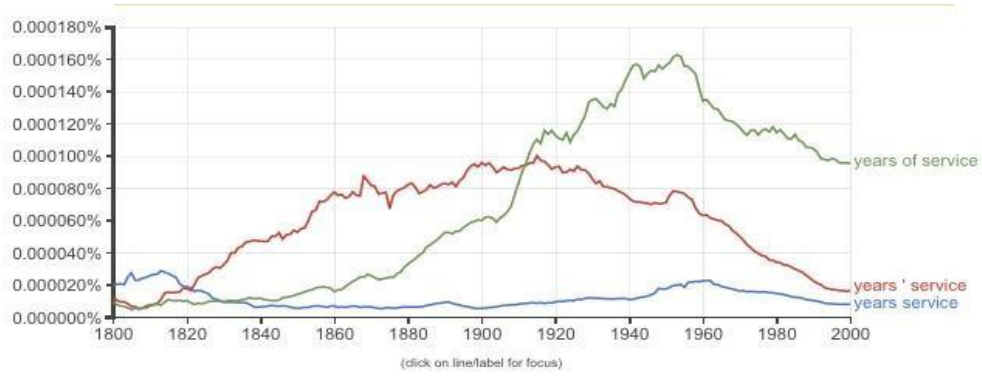
(5) *[an hour's] delay, [one week's] holiday*

Contrasting with Payne and Huddleston's analysis, Bauer, Lieber and Plag (2013: 143) consider these cases as semantically partitive, even though Quirk et al. (1985) mention the partitive meaning as one of the meanings that cannot be expressed by the English genitive (**a sugar's lump*). Thus, *an hour's delay* is given as the s-genitive equivalent of

cases like *a lump of sugar*. In this case the meaning could be described as ‘an hour of delay’, where the two nouns appear to be in the wrong order (*a delay`s hour).

In short, there seems to be some controversy as regards the analysis of the measure genitive. Most authors analyse it as a modifier (similar to descriptive genitives). More rarely, it is regarded as a partitive and thus probably a kind of determiner genitive.

The origin of the construction with an apparently plural measure noun and no apostrophe is unclear. At first sight, one might think that it arose through omission of the apostrophe, as a kind of typo, as an example of the current trend to drop the Saxon genitive in associative rather than possessive structures. However, on closer exploration it turns out that it might have been historically older, or, at least. more frequent than cases with apostrophe. This is shown in Figure 1, which shows three examples where the use of different constructions is compared using N-gram viewer.



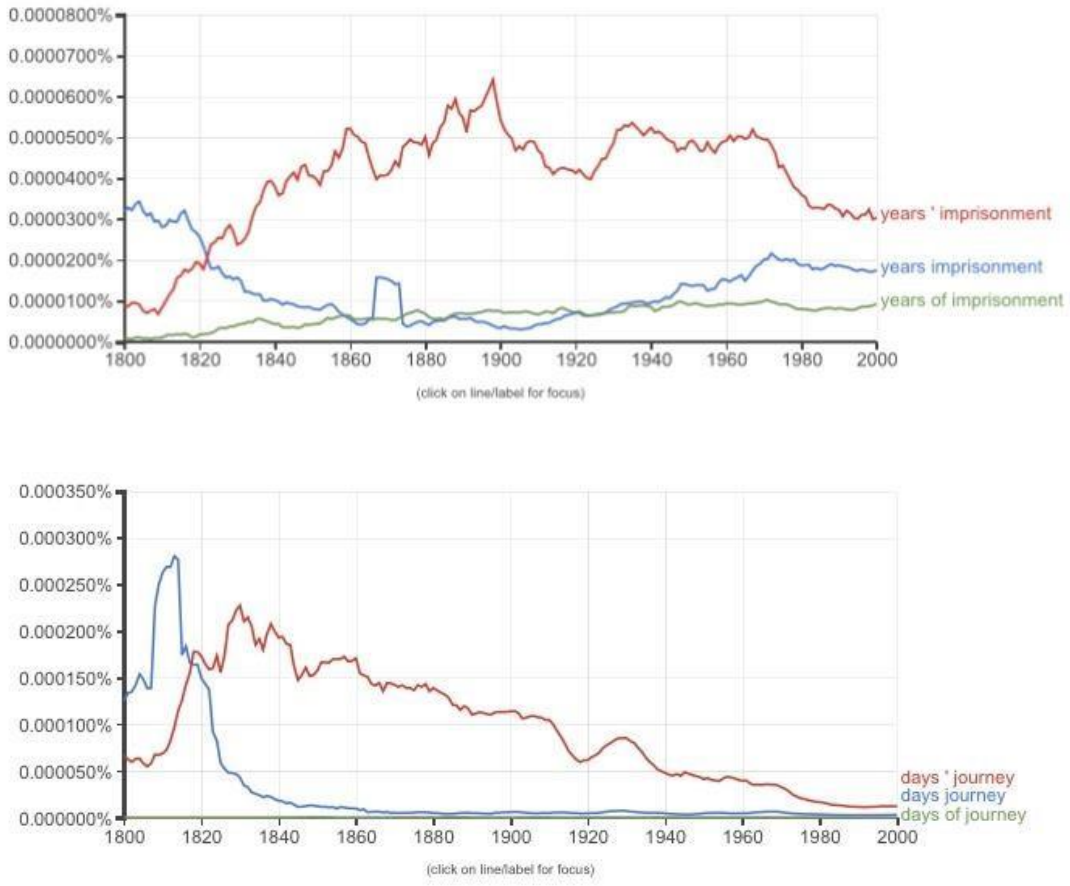


Fig. 1. Diachronic use of Time-measurement expression, measure genitive and pseudo-partitives (N-gram viewer).

Indeed, use of the apostrophe in these expressions became standard only in the 19th century. Furthermore, the lack of the apostrophe cannot be regarded as occasional or exceptional, as the frequency of cases with and without it is comparable nowadays. Further research would be required to draw any conclusions on the diachrony of the different expressions, which is beyond the scope of this paper. In any case, in their descriptive study of the time-measurement construction, Bell and Portero (2019) conclude that the different forms found are alternative realizations of the same construction. The authors identify a number of properties that time-measurement expressions (with or without apostrophe) exhibit and that are not derived from the genitive construction, so that these expressions instantiate a construction of their own. In the present study we adopt Bell and Portero's proposal and regard apostrophic and non-apostrophic cases as orthographic variants of the same general construction.

(iii) Pseudo-partitive constructions

An alternative explanation of the emergence of this construction is that it might have arisen through omission of the preposition *of*, as it is also semantically close to pseudo-partitives. However, the non-prepositional option seems to outweigh the prepositional one when tracing back the use of these constructions as far as 1800, as shown in Figure 1.

For Lehrer (1985) both partitives and pseudo-partitives are subsumed under a wider category, which she labels 'classifiers', alongside measure phrases and complements.

Measure phrases (e.g. *a number of important objections*, where 'objections' is the head).

Pseudo-partitives (e.g. *a selection of comments, a bunch of flowers*, where 'comments' and 'flowers' are the head).

Partitives (e.g. *a number of her objections*, where 'number' is the head).

Semantics-wise, pseudo-partitives express a quantity of the entity denoted by the second noun, as shown in (6a), while partitives such as (6b) express a smaller quantity of the second noun taken out of a larger quantity of this noun.

(6) a. *A box of chocolates*
b. *A box of those chocolates*

In addition, the pseudo-partitive denotes a measured amount of a non-specific entity, while the partitive denotes a measured amount of a specific entity, which is usually discourse-linked. This semantic difference is also syntactically manifest in a few important properties:

1. Partitives cannot be preceded by a definite determiner (**The three of those cars*).
2. Partitives need a determiner before the second noun.
3. The preposition *of* has different functions in the two constructions:

In pseudo-partitives it expresses a 'type-of' relation, specifying the type of the first noun (e.g. *a piece of chocolate*), which is similar to *a chocolate piece*. In these cases, it is not a preposition and it is regarded as a grammatical element that links the two nouns (Jackendoff 1977: 120). By contrast, in partitives, such as *a piece of the chocolate*, it expresses a 'part-of' relation (that is, 'a piece out of the total number denoted by the second noun').

Pseudo-partitives, for their part, do not constitute a homogeneous category, as they subsume different subsets. Keizer (2007: 109) gives a typology (drawing on Vos 1999), which is based on the different function of the first noun:

Quantifier-noun constructions:	*a number of people*
Measure-noun constructions:	*a pint of beer*
Container-noun constructions:	*a box of chocolates*
Part-noun constructions:	*a piece of cake*
Collection-noun constructions:	*a herd of elephants*

Keizer (2007: 113, 125, 137) does not include time nouns as a separate group. However, she does mention temporal nouns within her group of measure nouns, as can be seen in the examples in (7):

(7) After *twenty-nine years of marriage*
ten years of Mrs Thatcher has wiped out the democratically….
the *15 years of civil war*

Semantically, these cases are very close to those instantiating what Bell and Portero (2019) have called 'the time-measurement construction', which I will explore in this paper. These cases are illustrated in (8).

(8) *fifteen months imprisonment*
three months maternity leave

The closeness of the time-measurement construction to pseudo-partitives is seen more clearly when looking at their distinguishing properties (Selkirk 1977, Jackendoff 1977). More interestingly for our purposes, Keizer (drawing on Selkirk 1977), points out that the element *of* may occasionally be absent with pseudo-partitives, which confirms the view that it does not function as a preposition. One example (from Keizer 2007: 111) is given in (9).

(9) *She bought him* ***a dozen (*of) daffodils***
She bought him ***a dozen *(of) those daffodils***

In contrast to partitives, pseudo-partitives allow the omission of the preposition, in which case they resemble the time-measurement construction illustrated in (8).

Keizer (2007: 149–151) proposes three different analyses for pseudo-partitives. In the preferred analysis pseudo-partitives are regarded as purely quantificational pseudo-partitive constructions, that is, as simple noun phrases. In these, the second noun is the syntactic and semantic head, and the first noun is part of a complex determiner (or quantifier). This is supported by the fact that the element *of* can "occasionally" be absent, showing that it does not function as a preposition and is only a linking element. An example of these cases is (10).

(10) *a lot of people*

However, many first nouns can also have a referential function, such as the noun *cup* in (11), in which case they are the head of the construction and the second noun functions as a complement.

(11) *a half-filled cup of coffee*

Finally, there are hybrid pseudo-partitive constructions where the first noun functions as the syntactic head and the second noun as the semantic head. This case is illustrated in (12).

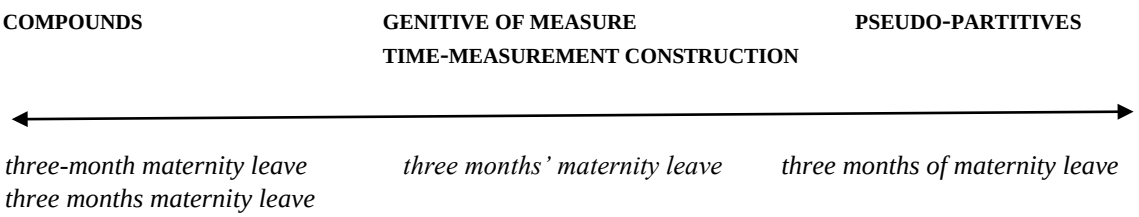
(12) *a steaming bowl of food*.

The question of which of these three types the time measurement expressions fit will be addressed in Section 3.2.2.

To sum up, the time-measurement construction can be seen as a case of gradience, as it shares properties with three other constructions but it is different from, at least, two of them. Firstly, examples of the construction are formally similar to compounds (e.g. a *three-day journey*), though unlike compounds, the first noun is plural (or apparently so). Secondly, these expressions are very much like examples of the so-called genitive of measure (e.g. *three days' journey*), except for the absence of an apostrophe. Semantically, though, the genitive of measure has not been appropriately described and is ambiguous between a modifier and a determiner (i.e. partitive) interpretation. Thirdly, they look like pseudo-partitive expressions (e.g. *ten years of marriage*), though unlike pseudo-partitive expressions, the preposition is absent (and this does not just occur occasionally).

Semantically, though, there is no distinction between them. Bell and Portero (2019) conclude that these time-measurement expressions instantiate an independent construction, that is, a unit of form and meaning that is regarded as semantically pseudo-partitive (or quantifying) on the basis of a number of semantic and formal properties (e.g. collocational preferences, lack of preceding determiner, use in specific syntactic environments).

This situation can be represented by ordering the different linguistic entities along a linear scale with clearly pseudo-partitive constructions at one end (the phrasal right-hand side pole) (e.g. *three months of maternity leave*) and cases closer to noun-noun sequences or compounds (with a measure modifier and a head) at the opposite pole (e.g. *three-month maternity leave*). Right in the middle, there is a blurred area where cases that cannot be assigned to any of the two polar categories fall, including the measure genitive (e.g. *three months' maternity leave*) and non-apostrophic sequences with a first noun ending in -s (e.g. *three months maternity leave*). These constructions are a sort of 'bridge class', to use Crystal's (1967: 50) term, which partakes of the meaning or some formal properties of the constructions at both extremes.



In line with Rosenbach's (2006) proposal for descriptive genitives, in this paper I want to propose an analysis for time-measurement expressions as a case of gradience, which will be regarded as the result of a mismatch in the meaning-form mapping.

2.3. The Time-measurement construction and interfaces

In Section 2.2. I have proposed to regard time-measurement expressions as a case of mismatch between form and meaning. This makes these expressions an eligible candidate to address the issue of linguistic interfaces, that is, the mapping process between different linguistic levels (see Section 3.1.3).

The mismatch that these expressions represent is bi-directional, that is, it takes place in the mapping from function to form as well as in the mapping from form to function. The former is seen in cases like *a two days journey, a two days' journey, a two-day journey,* and *a journey of two days,* where the same meaning is realized by different forms. The latter occurs when different interpretations are allowed, as in *two days journey* (or the apostrophic version), which can be interpreted as 'journey of two days' or 'two days of journey'.

The issue that I would like to address is that examples of gradience like this one pose a challenge to linguistic theory: these temporal measurement expressions instantiated by *two days journey* (and also the related so-called genitive of measure construction) illustrate a meaning-form mismatch, resulting in their ambiguous interpretation between modifier-head constructions and pseudo-partitive constructions. However, this does not

mean that the different constructions cannot be differentiated from each other. Endorsing Langacker's (1987: 19) claim, "to posit a continuum is not to abandon the goal of rigorous description: we must still describe the individual structures in explicit detail, even as we articulate their parameters of gradation". A fine-grained architecture like FDG's can account for this construction so as to enable a differentiation from the borderline compound and pseudo-partitive prepositional expressions. The aim will thus be to account for these apparently fuzzy expressions from an FDG's perspective, which will be addressed in the following section.

3. A proposal within FDG

3.1. Basic notions

In this section I will provide a very brief summary of some of the relevant notions of the theory of FDG that will be made use of in the subsequent sections. For further information on this theory, the reader is referred to Hengeveld and Mackenzie (2008) and Keizer (2015).

3.1.1. FDG general architecture

A quick overview of the theory can be provided by Figure 2, which shows the following crucial elements: four components, four levels, three operations, and a number of primitives at each of the different levels.

(i) *Four Components*

FDG is conceived as the Grammatical Component of an overall model of verbal interaction. This Grammatical Component interacts with the Conceptual and the Contextual Components, though these two components are considered to lie outside the grammar proper (Hengeveld and Mackenzie 2008: 6–12, see also Hengeveld and Mackenzie's paper for this same volume, in which Conceptualization precedes Formulation, and is also outside the grammar like Articulation). In spite of this, the Conceptual Component is regarded as the force that sets in motion the whole process of language production, where the Speaker's communicative intention and the corresponding mental representation are devised. The Contextual Component contains situational information about extra-linguistic entities in the actual setting of the speech event, about the social relationships between the Participants and textual information about the co-text, that is, about the form and content of preceding discourse that affect the form of a linguistic expression. Finally, the grammatical information is converted into orthographic, acoustic or signed form in the Output Component.

(ii) *Four Levels*

One of the most important properties of the theory of FDG is the distinction of four different levels of analysis within the Grammatical Component, represented in rectangles in Figure 2 (Hengeveld and Mackenzie 2008: 4–6, 14–18). Each level consists of several layers and is hierarchically organized. FDG uses this hierarchical architecture to account for the pragmatic, semantic, and formal (morphosyntactic and phonological) aspects of linguistic expressions.

The Interpersonal Level accounts for that linguistically coded information that reflects a function in the interaction between Speaker and Addressee (Hengeveld and Mackenzie

2008: 46–127). The Representational Level deals with the semantics of a linguistic unit, that is, all the information required to designate the different entities or semantic categories playing a role in every act of verbal communication. While the function of the Interpersonal Level is evocation of entities, that of the Representational Level is designation of those entities (Hengeveld and Mackenzie 2008: 128–281). The Morphosyntactic Level takes care of the structuring aspects of linguistic units (from words to sentences), such as ordering principles (Hengeveld and Mackenzie 2008: 282–420). Finally, the Phonological Level receives information from all or any of the previous levels, takes care of those aspects of Encoding not addressed by the Morphosyntactic Level, and provides this information to the Output component (Hengeveld and Mackenzie 2008: 421–462).

(iii*) Three operations*

Interactions between the different components mentioned earlier, and also within different levels, take place by means of three different operations, represented in ovals in Figure 2: Formulation, Encoding and Articulation (Hengeveld and Mackenzie 2008: 12–13). These operations involve the application of the rules of a specific language in order to construct linguistic utterances step-by-step. These interactions work in a top-down fashion, going from the highest level to the lowest one, so that pragmatics governs semantics, pragmatics and semantics govern morphosyntax, and all these three modules govern phonology.

First, the Speaker's communicative intention and mental representations at the Conceptual component are converted into language-specific pragmatic and semantic representations at the Interpersonal and the Representational Levels through the operation of Formulation. Secondly, the output of Formulation enters the Morphosyntactic Encoder, which converts these representations into morphosyntactic ones. Then, these representations are handed over to the Phonological Encoder, where they are turned into phonological representations. Finally, the grammatical information from the Grammatical component is converted into orthographic, acoustic or signed form in the Output Component by means of Articulation, though this operation takes place outside the grammar.

(iv*) Primitives*

The different operations mentioned earlier make use of a number of primitives, represented in boxes in Figure 2, which can be classified in three different groups (Hengeveld and Mackenzie 2008: 19–22). First, there are structuring primitives, which include frames (at the Representational and Interpersonal Level) and templates (at the Morphosyntactic and Phonological Level). Secondly, there are units relevant at each level: Lexemes (at the Interpersonal and Representational Levels), Grammatical Morphemes (at the Morphosyntactic Level) and Suppletive forms (at the Phonological Level). In addition, there are operators, grammatical elements, at each of the different levels.

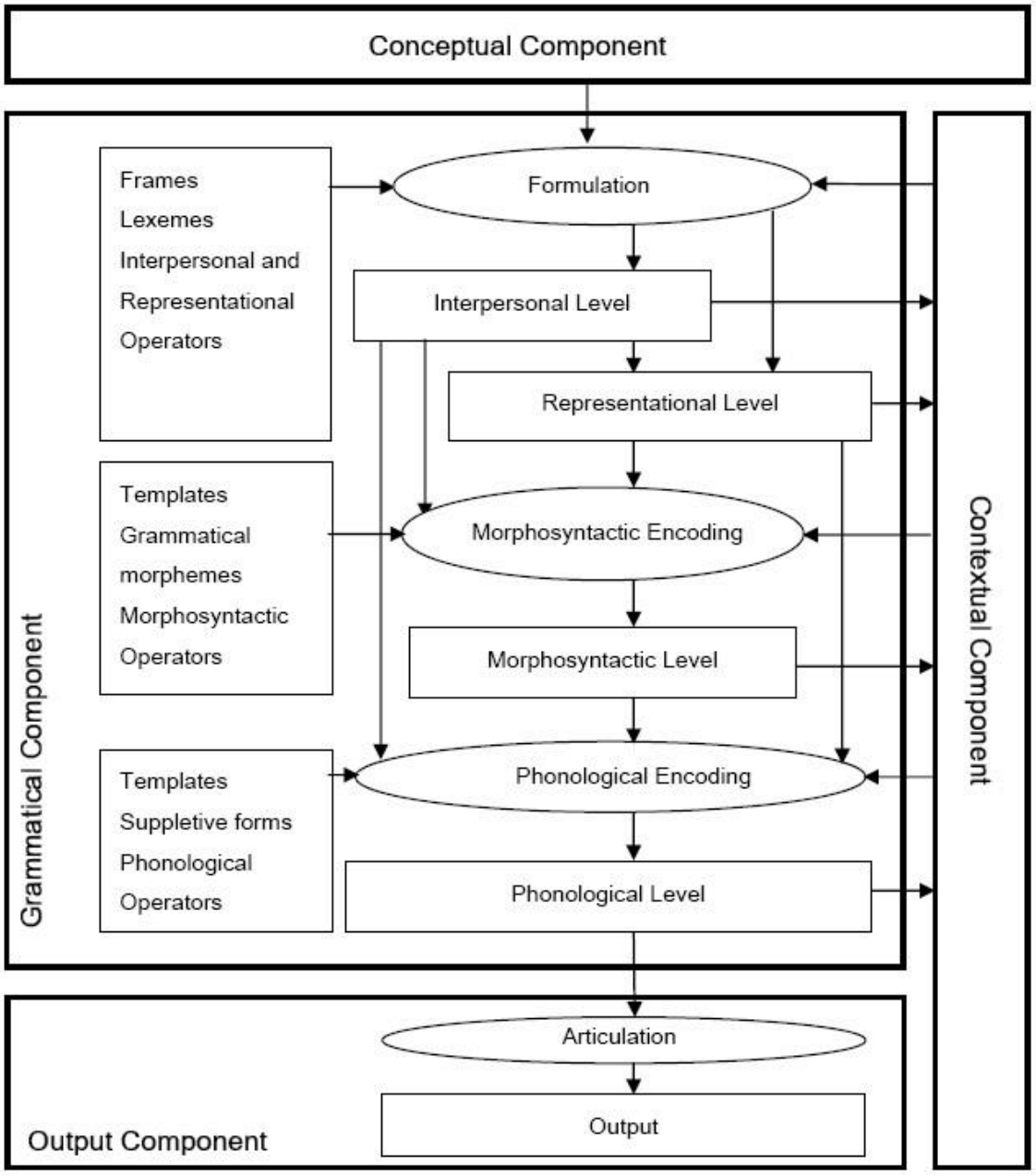


Fig. 2. General layout of FDG (Hengeveld and Mackenzie 2008: 13)

3.1.2. Semantic categories (entity types)

As mentioned in the preceding section, the Representational Level provides information on the semantic categories that are relevant in every act of communication. Drawing on Lyons' (1977: 442–447) threefold classification of entity types, Hengeveld and Mackenzie (2008: 131–132) distinguish three basic semantic categories, namely Individuals, States-of-Affairs and Propositional Content, corresponding to Lyons' typology of first, second and third order entities, respectively (Hengeveld and Mackenzie 2008: 131).

While Individuals are physical objects that can be observed and can be said to exist, States-of-Affairs can be said to take place. Both first and second order entities can be located in space and time. However, in English reference to Individuals (Lyons' first order

entities) is typically made by means of noun phrases headed by nouns like *girl*, *horse* or *car*, while States-of-Affairs (Lyons' second order entities) are typically referred to by means of clauses. When reference to these entities is made by the use of noun phrases, these are headed by abstract nouns like *journey*, *arrest*, *acclimatisation* or *advertising*, which are very often nominalizations of some sort (Mackenzie 2008: 194–95).

Propositional Contents differ from Individuals and State-of-Affairs in their inability to be observed and in that they cannot be located in space or time. Therefore, they are abstract entities, mental phenomena, that cannot be said to exist or occur but can be evaluated in terms of their truth. The typical way of referring to this type of entities is by means of finite clauses. However, as in the previous cases they can also be referred to by noun phrases with noun heads like *idea*, *assumption* or *hope.*

To these basic semantic categories, Hengeveld and Mackenzie add a fourth category, the Property, which cannot be characterized by the locative or temporal dimensions and is applied to different types of entities. For example, *colour* and *intelligence* designate Properties that can be applied to Individuals, while *speed* and *duration* denote Properties applicable to State-of-Affairs.

Hengeveld and Mackenzie (2008: 135) stress that these categories are only relevant insofar as there are grammatical phenomena that are sensitive to the categories involved. For example, they show how nominalization strategies in English can be explained in terms of the entity type that is designated, as there is a clear relation between the process used to form a noun and the type of entity denoted (see Table 1).

Entity type	**Examples**
Individual (x)	writ-er, employ-er, sing-er inhabit-ant, contest-ant
Property (f)	mean-ness, kind-ness, false-ness elastic-ity, rapid-ity, san-ity
State-of-Affairs (e)	explora-tion, deci-sion, deple-tion break-age, cover-age
Propositional content (p)	hope-∅, wish-∅, belief-∅

Table 1. Derived nominal expression of basic semantic categories

The inclusion of Properties within FDG's typology does not suffice to account for all types of entities that are linguistically relevant, so Hengeveld and Mackenzie (2008: 132–135) have added further categories to these four basic ones, and they show different distributional criteria in a number of different languages to provide evidence for their linguistic relevance: Location and Time, Episode, Manner, Reason and Quantity. For example, in many languages there are usually specialized basic question words for Manner (how), Location (where), Time (when), Quantity (how many), and Reason (why).

More importantly for the present purposes, the introduction of a variable for quantities helps understand different cross-linguistic phenomena. One example with a quantity expression of Scottish Gaelic from Hengeveld and Mackenzie (2008: 268–272) is given in (13):

(13)

triùir *pheathraichean*
three.HUM sister.GEN.PL

'three sisters'

A threesome of sisters

$(x_i: (q_i: [(f_i: [(f_j: triùir_N (f_j)) (mx_i: [(f_k: piuthair_N (f_k)) (x_i)_\varphi])_{Ref}] (f_i)) (q_i)_\varphi]))$

In (13) the cardinal number *threesome* is the head and the quantified noun its modifier. Similar representations are proposed for lexical mensural classifiers (e.g. *three lumps of sugar*) and expressions with nouns like *number* or *amount,* which are typical heads of Quantity expressions that have a Configurational head in relational use (e.g. Felicity eats *a large amount of cheese* every day, where there is an internal head 'cheese'). In all these cases, the designation is an Individual, that is, what is being designated is not an abstraction but 'sisters', 'sugar' or 'cheese'. Some of these nouns can also take a State-of-Affairs as their argument, as can be seen in (14), where *volume* has a Configurational head.

(14) *the volume of traffic*

$(q_i: [(f_i: [(f_j: volume (f_j)) (e_i: [(f_k: traffic_N (f_k)) (e_i)_\varphi])_{Ref}] (f_i)) (q_i)_\varphi])$

Designations of frequency can also be analysed as 'Quantities of time' (Hengeveld and Mackenzie 2008: 270), as shown in (15).

(15) *his rate of success* (i.e. how frequently he is successful in any time period).

Table 2 shows the complete list of semantic categories distinguished within FDG (Hengeveld and Mackenzie 2008: 136).

Description	**Variable**	**Example**
Property	f	*Colour*
Individual	x	*Chair*
State-of-Affairs	e	*Meeting*
Propositional content	p	*Idea*
Location	l	*Top*
Time	t	*Week*
Episode	ep	*Incident*
Manner	m	*Way*
Reason	r	*Reason*
Quantity	q	*Litre*

Table 2. Semantic categories in FDG.

3.1.3. Interfaces in FDG

Hengeveld and Mackenzie (this volume) point out that the mapping process between the different levels of linguistic organization (see 3.1.1.) is regulated by the operations of Formulation and Encoding, which, in their view, act as interfaces between the different levels. This mapping process is often straightforward, as can be seen in cases of transparency. For example, a Referential Act at the Interpersonal Level may correspond to an Individual at the Representational Level, to a noun phrase at the Morphosyntactic Level

and to a phonological phrase at the Phonological Level. However, sometimes there is not a one-to-one relationship between layers at the different levels, and in these cases Hengeveld and Mackenzie speak of 'mismatches'.

Mismatches exist between all the different levels, that is, between the Interpersonal Level and the Representational Level, between the Interpersonal /Representational Level and the Morphosyntactic Level, as well as between the Interpersonal/ Representational/ Morphosyntactoc Level and the Phonological Level. However, it is mismatches between meaning and form, that is, between the Representational Level and the Morphosyntactic Level, that have received most attention. One of these cases, which is particularly relevant for the present study, is seen when different meanings or functions are represented with the same form, which Hengeveld and Mackenzie refer to as 'neutralization' and illustrate with the functions of Actor, Undergoer and Location in *I ran, I'm good, I'm feeling lazy*, respectively. In these three examples, three different functions show the same morphosyntactic behaviour, with no case marking, preverbal position and triggering agreement. This results in an inter-level mismatch and lack of transparency.

3.2. The Time-measurement construction in FDG: an interface challenge

3.2.1. Introduction: fuzziness of the construction

In this section, I will provide an FDG account of the three cases that lie at the boundaries of the Time-measurement construction with the aim of showing how the theory's highly detailed architecture can adequately draw a distinction between them so as to avoid the interface mismatch triggered by these expressions.

(i) Compounds

As mentioned earlier, expressions like *three years imprisonment* are very close to compounds such as *a two-year post-graduate course, a three-day journey, a one-night stand,* or *a five-day week,* though they are formally and semantically different. The latter would be analysed as a case of composition in FDG, that is, as a compositional lexical head where two or more lexical elements together express a single concept. More specifically, they would be regarded as endocentric compounds, which consist of a head (the right-hand component), corresponding to the entity designated, and a modifier, which specifies an additional property of this entity. This type of compounds are represented as shown in (16) (Hengeveld and Mackenzie 2008: 425, Keizer 2015: 244–245).

(16) $(f_1: (f_2: \blacklozenge\ (f_2): (f_3: \blacklozenge\ (f_3))\ (f_2))\ (f_1))$[1]

In (16) the property (f_3) is a modifier of the property (f_2), and the head of (f_2) is the head of the compound.

A compound like *one-night stand* would be represented as shown in (17), where 'one' (1) designates a Quantity (q_1) of the temporal entity (t_1) 'night' that modifies the lexical property (f_1), restricted by the lexeme *stand*. The compound designates a State-of-Affairs with the lexical head *stand*:

(17) $(e_1: [(f_1: \text{stand}_N\ (f_1)): (1q_1: [(t_1: \text{night}\ (t_1))]\ (q_1))\ (f_1)]\ (e_1))$

[2] In the theory of FDG the symbol ♦ is used to represent lexemes.

Compounding takes place at the interface between the Representational and Morphosyntactic Levels, as two lexemes are put together in a sequence at the Representational Level and become one Word at the Morphosyntactic Level. In this case, plural inflection of the first lexeme is not added to the first noun at the Morphosyntactic Level, since it is preceded by the numeral *one,* but it would not have been added with other numerals either (e.g. *a five-day week,* 'a week having five working days'), indicating its compound nature. In addition, a hyphen might be later inserted during Articulation (see Section 3.1.1).

(ii) Genitive of measure

Following the morphological tradition, the genitive of measure would be represented as a phrase with a sort of possessive premodifier in FDG. Possession is a very wide notion that subsumes different semantic relations that are, however, coded, in the same way, so that they are all given the same representation. This might be considered as a case of neutralization of semantic functions, that is, as an example of mismatch between the Representational and the Morphosyntactic Levels (see Hengeveld and Mackenzie, this volume).

Hengeveld and Mackenzie (2008: 243) use the semantic function Ass(ociative) rather than Poss(essor) in cases of alienable possession, which are analysed as modifiers, as example (18) shows. By contrast, they use the semantic function Ref(erence) in cases of inalienable possession (e.g. *the teacher's arm*), where possessors are regarded as internal arguments.

(18) *the teacher's dog*

$(1x_i: [(f_i: \text{dog}_N\ (f_i))\ (x_i)_\varphi]: [(f_j: (1x_j: [(f_k: \text{teacher}_N\ (f_k))\ (x_j)_\varphi])_{Ass}\ (f_j))\ (x_i)_\varphi])$

In (18) the modifier is analysed as a property (f_j) consisting of an individual (x_j) and is assigned the semantic function Associative. The genitive of measure in (19) would *a priori* be represented as a case of alienable possession. The difference is that in this case the lexical head is not an Individual but it designates a State-of-Affairs (e_i) and the modifier temporal entity designates a quantity (q_i).

(19) *three hours' delay*

$(1e_1: [(f_1: \text{delay}_N\ (f_1))\ (e_1)_\varphi]: [(f_2: (3q_1: [(t_1: \text{hour}_N\ (t_1))\ (q_1)_\varphi])_{Ass}\ (f_2))\ (e_1)_\varphi])$

It should be noted, however, that (18) would be the canonical representation in FDG to the date, where genitives of measure are interpreted in the way in which they have been analysed by the linguistic tradition, that is, as modifier-head structures semantically similar to compounds (meaning 'delay of three hours').

However, in their study on time measurement expressions like that in (19), Bell and Portero (2019) show that canonical examples of the so-called genitive of measure (with apostrophe) appear to be orthographic variants of time-measurement expressions, which, in their view, are semantically different from genitive expressions, that is, those in which the temporal noun modifies the second noun.

Bell and Portero (2019) explore the presence of some formal properties that expressions with and without the apostrophe share, as compared to compounds. Among these properties, they study the use of the indefinite article in time-measurement and compound constructions. Examples of the compound construction exhibit a significant use of the indefinite article, which determines the second noun, that is, the head. This property is nevertheless not big news, as it is expected from the countable nature of the second noun, which has already been accounted for by some scholars (Biber et al. 1999: 293, Payne and Huddleston 2002: 470). By contrast, the use of the indefinite article is shown to be very scarce in the Time-measurement construction (with or without apostrophe).

More importantly, the meaning of the construction can be different when preceded by a determiner. This is shown in the examples in (20), where 'three hour' acts as a modifier of 'drive' in a, while it is the head of the expression in b, as it denotes the distance to Willowvale. The apostrophic example in c behaves like b in expressing a specific temporal quantity.

(20) a. *in my entire life. MORRISON: (Voiceover) Debbie was praying too on* ***that three hour drive*** *to Chico, praying and trying to understand what had happened to her son* (BNC)

b. *am an am a Gcaleka Xhosa-speaker and grew up in rural areas around Willowvale approximately* ***three hours drive*** *northeast along the coast from East London towards Durban*. (BNC)

c. *So the third man goes I want* ***ten years' supply*** *of cigarettes*. (BNC)

In other words, it might be said that when the second noun takes a singularizing determiner the partitive meaning is cancelled, while it is an option when no determiner appears. For example, while *a six months subscription* should be interpreted as 'a subscription lasting six months', *six months subscription* could also mean 'six months being subscribed.'

Bell and Portero (2019) also explore the use of other determiners. As regards the use of quantifiers, the quantifier 'many' in the example in (21) determines the first noun, as it requires plural concord. The occurrence of these cases shows that the temporal expression is a noun phrase in its own right as it takes its own determiners. In addition, this can be taken as evidence that the first noun is being used referentially and is the head of the construction (see Section 3.2.2).

(21) *How* ***many years' experience*** *did the crew have*? (COCA)

What the previous observations imply is that, if it is true that expressions with an apostrophe (that is, so-called genitives of measure) are similar to those without it, and if the meaning of these expressions is not, or not in all cases, genitive, the apostrophe does not mark an Associative function, as it does in other genitive cases expressing alienable possession. At least, it does not do so in all cases or unambiguously (see Bell and Portero, 2019). This results in a mismatch from function (two or more functions, namely Associative and a sort of Pseudo-partitive) to form (one form). From an FDG's perspective, this would be a case of mismatch in the mapping from the Representational to the Morphosyntactic Level, where a word order similar to modifier-head expressions is assigned, or between the Representational Level and Articulation, where an apostrophe is added.

(iii) Pseudo-partitives

As pointed out earlier, the time-measurement expressions addressed in this paper are semantically similar to pseudo-partitives (e.g. *ten years of marriage*), in spite of their different formal realization.

Hengeveld and Mackenzie (2008: 270) analyse similar cases as expressions with a Configurational head in which the second noun is assigned the function of Reference (Ref), and they represent them as shown in (22).

(22) *the volume of traffic*

$(q_i: [(f_i: [(f_j: \text{volume}_N\ (f_j))\ (e_i: [(f_k: \text{traffic}_N\ (f_k))\ (e_i)_\varphi])_{Ref}]\ (f_i))\ (q_i)_\varphi])$

This could be regarded as an example of mismatch in the mapping from the Representational Level to the Morphosyntactic Level, as the same meaning captured in the previous representation can be realized by means of different forms at the Morphosyntactic Level, where the preposition *of* is inserted in some but not all cases.

Keizer (2007) does not provide an account of pseudo-partitives within the theory of FDG, but she does so for partitive constructions (Keizer 2017). She proposes a Predication Frame, that is, a primitive of the Representational Level (see Section 3.1.1) to account for the formation of English partitives. She calls this the 'Subset-set Partitive Predication Frame', which can be represented as shown in (23) (Keizer 2017: 32).

(23) Subset-set Partitive Frame:

$(\pi\ ^{s}x_1: [(f_1)\ (\pi\ ^{s}x_2: (f_1: \blacklozenge))_{Ref}])$

Where the set symbolized by x_1 may be a singleton set or a plural set and the set symbolized by x_2 must be a plural set

the set symbolized by x_1 must contain fewer entities than (or an equal number of entities as) the set symbolized by x_2

A similar Frame could be proposed for the specific case explored in this paper. This will be the topic of the following section.

3.2.2 The time-measurement construction: an FDG proposal.

In Section 2.2 it was argued that expressions instantiating the Time-measurement construction are different from compounds in that the temporal element is not a modifier of the second noun, so that they cannot be regarded as a Word at the Morphosyntactic Level. The analysis of these cases as phrases (that is, as a pseudo-partitive or a genitive of measure) also fails to account for the lack of any formal marking at the Morphosyntactic Level (that is, neither preposition *of* nor apostrophe in some cases). Yet, semantics-wise, these expressions appear to favour a pseudo-partitive interpretation.

According to Feist (2012: 279), the choice of the 's genitive or the prepositional construction would be a matter of construal.

> How the speaker construes entities can be crucial. That is so quite often. In #*the work* ***of 43 days***, the genitive is descriptive and has content, so it fits modifying

> use. But it is not a good candidate for determiner function, since it is not deictic, or an abstract quantifier such as much. However, *43 days can be construed as an individuated unit of quantity*, and thereby as quantifying the work; in that construal it is acceptable as a determiner genitive: ***43 days'*** *work* (cf. much work). (emphasis added)

It should be noted that different interpretations are also possible even when there is no formal differentiation. Thus, in the case of pseudo-partitives, Keizer (2007: 151) concludes that the categorization of N1-of-N2 constructions is not straightforward and that the classification of authentic examples is not always easy, as a construction can be subjected to different interpretations depending on how the discourse participant conceptualizes an entity. For example, *a cup of coffee* can, in her view, be interpreted as a certain amount of coffee, in which case the construction would be analysed as right-headed. Alternatively, it could be interpreted as a concrete object containing some fluid, in which case it would be left-headed. Keizer (2007: 151) observes that these cases might result from the blending of two different conceptual domains (containment and quantification) in the mind of the language user, so that the construction would be located mid-way between two different categories.

In this paper, I will endorse Feist's observation on the genitive of measure. Drawing on Feist (2012: 279) the first time-denoting noun can be regarded as being construed as 'an individuated unit of quantity' and therefore as quantifying the entity denoted by the second noun. The use of the structure Num+pluralN1(time)+N2 will be regarded as the morphosyntactic expression of a different construal of an entity, where a specific time quantity is evoked. The construction under study is not an exception to the ambiguity that the genitive of measure and pseudo-partitive expressions are subjected to. However, FDG's complex architecture allows a more fine-grained representation of the meaning of the construction by means of the use of its layered structure, an improved semantic typology of entities and different types of primitives at each of the different levels (see Section 3.1.1).

(i) The Interpersonal Level

The use of an expression like *two hours journey* in or *four days' journeying* in (24) is, first of all, a strategic choice made by the speaker to single out an entity that will play a role in the message he/she wants to communicate, specifically a temporal quantity.

(24) a. *Holland is a small country with an excellent motorway system, in fact most areas of interest are within* ***two hours journey*** *from Amsterdam*. (BNC)

b. *Only on the very clearest days, when the air was like the purest well-water, shadowy blots appeared to the west and north to show where the forest came to an end at hills, mountains; but they were a world away, two, three,* ***four days' journeying****; if one dared.*

The representation in (25) captures the fact that the evocation of this entity is made by an Act of Reference, whose head typically consists of one or more Ascriptive Acts (T), reflecting the speaker's attempt to evoke a property. In *four days journeying*, for instance, the phrase as a whole constitutes a Referential Act (R_1) with two Ascriptive Acts (T_1 and T_2): one evoking the property 'day', and one evoking the property 'journey'.

(25) IL: (–id R_1: [(T_1) (T_2)] (R_1))

What this means is that these time-measurement expressions move the reference backwards, that is, that the actual entity referred to is on the left-hand side, a specific amount of time. The second noun corresponds to an act of Ascription, that is, a Property assigned to the head of the Referential Subact. This contrasts with the pragmatic status of the temporal unit in compounds like *a one-night stand*, where 'one night' is not referential.

(ii) The Representational Level

Moving on to the semantic characterization of the construction, we should first analyse what type of entity is evoked. In this case, the Speaker singles out an individuated quantity unit, more specifically, a temporal one. This should be easily accommodated within the theory, as Hengeveld and Mackenzie (2008: 135–136) include Quantity (q) in their list of semantic categories that are grammatically relevant (see Section 3.1.2).

In Section 3.1.2 it was mentioned that 'designations of frequency can be analysed as Quantities of time' (Hengeveld and Mackenzie 2008: 270), as shown in (26).

(26) *his rate of success* (i.e. how frequently he is successful in any time period).

Likewise, designations of periods of time of different length (e.g. *hour, day, week, month, year*) can be regarded as time quantities. Therefore, I suggest that the entity Quantity is also an appropriate unit to account for the time-measurement construction and that similar representations to those proposed by Hengeveld and Mackenzie (2008: 268–72) might be proposed to account for it. Thus, tentatively the expression *four days journeying* could be represented as shown in (27).

(27) (4q_1: [f_1: [(t_1: day$_N$ (t_1)) (f_1)): (e_i: [(f_2: journey$_N$ (f_2)) (e_i)])$_{Ass}$](f_1)(q_1)])

This representation shows that at the Representational Level, the construction as a whole is analysed as a Quantity (q_1) designating a plural period of time (indicated by the operator '4'). This Quantity has a configurational head (f_1) consisting of a temporal entity (t_1) 'day', and its modifier, which is assigned the lexical property (f_2) 'journey', designates a State-of-Affairs (e_1), and has the semantic function Ass(ociative).[1] However, in Section 3.2.1 it was pointed out that these expressions differ from genitives semantically. This semantic representation would trigger a word order corresponding to modifier-head structures at the Morphosyntactic Level, as well as possibly the insertion of an apostrophe ('*two days' journeying*') during Formulation, so it fails to account for the fact that the meaning of these expressions is pseudo-partitive.

Likewise, a representation like that in (22) would fail to account for the lack of insertion of the preposition 'of' at the Morphosyntactic Level.

The fact that reference is made to a different type of entity in these expressions, a temporal quantity, is shown by the possibility of singular concord with the verb with time

[3] Notice, however, that Hengeveld and Mackenzie (2008: 270–271) assign the Reference function to the second noun in quantity expressions like 'the volume of traffic' or twelve large sacks of cement'.

measure expressions, as can be seen in the example in (28) (from Huddleston and Pullum 2005: 89):

(28) *Ten days **is** a long time to be on your own*

The form of the temporal expression *ten days* is plural. However, it denotes a quantity or measure that is conceptualized as a single abstract entity, 'a single block of time' (Huddleston and Pullum 2005: 89). Similar examples are found with time-measurement expressions, as can be seen in (29).

(29) a. *two hours play **was** lost during the morning session and Wales were finally set a target 228 runs in 127 minutes plus 20 overs.* (BNC)[1]

b. *Because of the caves' varying depths, 25 minutes decompression **was** required before removing the two front mounted cylinders,* […](BNC)

c. *In some countries four years training **is** the norm;* (BNC)

Further evidence for this singular conceptualization is provided by the possibility of these quantity nouns to occur with a singularizing determiner, as shown in the examples in (30).

(30) a. ***That ten days** we spent together in Paris was wonderful*. (Huddleston and Pullum 2005: 89). (BNC)

b. *It ended up being **a** great three days music and two weeks later, I was with The Waterboys*. (BNC)

c. *We can only guess whether inter-racial bickering – or even rows over bad food! – might explain such **a** bizarre two days' events*. (BNC)

In addition, the existence of cases like (31) shows that these time-measurement expressions designate a quantity of whatever (second order) entity is denoted by the second noun. Thus, in (31) the time measurement expressions 'three months rental' and 'six weeks leave' are part of a noun phrase headed by the relational nouns 'period' and 'maximum', requiring the specification of a quantity.

(31) a. *as far as I can gather, I don't know, I'd imagine where a line has **a minimum period of three months rental.*** (BNC)

b. *This can increase to **a maximum of six weeks leave**, depending on your length of service and grade.* (BNC)

The meaning in all these examples is that the duration of a period of time for rental or leave is the quantity of time referred to by the time measurement expression, that is, 'the minimum period of rental is three months' or 'the maximum (duration) of leave is six weeks.'

[4] British National Corpus.

Finally, examples like that in (32) further support the analysis of the designation of the first noun as a time Quantity.

(32) *Ten minutes drive **later**, we finally found the field he had noticed.* (BNC)

FDG's typology of linguistically relevant semantic categories is therefore crucial for the description of this construction. This typology is also highly relevant because the construction appears to be restricted to -or, at least, it shows a marked preference for States-of-Affairs, that is, second order entities, as heads of the modifier second noun (Bell and Portero, 2019). This can be easily explained by the fact that the temporal dimension is an intrinsic semantic property of these nouns, so that, when they need to be measured, they can be quantified in terms of a time quantity. Similarly to pseudo-partitives, and in contrast to proper partitive constructions, the two nouns in time-measurement expressions do not share the same denotation. Thus, the first noun does not refer to a smaller amount of the entity denoted by the second noun, but to a quantity of a time entity in terms of which the entity denoted by the second noun can be measured.

In addition, Biber et al. (1999: 293) note that that the time measure expression is typically plural, and the second slot is occupied by an uncountable noun. In Bell and Portero (2019), it is shown that what this noun usually designates is a second order entity, rather than an uncountable noun, as already mentioned. An additional property is that this noun does not take any determiners, as shown in (33a). By contrast, the presence of an indefinite article and a singular countable noun in the second slot triggers the singular of the time measure expression and a different interpretation of the sequence, as can be seen in (33b).

(33) a. *About **20 minutes flight** from Papeete (the capital of Tahiti) is the famous [private atoll of Marlon Brando] Tetiaroa, perhaps the most photogenic of the populated islands.* (BNC)

'20 minutes of flight' (how far is Tetiora?)

b. *It was **a two-hour flight** that Mother's Day evening and Gary Eastburn spent every second of it worrying about what had happened to his family.* (COCA)

'a flight lasting 2 hours' (how long is the flight?)

A different issue is to determine the headedness of these expressions. My preferred analysis is to regard the temporal noun as the head of a time quantity expression and the second noun as its modifier. By looking at some examples from the corpus some evidence can be found to support this analysis. For example, the construction is notoriously frequent in temporal/durative phrases like that in (34), requiring a time noun as head:

(34) *On each occasion the band played **for more than 10 hours continuous dancing**.* (BNC)

In (34) the verb 'played' is modified by a prepositional phrase that denotes duration. The head of this phrase is the temporal noun 'hours', which is then modified by 'continuous

dancing' ('played for more than ten hours', NOT 'played for continuous dancing of more than 10 hours'). Similar cases are given in (35), where the time expressions ('five minutes or less', 'two hours per week' and 'about three and two hours respectively') are interrupted by their modifier.

(35) a. *within **five minutes** level walk or less of the shops, licensed bars, […] **two hours** voluntary service **per week**.*

b. *Procedures a) and b) will require **about three and two hours** elapsed time **respectively**.*

In (36) the verb 'save' (in the meaning 'to prevent time, money, or effort being wasted or spent') requires a temporal noun that functions as the head of the verb's argument.

(36) *A further advantage is that the amateur can also **save** 20 years practice*. (BNC)

Likewise, in (37) it is clear that 'the first of seven days' does not modify 'weather' (*the first of bad weather of seven days, *bad weather of the first of seven days) but specifies a quantity and is the (complex) head of the expression.

(37) *We were caught on our last night at Dhundi by **the first of seven days bad weather***. (BNC)

Notice that nouns in the second slot are not required by the meaning of the temporal nouns, as the latter are not relational. That is, while in expressions like *an amount of cheese, a period of three months* there must be an amount of something or a period of a specified duration, in *three months leave* the head noun does not require an argument in the same way.

Further evidence for the analysis of the second noun as a modifier of the temporal noun is that time-measurement expressions are often found as part of a larger structure in which the second noun can be omitted, as shown earlier in (31).

Keizer (2017) makes a similar observation as regards partitive constructions like *one of the boys* and concludes that the argument is required by the construction as a whole, not by the semantics of the head, so she proposes a Predication Frame (a primitive of the RL) to account for the formation of English partitives, as mentioned in 3.2.1. Drawing on Keizer's (2017) proposal for a number of frames to capture different types of partitive expressions, a similar frame like that in (38) could be proposed to account for the time-measurement expressions instantiated by *three months leave, two hours journey* and the like.

(38) The Time-measurement frame

(mq_i: [(f_i: [+time]) (e_i: (f_j: ♦))]),

where the entity symbolized by q_1 must be a plural quantity (m), headed by a lexical property (f_i) denoting time and

the entity symbolized by e_1 must be a State-of-Affairs, headed by a lexical property (f_j). In this case there is no slot available for operators.

The combination of these pragmatic and semantic properties (reference to a specific time quantity by the first noun, designation of a second order entity by the second noun, -s final mark of the first noun and non-referentiality of the second noun) triggers a specific mapping at the Morphosyntactic Level.

(iii) The Morphosyntactic Level

The Morphosyntactic Level captures the actual form of the construction. Two formal properties of the construction deserve closer inspection: the apparent plurality of the first noun and the absence of the preposition *of*.

a. Plural N1

English morphology does not allow plural inflection in the first component of compounds. Even though some exceptions are found (Bauer 2017: 140–148), this property supports the analysis of these constructions as a unit different from compounds. This 'non-compound' analysis is nevertheless challenged by the absence of any formal marking (that is, no preposition and no apostrophe) between the two nouns, which results in compound-like expressions.

b. Omission of the preposition. The function of *of*

When drawing a distinction between partitives and pseudo-partitives, Keizer (2007: 111, 149) refers to Selkirk's (1977) observation that the preposition *of* can sometimes be omitted in pseudo-partitives, as shown in example (9), repeated here for convenience.

(9) a. *She bought him a dozen (*of) daffodils*.
b. *She bought him a dozen *(of) those daffodils*.

In Keizer's view this seems to suggest that in pseudo-partitives the element 'of' does not form a constituent with the following noun. According to her, this could be used as evidence for the analysis of *of* as a separate linking element, required by complex quantifiers consisting of a determiner and a noun when followed by another noun to follow the prototypical pattern of head-complement constructions.

However, if the element *of* is a kind of marker of a head-complement construction, this poses the question of what type of unit the (preposition-less) Time-measurement construction is or, at least, how can the second noun be best analysed. The reason why omission of *of* is not occasional in our construction but a defining formal property might be that these expressions do not instantiate head-complement constructions. The semantic function of the argument in partitives is represented by Ref(erence) in FDG, which unlike the argument of verbal (derived) predicates, must be introduced by a linking element, which is usually, though not necessarily, the preposition *of*. By contrast, the function Associative is used for possession and is assigned to modifiers (such as *the women's* bicycle). Hence, this was the function assigned to the second noun in the provisional semantic representation in (27). However, Keizer (2017: 32, n16) notes that the semantic

relation that partitives express is different: 'it might be argued that yet another semantic function is needed to trigger partitive-*of*, since it codes a different semantic relation.' This might explain why the preposition is omitted in time-measurement expressions, where a different function or no function at all seems to be expressed.

Previous accounts of the element *of* appear to provide some kind of explanation to its omission. Jackendoff (1977: 120) analysed it as a purely grammatical element linking the two nouns (e.g. [NP [NP a bunch] [of] [N' men]]). Jackendoff's analysis appears to be the best option to account for the function of the preposition, as the lack of semantic content/ lexical function added by it makes it unnecessary.

At the Morphosyntactic Level, the Time-measurement construction can be represented as shown in (39), that is, a Noun Phrase (Np_1, corresponding to R_1 and q_1) which has a Nominal Word, Nw_1 (*day* in this case) as its head and a slot to accommodate any operators, such as determiners, especially numerals (like *four* in (39)) and, optionally, definite articles and possessives). Subsequently, there is a second Nominal Word corresponding to e_1. However, this second noun does not correspond to R at the Interpersonal Level, as is shown by the fact that no determiners precede it (note that when this second noun takes a determiner the partitive interpretation is cancelled, as in *a four-day journey/ that four-day journey/ my four-day journey*, meaning 'journey lasting four days'). Finally, the absence of a semantic function does not trigger the insertion of preposition *of* as a constructional property, that is, a property triggered by the specific semantic frame accounting for these expressions.

(39) ML: (Np_1: [(Gw_1: four) (Nw_1: day-PL) (Nw_2: journey)])

4. Conclusion

In this paper I have tried to show the adequacy of the theory of FDG to account for a case of gradience instantiated by a specific Time-measurement construction. More specifically, the construction explored in this paper has been shown to be an example of lack of transparency in English (Hengeveld 2011) and as a relevant case in a study of linguistic interfaces.

The fuzziness of this construction results from sharing properties with two or three other constructions, not being a good example of any of them. Thus, expressions like *three months maternity leave* appear to have the same meaning as the related pseudo-partitive expressions with a postmodifier (e.g. *three months of maternity leave*). However, these two pseudo-partitive expressions are different at the Morphosyntactic Level, as their morphosyntactic form is different. In the case of *three months of maternity leave,* the entity to which the measure expression is related takes the form of an Adpositional Phrase introduced by *of*, which encodes the representational meaning successfully, resulting in a clear interpretation. By contrast, no formal mark of the relation between the two nouns 'month' and 'leave' appears in cases like *three months maternity leave.* The failure in the representational-morphosyntactic mapping brings about semantic fuzziness, so that these expressions have been usually analysed as a modifier-head unit, that is, compound-like.
Lying at the boundary between compounds and phrases, this time measurement construction is a good example of the interface between what are usually regarded as different linguistic modules in the linguistic tradition, specifically, the morphology-syntax

interface. From an FDG's perspective, it illustrates a mismatch between semantics and formal expression, that is, between the Representational and Morphosyntactic Levels, as the form of these expressions does not code their meaning in the expected way. While examples of gradience like this one pose a challenge to linguistic theories, an account of these apparently fuzzy expressions from an FDG's perspective can benefit from the enriched architecture of the theory.

Firstly, examples of the Time-measurement construction have been differentiated from compounds. Thus, the compounds *a one-night stand* or *a three-year course* ('a course lasting three years') have been represented as shown in (40).

(40) RL: (e_1: [(f_1: $stand_N$ (f_1)): ($1q_1$: [(t_1: $night_N$(t_1))] (q_1)) (f_1))] (e_1))

This representation shows that the time expression 'night' (t_1) modifies the property f_1, which is the head of the expression and designates a State-of-Affairs (e_1).

By contrast, in the pseudo-partitive expression in (41), the time expression is not a modifier. Instead, it is the head of the expression and the quantified noun can be analysed as an internal argument with a Reference function (see Hengeveld and Mackenzie 2008: 270).

(41) *three years of experience*

RL: ($3q_1$: [(f_i: [(f_j: $year_N$ (f_j)) (e_1: [(f_k: $experience_N$ (f_k)) (e_i)])$_{Ref}$] (f_i)) (t_i)])

Finally, the difference in the formal expression of the time-measurement construction, which is also semantically pseudo-partitive, has been accounted for by proposing a specific frame at the Representational Level, similar to the frames proposed by Keizer (2017) for partitive expressions. This frame contains a number of semantic properties (for example, the presence of a plural time quantity in the first slot and a non-specific second order entity in the second, as proposed by Bell and Portero (2019), that trigger a distinctive preposition-less expression at the Morphosyntactic Level.

By means of the architecture of the theory of FDG the distinctions between the different cases can be accounted for adequately at the different levels of linguistic representation. The interface issue triggered by the mismatch in the meaning-form mapping of the different related expressions is successfully avoided by making fine-grained distinctions at the Representational Level.

Acknowledgements

The present research has been conducted within the framework of the research group HUM693 Lingüística Cognitiva y Funcional (LINCOFU) (Autonomous Government of Andalusia). I am indebted to the participants in the 'IW-FDG-2019 Interfaces in Functional Discourse Grammar', where it was originally presented, especially to Evelien Keizer for her inspiring work on the topic and her insightful comments. I am also grateful to three anonymous reviewers for their positive feedback.

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