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Recent Developments in Functional Discourse Grammar

Edited by
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Hella Olbertz

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Abbreviations

Non-standard abbreviations used in glosses

AI	animate intransitive	INFRN	inferential
AN	animate	NARR	narrative converb
AOR	aorist	OBV	obviative
APPL	applicative	PART	partitive
ASP	aspect	PERAMB	perambulatory
CONJ	conjunct, conjunction	POST	posterior
CORR	correlative	PREP	preposition
DIR	direct	PSTPRF	past perfect
DPL	duplicative	PUNC	punctual
EC	epenthetic consonant	REL	relational
FACT	factive	REP	reportative
FIN	final	SEMITRANS	semitransitive
FORM	formal address	TA	transitive animate
FRUSTR	frustrative ('in vain')	TEMP	temporary
HORT	hortative	TI	transitive inanimate
HUM	human	TNS	tense
IDP	independent conjugation	TRS	translocative
IMPF	imperfect	V	verb
INAN	inanimate	VOL	volition

Abbreviations used in representations

Interpersonal Level

[±A]	involving the addressee	IL	Interpersonal Level
[±S]	involving the speaker	IMP	imperative
±id	identifiable	INTER	interrogative
±s	specific	M_1	Move
A	Addressee	$P_{1,2}$	Speech-act participant
A_1	Discourse Act	PROH	prohibitive
aff	affected	R_1	Subact of Reference
C_1	Communicated Content	S	Speaker
DECL	declarative	SubTop	Sub-Topic
DISHORT	dishortative	T_1	Subact of Ascription
F_1	Illocution	Top	Topic
Foc	Focus		

Representational Level

1	singular	m	plural, more than one
π	operator	m_1	manner
σ	modifier	neg	negation
Ø	zero	p_1	Propositional Content
$	lexical item	past	past tense
A	Actor	poss	possibility
Adp	Adposition	q_1	Quantity
Aff	affected	r_1	Reason
antn	Antonymy	Ref	reference
e_1	State-of-Affairs	res	result
ep_1	Episode	RL	Representational Level
f_1	Property	sim	simultaneous
f^c_1	Configurational Property	t_1	Time
f^l_1	Lexical Property	U	Undergoer
fut	future	v_1	variable
L	Locative	x_1	Individual
l_1	Location		

Morphosyntactic Level

$Adpw_1$	Adposition	P^I	initial position
$Adpp_1$	Adpositional Phrase	P^M	medial position
Aff_1	Affix	P^{Post}	postclausal position
Ap_1	Adjectival Phrase	P^{Pre}	preclausal position
Aw_1	Adjectival Word	Subj	Subject
Cl_1	Clause	Vp_1	Verb Phrase
Obj	direct object	Vr_1	Verbal Root
Gw_1	grammatical Word	Vs_1	Verbal Stem
Le_1	Linguistic Expression	Vw_1	Verbal Word
ML	Morphosyntactic Level	Xm_1	morpheme of any category
Np_1	Noun Phrase	Xp_1	phrase of any category
Nr_1	Nominal Root	Xr_1	root of any category
Ns_1	Nominal Stem	Xs_1	stem of any category
P^F	final position	Xw_1	word of any category

Phonological Level

f	falling
IP	Intonational Phrase
PL	Phonological Level
PP	Phonological Phrase
PW	Phonological Word
U	Utterance

Other abbreviations

BI	Binominal Intensifier
BP	Brazilian Portuguese
CI	Conventional Implicature
EBNP	Evaluative Binominal Noun Phrase
EM	Evaluative Modifier
EP	European Portuguese
EPC	External Partitipant Construction
FDG	Functional Discourse Grammar
FG	Functional Grammar
GG	Generative Grammar
IL	Interpersonal Level
IPC	Internal Participant Construction
ML	Morphosyntactic Level
NI	Noun Incorporation
NPI	Negative Polarity Item
PAH	Pronominal Argument Hypothesis
PL	Phonological Level
POSS	possibility
PNC	Productive Noninflectional Construction
RL	Representational Level
RRG	Role and Reference Grammar
SAP	Speech Participants
SoA	State-of-Affairs
SVO	Subject Verb Object order
VAI	Animate Intransitive Verb
VII	Inanimate Intransitive Verb
VTA	Transitive Animate Verb
VTI	Transitive Inanimate Verb

Functional Discourse Grammar

A brief outline

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1. Introduction

This volume brings together a number of papers using the theory of Functional Discourse Grammar (FDG) to analyse and explain a number of specific constructions or phenomena in a range of languages. In addition to applying the theory to the topics in question, however, these papers aim to contribute to the further development of the theory by modifying and extending it on the basis of new linguistic evidence, thus providing the latest state-of-the-art in FDG. The volume as a whole does more than this, as separately and together the papers collected here aim to demonstrate how FDG, with its unique architecture, can provide new insights into a number of issues and phenomena that are currently of interest to theoretical linguistics in general. We therefore hope that this volume will be useful to a wide circle of linguists, irrespective of their theoretical persuasion.

The seven chapters in this volume are all based on papers presented at the fourth biennial Conference on Functional Discourse Grammar, held at the University of Vienna in 2016. The fact that this was only the fourth biennial conference indicates that FDG is a relatively young theory; and indeed, it was presented as a complete model for the first time in Hengeveld & Mackenzie's (2008) landmark publication. The theory is, however, part of a much older tradition, having been gradually developed from Simon Dik's (1997a,b) Functional Grammar, and adopting its predecessor's underlying principles as well as its typological orientation.

In what follows, we will first discuss the basic assumptions underlying the theory of FDG, as well as the theory's position in the functional paradigm (Section 2). We will then present the distinctive features and overall organization of the theory (Section 3), before providing a broad indication of how the theory can be used to model two important linguistic phenomena: transparency (Section 4) and language change (Section 5). Finally, Section 6 will briefly introduce the seven chapters.

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2. A general characterization of the model

Functional Discourse Grammar, like its predecessor Functional Grammar, is firmly rooted in the functional paradigm, in that it views language first and foremost as a means of communication, and regards the form of language as emerging from its communicative function. Within the functional paradigm, however, FDG takes a moderate stance in that it recognizes that, although shaped by use, and as such subject to constant change, "in synchronic terms the grammar of a language is indeed a system, which must be described and correlated with function in discourse" (Butler 2003: 30). FDG thus "seeks to reconcile the patent fact that languages are structured complexes with the equally patent fact that they are adapted to function as instruments of communication between human beings" (Hengeveld & Mackenzie 2008: ix; cf. Dik 1997a: 3); using Van Valin's (1993) terminology, FDG can be characterized as a 'structural-functional' theory of language.

Like all functional approaches, what is at the heart of FDG is the relation between function and form. More specifically, FDG takes a "function-to-form" approach, taking as its input a speaker's communicative intentions, which, through processes of Formulation and Encoding (see below), lead to a specific linguistic form. At the same time, however, FDG is "form-oriented", in that it only seeks to account for those pragmatic and semantic phenomena that are reflected in the morphosyntactic and phonological form of an utterance (e.g. Hengeveld & Mackenzie 2008: 39). Finally, unlike most functional approaches, FDG makes use of a sophisticated formalism to allow for a concise and precise representation of both the functional and the formal properties of languages. Together, these characteristics provide FDG with its unique position in what Butler & Gonzálvez García (2014) describe as "Functional-Cognitive space".

3. The Architecture of FDG

3.1 Distinctive features and overall organization

So how are these general characteristics reflected in the organization of the model? First of all, the "function-to-form" approach is mirrored in the model's top-down organization, which starts with the speaker's intention and then works its way down to articulation. In this way, "FDG takes the functional approach to language to its logical extreme", as pragmatics is taken to govern semantics, pragmatics and semantics to govern morphosyntax, and pragmatics, semantics, and morphosyntax to govern phonology (Hengeveld & Mackenzie 2008: 13). The privileged role of pragmatics is further reflected in the fact that FDG takes the Discourse Act as

its basic unit of analysis. This means that FDG can accommodate not only regular clauses, but also units larger than the clause, such as complex sentences, and units smaller than the clause, such as holophrases.

In order to represent all linguistic information relevant for the formation of a linguistic expression, FDG analyses Discourse Acts in terms of independent pragmatic, semantic, morphosyntactic and phonological modules, which interact to produce the appropriate linguistic forms (see below). Together, these four levels, and the primitives feeding into these levels, form the Grammatical Component of the model (the FDG proper). This component, however, does not operate in isolation, but forms part of an overall model of verbal communication. Thus, in accordance with the basic principles of the functional approach, the Grammatical Component interacts with a Contextual Component, containing non-linguistic information about the immediate discourse context that affects the form of a linguistic utterance (see also Connolly 2007, 2014; Cornish 2009; Alturo et al. 2014; Hengeveld & Mackenzie 2014). Finally, in order to capture the interaction between the production of a linguistic expression and the speaker's communicative intentions, the Grammatical Component also interacts with a conceptual component, which contains the prelinguistic conceptual information relevant for the production of a linguistic expression, and which forms the driving force behind the Grammatical Component (see e.g. Connolly 2017). A general outline of the model is given in Figure 1.

As we can see from Figure 1, the Grammatical Component consists of, on the one hand, several types of primitives (given in boxes), and, on the other hand, of four levels of analysis, capturing the discourse-pragmatic, semantic, morphosyntactic and phonological properties of a linguistic expression.

Primitives can be regarded as the building blocks needed for the construction of an utterance: they are ready-for-use elements that together make up the long-term linguistic knowledge of the speaker of a language. Primitives come in three kinds. First, there are the structuring primitives, frames and templates, which define the possible combinations of elements at each level. The second set of primitives consists of the relevant linguistic elements at each level: lexemes and grammatical morphemes. The third set of primitives contains operators, which represent grammatical information at each of the levels, e.g. identifiability of a referent at the Interpersonal Level, and number, tense and aspect at the Representational Level.

In constructing a linguistic utterance, the speaker first selects the appropriate primitives: first frames, then operators and modifiers. These subsequently feed into the operations of Formulation (for the two higher levels) and Encoding (for the two lower levels), which convert the input into representations at the four levels of analysis. Each of these representations consists of a number of hierarchically structured layers, each representing a particular kind of linguistic unit. The four levels and their internal structure will now be discussed in some detail.

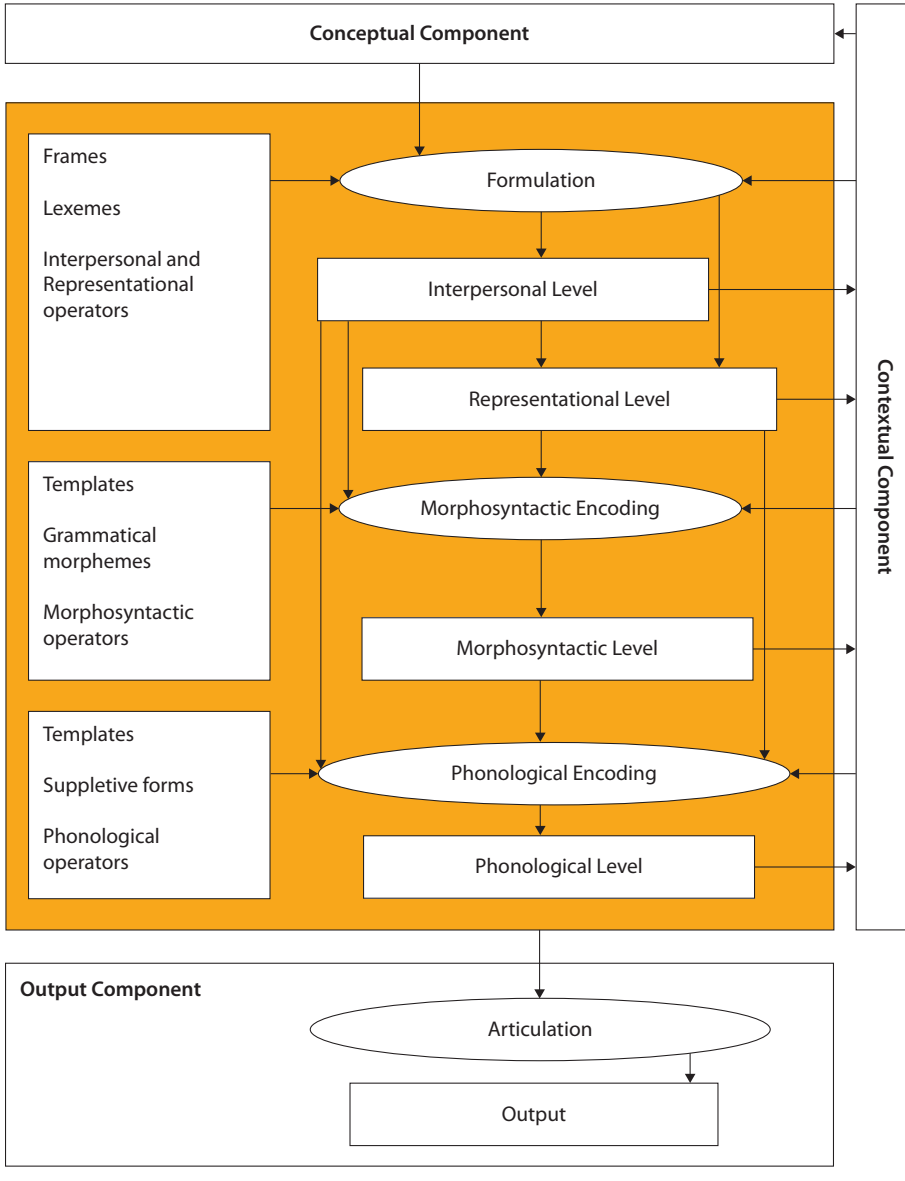

Figure 1. General layout of FDG (based on Hengeveld and Mackenzie 2008: 13)

3.2 Four levels of analysis

The highest level of representation is the Interpersonal Level (IL), which deals with "all the formal aspects of a linguistic unit that reflect its role in the interaction between the Speaker and the Addressee" (Hengeveld & Mackenzie 2008: 46). The most inclusive layer at this level is the Move, represented by the variable M, which describes the entire segment of discourse relevant at this level. The Move consists of one or more Discourse Acts (A), which together form its (complex) Head. Each Discourse Act in turn consists of an Illocution (F), the Speech Participants (P_S and P_A) and a Communicated Content (C). Finally, within the Communicated Content, one or more Subacts of Reference (R) and Ascription (T) are evoked by the Speaker. Each of these layers is provided with a slot for operators and modifiers.

By way of illustration, consider the sentence in (1):

(1) a. The student supposedly threatened a teacher.
b. $(M_I: (A_I: [(F_I: \text{DECL } (F_I))\ (P_I)_S\ (P_J)_A\ (C_I: [(T_I)\ (+\text{id } R_I)_{Top}\ (-\text{id } R_J)_{Foc}]\ (C_I): \text{supposedly } (C_I))]\ (A_I))\ (M_I))$

In (1) we find a Move, consisting of a single Discourse Act, which in turn consists of a declarative Illocution, the two Speech Participants, and a Communicated Content. The Communicated Content consists of a Subact of Ascription, evoking the property 'threaten', and two Subacts of Reference, evoking the entities described as *the student* and *a teacher*. Both these Subacts are specified by an operator: '+id' in the case of R_I, indicating that the Speaker assumes the entity in question to be identifiable for the Addressee (and triggering the use of the definite article), and '–id' in the case of R_J, indicating that the Speaker assumes the entity in question to be unidentifiable for the Addressee, (and triggering the use of the indefinite article). Moreover, the first Subact of Reference is assigned the pragmatic function of Topic, indicating that the entity in question is related to the ongoing discourse, triggering placement in initial position; the second Subact of Reference is assigned the pragmatic function Focus, indicating that this Subact provides the new, or most salient, information within the Discourse Act, resulting in prosodic prominence. Finally, the Communicated Content is modified by the hearsay adverb *supposedly*, indicating that the speaker is relaying information obtained from someone else. This adverb is the only lexical element specified at the Interpersonal Level, because it has an interpersonal (Speaker-oriented) function, as opposed to the other lexical elements in example (1a), which have a descriptive function.

The Representational Level (RL) deals with the semantic aspects of a linguistic unit, i.e. those aspects of a linguistic expression that reflect the way in which language relates to the real or imagined world it describes. The units at this level represent the different linguistically relevant types (or orders) of entities in the extra-linguistic

world (Lyons 1977: 442–447; Hengeveld & Mackenzie 2008: 131). The highest layer at this level is that of the Propositional Content (p), which represents a mental construct which can be evaluated in terms of its truth. The Propositional Content consists of one or more Episodes (ep), i.e. sets of States-of-Affairs that are coherent units in terms of time, space and participants. Each State-of-Affairs (e) is, in turn, characterized by a Configurational Property (f^c), consisting typically of a Verbal Property (f) and one or more Individuals (x). These Individuals are typically headed by a Nominal Property.

Consider example (2):

(2) a. Yesterday an aggressive student threatened the teacher.
b. (p_i: (past ep_i: (e_i: (f^c_i: [(f_i: threaten (f_i)) ($1x_i$: (f_j: student (f_j)) (x_i)): (f_k: aggressive (f_k)) (x_i))$_A$ ($1x_j$: (f_l: teacher (f_l)) (x_j))$_U$] (f^c_i)) (e_i)) (ep_i)): (t_i: yesterday (t_i)) (ep_i)) (p_i))

This sentence consists of a Propositional Content p_i, containing a single Episode ep_i. This Episode contains a single States-of-Affairs e_i, headed by a Configurational Property f^c_i, consisting of the Verbal Property f_i (*threaten*) and two Individuals x_i and x_j, each restricted by a nominal head (*student* and *teacher*, respectively). The sentence contains two modifiers: the time modifier *yesterday*, modifying the Episode, and the adjectival modifier *aggressive*, modifying the first argument x_i. In addition, there are two types of operator: the past tense operator 'past' at the layer of the Episode, and the singularity operator '1' specifying both Individuals. Finally, the two participants are assigned the semantic roles of Actor and Undergoer, respectively.

This is where the operation of Formulation ends; the next two levels are levels of Encoding, where no additional meaning components can be added. The first of the levels of Encoding, the Morphosyntactic Level (ML), accounts for all the linear properties of a linguistic unit, both with respect to the structure of sentences, clauses and phrases and with respect to the internal structure of complex words. The largest unit of analysis at this level is that of the Linguistic Expression (Le), which typically contains one or more Clauses (Cl). Clauses, in turn, may consist of one or more Phrases and Words, as well as of other Clauses. Phrases may contain one or more Words, as well as other Phrases or Clauses. Words, finally, consist of one of more Morphemes, which come in three types: Stems, i.e. Morphemes with lexical content that can be the sole element within a Word; Roots, i.e. Morphemes with lexical content that can only occur in combination with another Stem or Root; and Affixes, which lack lexical content and can only be used in combination with a Stem or Root. Phrases, Words, Stems and Roots are further categorized on the basis of the kind of head they have. Thus there are, for instance, Verbal Phrases (Vp), Nominal Phrases (Np) and Adjectival Phrases (Ap), as well as Verbal Words (Vw), Nominal Words

(Nw) and Adjectival Words (Aw). In addition, there are Grammatical Words (Gw), which typically correspond to operators at the levels of Formulation. Finally, it is at this level that the syntactic functions Subject and Object are assigned. A morpho-syntactic analysis of the sentence in (3a) is given in (3b):

(3) a. The student threatened a teacher.
b. $(Le_i: (Cl_i: [(Np_i: [(Gw_i: \text{the } (Gw_i)) (Nw_i: (Ns_i: \text{student } (Ns_i)) (Nw_i))] (Np_i))_{Subj}$
$(Vp_i: (Vw_i: [(Vs_i: \text{threaten } (Vs_i)) (Aff_i: \text{past } (Aff_i))] (Vw_i)) (Vp_i))$
$(Np_j: [(Gw_j: \text{a } (Gw_j)) (Nw_j: (Ns_j: \text{teacher } (Ns_j)) (Nw_j)) (Np_j))_{Obj} (Cl_i)) (Le_i))$

Finally, the Phonological Level receives its input from the other three levels.[1] The largest phonological unit is the Utterance (U), which consists of one or more Intonational Phrases (IP), which, in turn, consist of one or more Phonological Phrases (PP). Each Phonological Phrase consists typically of one or more Phonological Words (PW), which can be further analysed in Feet (F) and Syllables (S). A simplified phonological representation of example (4a) is given in (4b). This representation contains one operator, 'f', indicating a falling intonation at the layer of the Intonational Phrase (triggered by the presence of a Declarative Illocution at the IL).

(4) a. The teacher complained.
b. $(f\ IP_i: [(PP_i: / ðəˈti:tʃə / (PP_j)) (PP_j: / kəmˈpleɪnd / (PP_j))] (IP_j))$

3.3 Relations between the levels

It will be clear that languages are characterized by default relations between the layers postulated at the four levels. Discourse Acts, for instance, tend to correspond to Propositional Contents at the RL, Clauses at the ML and Intonational Phrases at the PL. Similarly, Subacts of Reference typically correspond to Individuals at the RL, Nominal Phrases at the ML and Phonological Phrases at the PL, while Subacts of Ascription tend to correspond to Verbal or Adjectival Properties at the RL, expressed as Verbal and Adjectival Words at the ML and Phonological Words at the PL.

The reason for distinguishing different levels is that there are also non-default relations. For instance, as already pointed out, Discourse Acts need not be expressed as Clauses, but may consist of a single Word, e.g. *Congratulations*, or Phrase, e.g. *by bus*. Nor do all Subacts of Ascription correspond to Verbal or Adjectival Properties at the RL, and Verbal and Adjectival Words at the ML: non-referential Nominal Phrases (e.g. predicatively-used NPs like *a teacher* in *My brother is a teacher*), corresponding

1. This is not always the case: distinctions made at the Interpersonal Level, for instance, may be directly expressed at the Phonological Level, as in the case of interjections and vocatives.

to Individuals at the RL, are nevertheless analysed as Subacts of Ascription at the IL, since they are used to ascribe a property rather than to evoke a referent.

In these cases the relations between the levels, although of a non-default nature, hold between single elements at all of the four levels. This, however, is not always the case: one-to-many and many-to-one relations also exist. These will be discussed in the next section.

4. Transparency

Transparency is generally defined as a one-to-one relation between meaning and form (e.g. Langacker 1977: 110; Carstairs-McCarthy 1987: 13; Dik (1988) uses Haiman's (1980) notion of isomorphism). Different types of transparency have been distinguished, depending on which domain, or level, of description they apply to. Semantic transparency, for instance, is often defined in terms of semantic compositionality, i.e. the degree to which the overall meaning of a phrase or clause is predictable from the meanings of its component parts; non-compositional expressions like idioms, for instance, are regarded as being non-transparent. Morphosyntactically, non-transparency may manifest itself in the form of redundancy; in the case of phrasal agreement, for instance, a semantic feature (e.g. number) is coded twice. Finally, phonological non-transparency can be found in contractions and reduced forms, as in the fusion of Spanish *de* 'of, from' with the masculine singular article *el* into the single element *del.* A further example is verbal inflection, where person, number, tense, aspect and mood features may be fused in one suffix, as in the verb *agrediu* in the following example from Portuguese.

(5) *O estudante agrediu o professor.*
the.M student attack.IND.PST.PFV.3SG the.M teacher
'The student attacked the teacher.'

As shown in a number of publications (Hengeveld 2011a; Leufkens 2013, 2015; Gomes Camacho & Goreti Pezatti 2017; Hengeveld & Leufkens 2018), the organization of FDG makes it possible to define transparency relations more precisely, by capturing them in terms of the way in which units at the four levels of representation correspond to each other. In other words, an expression is transparent when each of the units it contains corresponds to exactly one layer at each level of representation, i.e. when there is a one-to-one relation between units at each of the four levels. This means that non-transparency (or opacity) may indeed result from a lack of one-to-one relationships between meaning and form, i.e. between Formulation and Encoding, but may also result from mismatches within Formulation, i.e. between

the Interpersonal and Representational Levels, and within Encoding, i.e. between the Morphosyntactic and Phonological Levels.

In addition, different categories of non-transparency can be distinguished by looking more closely at the nature of the mismatch between two levels (Leufkens 2015: 16–20). Apart from redundancy and fusion, which we mentioned above, there is, for instance, discontinuity, i.e. cases where a single unit at a higher level is expressed as two subcomponents at a lower level. This is what we find in the case of raising, where an argument of an embedded State-of-Affairs at RL is expressed as the subject of a clause corresponding to the matrix State-of-Affairs. An example is given in (6b), where the Actor argument of the State-of-Affairs 'the student threatened a teacher' is realized as the subject of the matrix verb *seem*; the embedded State-of-Affairs, in other words, is syntactically realized as two incomplete components.

(6) a. It seems that *the student* has threatened a teacher.
b. *The student* seems to have threatened a teacher.

Finally, note that the non-raised construction in (6a) displays another type of non-transparency, namely that of 'form-based-form', whereby an element at a lower level does not correspond to any higher-level unit (a null-to-one relation). This type of non-transparency is found in the case of dummy-elements, like *it* in (6a), which is inserted at the ML to fill the obligatory subject position, but which does not correspond to any unit at the IL or RL.

As various studies have shown, languages differ with regard to both the kind and the number of non-transparent features they contain (Kusters 2003; Hengeveld 2011a; Leufkens 2015); as a result, some languages may be characterized as more transparent than others. The FDG approach to transparency makes it possible to order transparent and opaque features into an implicational transparency hierarchy, and, consequently, to rank languages on a transparency scale.

5. Language change

Systematic changes in the use of a particular constructions in a language can lead to changes in the grammatical system of that language. First, whether inspired by functional need or as a result of language internal factors, new patterns emerge in discourse, leading to non-default relations in the grammar. Subsequently, the grammar may adapt itself to the new situation, establishing a new, conventionalized relation between function and form. As is well-known, these processes may concern both the lexicon and the grammar of a language. Without going into much detail, what follows gives an impression of how these processes can be captured in FDG.

The process of grammaticalization, which is generally assumed to be unidirectional, can be defined as the emergence of a new operator (from a lexeme or phrase). Once grammaticalized, the item in question can develop further, moving in an outward direction to the next layer (e.g. Hengeveld 2011b; Dall'Aglio Hatther & Hengeveld 2016; Giomi 2017; Olbertz & Honselaar 2017). A good example is the development of English *will* (Bybee, Pagliuca & Perkins (1991); see also Hengeveld 2011b), which starts as a lexical verb, then first changes into an indicator of obligation and intention, subsequently into a posterior marker, from there into a future marker, and finally into a marker of supposition (a form of inference, as in *Peter will be home by now*). Table 1 shows how this development can be charted at the Representational Level.

Table 1. The development of English *will* in FDG

inference	future	posteriority	obligation / intention	lexical verb (OE *willan*)
evidentiality	absolute tense	relative tense	participant-oriented modality	verbal property
p	ep	e	f^{c}	f

In this process, the change of function does not necessarily go hand in hand with the change of form. This means that we may have intermediate stages in which a lexical item fulfils a grammatical function without its form being fully grammaticalized (e.g. Boye & Harder 2012; Traugott & Trousdale 2013; Hengeveld, Narrog & Olbertz 2017). This is accounted for in Functional Discourse Grammar by assuming the existence of lexical operators (Keizer 2007; Olbertz 2016). The relation between the ongoing process of grammaticalization of meaning and form in FDG is discussed in Hengeveld (2017).

On the lexical side, the clearest case of language change is that of lexicalization proper, i.e. a new lexeme arising from a fixed phrase. Well-known English examples are complex prepositions formed on the basis of prepositional phrases (*in front of*, *on top of*). Other examples include various kinds of fixed expressions, both representational (e.g. *bed-and-breakfast*) and interpersonal (*thank you*). Once lexicalized, such items may eventually turn into grammatical items, as in the case of the Spanish *dizque*, originally meaning 'he/she says that', which developed from a lexical construction into an adverb and then into a particle (Olbertz 2007).

Lexicalization is also responsible for the creation of idioms, i.e. the emergence of a new frame (or combination of frames) which may be fully or partially fixed (i.e. instantiated; Keizer 2016). Other forms of lexicalization correspond to 'constructionalization', i.e. the creation of partially fixed frames used for the formation

of partitive constructions (Keizer 2017) and binominal noun phrases of the type *that fool of a doctor* or *a whale of a problem* (Ten Wolde 2018).

A further aspect of lexical change is semantic change, often referred to as 'subjectification' (e.g. Traugott 1995; Traugott & Dasher 2002), a process that involves the movement of a modifier to a higher layer at the same level, or from the Representational Level to the Interpersonal Level. In the latter case, we are dealing with an instance of pragmaticalization; an English example would be the development of representational (e.g. manner) adverbs into interpersonal (e.g. illocutionary) ones.

6. This volume

The opening chapter of this volume uses the full range of layers at the two Formulation levels in Functional Discourse Grammar (the Interpersonal and the Representational Levels) to deal with one particular phenomenon; as such it serves both as an exemplification and as as a further justification of the layers distinguished at these levels. The remaining chapters deal with various aspects involving the first three levels, and are ordered in accordance with the dynamic structure of Functional Discourse Grammar, i.e. in a top-down fashion: two chapters dealing with aspects of the Interpersonal Level are followed by two chapters on the Representational Level, a chapter discussing the interface between the Representational Level and the Morphosyntactic Level, and a chapter dealing with the Morphosyntactic Level.

'Negation in Functional Discourse Grammar', written by Kees Hengeveld and Lachlan Mackenzie, discusses negation from a typological point of view. Starting from Dik's (1997b: 169–187) claim that in Functional Grammar negation can have scope over the speech act (roughly corresponding to the Discourse Act in FDG) and four semantic units, the authors argue that negation can occur at each and every layer of the Interpersonal and the Representational Levels (twelve in all), either as an operator or as a modifier. The chapter thus not only provides evidence for the relevance of all these layers, but also accounts for multiple occurrences of negative elements in a single utterance.

Evelien Keizer discusses the way in which FDG handles interpersonal (parenthetical) adverbs in English. Using the adverb *frankly* as case study, she shows that FDG, with its top-down, hierarchical organization, allows us to account for all the functional and formal features of its interpersonal (illocutionary) use, as well as for the interaction between these features, in a unified manner. In addition, the author shows how FDG deals with the distinction between prosodically integrated and non-integrated uses of one and the same adverb: whereas the former are analysed as modifiers within a Discourse Act, the latter form a separate Discourse Act.

The chapter 'External possessor constructions and Cree relational inflection compared' by Chantal Cenerini pursues an idea presented in Van de Velde (2013), which proposes an FDG account of Dutch external possessor constructions in which non-argumental dative noun-phrases are regarded as topical or affected referents with which the speaker empathizes. Cenerini argues that, although the relational inflection in Cree is not restricted to cases of possession, and, unlike in Germanic languages, is limited only to third person referents and is realized as a verbal suffix rather than a dative, both constructions are motivated by similar pragmatic factors, and both can be appropriately analysed as Subacts at the Interpersonal Level.

In the chapter entitled 'On objective and subjective epistemic modality again', Hella Olbertz and Marize Dall'Aglio Hattnher take up the issue, discussed in Hengeveld (1988), of the distinction between objective and subjective modality – a matter that has remained controversial ever since. After providing a detailed description of the behaviour of the basic modal auxiliaries expressing various degrees of possibility and necessity in Portuguese and Spanish, the authors conclude that there is evidence for the linguistic reality of the objective-subjective dichotomy in the field of epistemic modality, with objective epistemic modality operating at the layer of the Episode, and subjective epistemic modality at the layer of the Propositional Contents.

Elnora Ten Wolde discusses the changes that take place in the premodification patterns of evaluative binominal noun phrases such as *a beast of a man* as this construction changes into a simple evaluative modifier such as *a beastuva day*. She compares two functional approaches to this phenomenon of language change: the zone-based account proposed by Ghesquière (e.g. 2014) and the hierarchical FDG approach. She concludes that, although the zone-based account can appropriately describe the different premodification patterns, it fails to provide a satisfactory explanation for why these changes took place. By distinguishing interpersonal from representational modifiers, and by distinguishing operators and modifiers at different layers of analysis, FDG can not only capture the changes that have taken place, but also the motivation behind these changes. The author concludes that an integration of the two models may prove to be productive.

In 'Subject expression in Brazilian Portuguese', Taísa Peres Oliveira describes the tendency of Brazilian Portuguese, originally a null-subject language, to use personal pronouns for subject reference. This happens above all in the third person singular form, which she considers to be a verbal form unmarked for person and number. In addition to third person singular reference, this unmarked form can be used for 2nd person formal and informal address and for 1st person plural reference. Using Hengeveld's (2011a) definition of transparency in terms of one-to-one relations between units at the four levels of analysis, the author argues that by using subject pronouns Brazilian Portuguese is developing into a more transparent language.

The last contribution to this volume is dedicated to the identification of polysynthesis. In 'Measuring polysynthesis: A Functional Discourse Grammar approach' Inge Genee takes the two FDG parameters of transparency and synthesis as a starting point and, on the basis of recent typological work within and outside FDG, presents a quantitative approach to the typology of polysynthesis. The result is a refinement of the FDG treatment of morphological typology based on five parameters: (i) lexical density, (ii) anisomorphism between Formulation and Encoding levels; (iii) anisomorphism within the Morphosyntactic Level; (iv) alignment restrictions and (v) optionality. This chapter contributes both to FDG and linguistic typology in general.

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Negation in Functional Discourse Grammar

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The purpose of this chapter is to show that the model of Functional Discourse Grammar can be used to provide a detailed classification of expressions of negation by taking its hierarchical, layered structure as the point of departure. The chapter thus follows up on ideas first launched in Dik (1997) concerning the various layers of Functional Grammar at which polarity operators can apply. FDG has introduced a number of additional layers which can also host the negative operator to those recognized in FG, and it has furthermore introduced the distinction between the Representational (semantic) and Interpersonal (pragmatic) Levels. We will argue that operators with a negative value can be found at all layers of both the Interpersonal and the Representational Levels. We illustrate all these types and show how their scope properties and their formal manifestation and behaviour warrant their identification in the grammar.

1. Introduction

A salient characteristic of Functional Discourse Grammar (FDG; Hengeveld & Mackenzie 2008) is that grammatical description is seen as arising from two operations, Formulation and Encoding. Formulation delivers two levels of analysis, the Interpersonal and Representational Levels. These, in turn, are mapped onto two Encoding levels, the Morphosyntactic and Phonological Levels. Each of the four levels consists of a substantial number of nested layers in ways that will be detailed below. Each layer is structured as shown in (1):

(1) $(\pi v_1: [\text{head}]\ (v_1): \sigma\ (v_1))_{\Phi}$

The layer is identified by its variable, shown in (1) as 'v': the layer representing the Propositional Content, for example, is represented with the symbol 'p' occupying the v-position. The variable is preceded by π, which represents one or more operators applying at the layer. An operator indicates a specification of the respective layer that will be expressed grammatically rather than lexically; in the case of a Propositional Content, for example, subjective epistemic modality is shown as an operator on this

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layer. There are four possibilities for filling the 'head', which takes the variable as its argument: (a) the head may be absent, in the case of anaphora, where there is no lexical material, as in (2a); (b) it may be empty, where it is necessary to provide a head for a modifier, as in (2b); (c) it may be lexical, as in (2c); or (d) it may be configurational, where it consists of one or more instances of the immediately lower layer, in this case the Episode, as in (2d). Lexical heads and modifiers are represented as Properties (f).

(2) a. John thinks Sheila is ill but *that* isn't true.
(p_i)
b. There's an idea – a stupid *one* – that only rich people have nannies.
(p_i: ((f_i): (f_j: stupid (f_j)) (p_i))
c. That is a crazy *idea*.
(p_i: ((f_i: idea (f_i)): (f_j: crazy (f_j)) (p_i))
d. [Sue came back yesterday] but [John is still in London].
(p_i: [(ep_i) (ep_j)] (p_i))

At the Formulation (but not the Encoding) Levels, the head may be further modified by lexical material, shown in (1) as σ; each Modifier also takes the variable as its argument. An example is seen in (3):

(3) Sheena probably stayed at home.
(π p_i: [–Sheena stayed at home–] (p_i): (f_i: probable (f_i)) (p_i))

Finally, at all but the Phonological Level, a layer is marked for its function: its rhetorical or pragmatic function at the Interpersonal Level, its semantic function at the Representational Level, and its syntactic function at the Morphosyntactic Level. For example, a Propositional Content may take the semantic function Undergoer (U) with respect to the verb *believe*, as in (4):

(4) The people believed that the Government was unjust.
(p_i: [(past ep_i: (e_i: (f_i: [(f_j: believe (f_j)) (x_i: –the people– (x_i))$_A$ (p_j: [–the Government was unjust–] (p_j))$_U$ (p_i))

The layers (and the respective variables) recognized in FDG at the Formulation Levels are shown in Table 1.

Previous work in FDG has analysed various grammatical phenomena using at least part of the repertoire of layers shown in Table 1. Olbertz and Honselaar (2017) have considered how the grammaticalization of Dutch *moeten* 'must' can be traced as involving upward movement through several of the layers, while Hengeveld and Dall'Aglio Hattnher (2015), considering a sample of 64 native languages of Brazil, have distinguished four types of evidentiality at the (e_1), (ep_1), (p_1) and (C_1) layers. The purpose of the present chapter is to consider how we may understand negation from this perspective, specifically determining whether the operator 'neg' can and should be located at different layers in the FDG repertoire.

Table 1. Formulation Levels and their layers in Functional Discourse Grammar

Interpersonal Level
Move (M_1)
Discourse Act (A_1)
Illocution (F_1)
Participants (P_1, P_2)
Communicated Content (C_1)
Subact of Reference (R_1)
Subact of Ascription (T_1)
Representational Level
Propositional Content (p_1)
Episode (ep_1)
State-of-Affairs (e_1)
Configurational Property (f^c_1)
Lexical Property (f^l_1)
Individual (x_1), Location (l_1), Time (t_1), Manner (m_1), Reason (r_1), Quantity (q_1)
Lexical Item ($)

This chapter will divide into five further sections. Section 2 will consider existing proposals for the analysis of negation as applying at different layers (or at the rough equivalent to FDG layers in other approaches). Section 3 will go on to show that negation can apply at each of the layers of the Representational Level. Section 4 will show that negation applies at most layers of the Interpersonal Level, too. Section 5 then shows that cases of multiple negation can be readily interpreted in terms of the classification provided. In Section 6 we provide a conclusion.

2. Existing treatments of negation

By common assent, negation is one of the most complex phenomena in human language. As Horn and Wansing (2016) phrase it, with a delightfully self-referential double negation, "Negation is a *sine qua non* of every human language, yet is absent from otherwise complex systems of animal communication". The present article does not aspire to cover negation in all its aspects[1] but rather focuses upon the relevance

1. Representative examples of the massive literature on negation are Horn (1985, 2001) for semantic, pragmatic and philosophical aspects, a diachronic tradition extending from Jespersen (1917) to Willis et al. (2013), a partially related synchronic tradition on negative concord from Labov (1972) to Van der Auwera & Van Alsenoy (2016), typological overviews by Bernini & Ramat (1996), Miestamo (2005) and Dahl (2010), and syntactic work from Klima (1964) through Haegeman (1995) to Zanuttini (1997) and Zeijlstra (2013).

of layering for understanding how it is organized in the languages of the world. By carefully considering the possibilities of negation at all layers at the Interpersonal and Representational Levels in FDG, we arrive at a fine-grained classification of types of negation that not only contributes to the typology of negation itself, but also validates the distinctions made in the hierarchical structure used in FDG. It also allows us to better understand cases of multiple negation, as will be shown in Section 5.

Layering was already present in Functional Grammar (FG), the theory that preceded FDG. Dik (1997), in the second volume of his *magnum opus* on FG (1997: 169–187), claimed that the negative operator can apply at any of five layers. Dealing with them in descending order, from the hierarchically highest to the lowest, Dik first recognizes 'Illocutionary negation', "typically achieved by negating an explicit performative verb" (1997: 173), as in (5):

(5) I do not promise to come.

The exact status of illocutionary negation will be discussed in Section 4.2 below, where it will be argued that (5) is in fact not an example of illocutionary negation.

Secondly, 'Propositional negation' (Dik 1997: 174–177) applies when the truth value of a proposition as a whole is explicitly at issue. It accordingly occurs in discursive contexts where the truth of a statement by one's conversation partner is challenged, as in (6):

(6) A. John is rich.
B. No, John is not rich. ("No, it is not true that John is rich.")

According to Dik (1997: 175), propositional negation is signalled in English by nuclear stress on the negative particle *not*. But in our view the prosodic differences are rather the result of the contrast between (6A) and (6B). The crucial property of propositional negation is the fact that an entire proposition is being negated. We will return to this in Section 3.

The third type of negation distinguished by Dik is 'Predicational or State-of-Affairs negation' (1997: 177). This expresses the non-application of a State-of-Affairs, and is exemplified by (7) and (8):

(7) John is not rich.

(8) It is better not to travel there by car.

In (7) the speaker is not challenging the Propositional Content of a statement by his/her partner, but informing them, in an Initiating Discourse Act, that the possible State-of-Affairs of John being rich is not real.

The fourth type is 'Predicate negation' (1997: 178–180) and has narrower scope, applying only to an individual predicate. Predicate negation shows up most clearly in

litotes constructions like *not unattractive*, as in (9), in which the negator *not* applies to the derived predicate *unattractive*:

(9) John married a not unattractive girl. (Dik 1997: 179)

Finally, 'Term negation' or 'Zero quantification' (Dik 1997: 180–183) is seen as involving not a negative operator neg but a zero-quantifying operator ∅. In English this is expressed as *no*, as in (10):

(10) I have no money left.

A recurrent observation in Dik's treatment of negation, one that will also play a part in our own argument, is that a negated clause can be embedded inside a negated clause or that negation can occur more than once in a single clause. Consider the following examples:

(11) a. I do not promise not to come.
b. I do NOT have no money left!
c. You cannot not accept.

In (11a), we see, in Dik's terms, Illocutionary negation in the higher clause taking scope over Predicational negation in the lower clause; in (11b), Propositional negation with scope over Term negation within a single clause; and in (11c), Predicational negation with scope over Predicate negation within a single clause.

While agreeing in principle, if not in detail, with Dik's (1997) approach to negation, we observe that he (unsurprisingly) makes many fewer distinctions than there are layers in FDG. However, it should be said that Dik makes more distinctions than are generally found in the more syntactically oriented literature on negation, which in the first instance did not go beyond distinguishing between 'sentence negation' and 'constituent negation' (Klima 1964).

More recent work in formal syntax has analysed negative markers as phrases (NegP), for example because many languages, such as French with its *ne … pas*, require more than one word to express negation. The positioning of NegP in the syntactic tree has been regarded in the Principles & Parameters approach as parametric, i.e. subject to cross-linguistic variation: Ouhalla (1990) has NegP dominate either TP (Tense Phrase) or VP (Verb Phrase), arguing on syntactic grounds that the former characterizes French and the latter English. Zanuttini (1997), comparing northern Italian dialects, argues for as many as four syntactic positions, the highest for Italian *non*, the second-highest for Piedmontese *pa*, the third-highest for Piedmontese *nen* and the lowest for Milanese *no*. Within the cartographic approach to syntactic structure developed by Cinque (2002) and his co-workers, one of the most intriguing proposals, and one which will also prove relevant for our

own argument (see Section 3 below), is that of De Clercq (2013), who distinguishes four positions for negation: the highest is as a polarity marker, the second-highest as a focus marker, the third-highest as a degree marker and the lowest as a quantity marker, with corresponding scope over ever smaller portions of the underlying syntactic structure. Since more recent work in formal syntax, like that of De Clercq, has incorporated semantic and pragmatic notions such as polarity, degree, quantity and focus into its formalisms, the opportunities for cross-fertilization with FDG have increased.

In Role & Reference Grammar (RRG), whose representations combine syntactic and semantic analysis, Van Valin and LaPolla (1997: 45–46), in a passage that explicitly compares RRG and FG, draw a three-way distinction of Clausal (or External) Negation, Core (or Internal) Negation and Nuclear Negation. They exemplify the distinction with (12):

(12) John did not read a book.

Where the paraphrase is 'It is not the case that John read a book', the negation takes the entire Clause in its scope. Where the intended meaning is (for example) 'John did not read a book, he read a magazine', then the scope of the negation is said to be on an element of the core, namely *a book*.[2] Finally, in an example like *John read no books* (cf. Dik's 'zero quantification' above), the negator *no* is analysed as having the narrowest type of scope.

This brief overview of other theories, FG, Generative Grammar (GG) and RRG, has shown that there is a consensus that negation, particularly with regard to questions of scope, is to be situated at different points in the analysis, whatever form it may take: semantic (and pragmatic) as in FG, syntactic as in GG or semantico-syntactic as in RRG. The idea has also arisen that different languages may diverge with regard to the relative placement of negation in the hierarchical structure. Another focus of attention has been multiple occurrences of negation markers in one and the same clause. These three themes will recur in our treatment of negation in FDG. Since negation has been studied outside the FDG framework with special attention to its ideational uses, we will begin our treatment in Section 3 at the Representational Level. Section 4, which is indebted to the study of negation as a pragmatic phenomenon (especially in the tradition of Horn 1985, 2001), will turn to the Interpersonal Level.

2. FDG, unlike RRG, does not regard this as a semantic distinction, but rather as a matter of pragmatics: while the semantic scope of *not* is for FDG the same in what Van Valin and LaPolla call Clausal and Core Negation, the pragmatic function of *a book* in the latter case differs at the Interpersonal Level, namely Contrast applied to the corresponding Subact of Reference.

3. The Representational Level

This section will argue that FDG needs to recognize negation (or its equivalent) at all layers of the Representational Level: p-negation at the Propositional Content layer, ep-negation at the Episode layer, e-negation at the State-of-Affairs layer, f^c-negation at the Configurational Property layer, f^l-negation at the Lexical Property layer, $-negation on lexical items, and zero-quantification at the Individual, Location, Time etc. layers. Evidence for each type of negation will be provided in successive subsections.

3.1 P-negation

We adopt Dik's (1997) analysis of negation at the Propositional Content layer (see Section 2 above). In English and Dutch, p-negation applies when the truth value of a Propositional Content is explicitly at issue. It occurs in discursive contexts where the speaker is challenging the truth of a statement by his/her conversational partner; see example (6) above. Negation at this Layer will be represented as follows:

(13) (neg p_1: […] (p_1))

Propositional negation is a good example of how semantic structure, as shown at the Representational Level, differs from conceptualization. Conceptually (and logically), there is no difference between (14a) and (14b); semantically, however, they are distinct, as is reflected in the positioning of the negator *not*.

(14) a. It is not true that Mary is reading a poem.
b. It is true that Mary is not reading a poem.

This distinction corresponds to that between p-negation and e(p)-negation[3] respectively.

3.2 Ep-negation

Hengeveld and Mackenzie (2008: 157) define an Episode as a grouping of States-of-Affairs "that are thematically coherent, in the sense that they show unity or continuity of Time (t), Location (l), and Individuals (x)". The application of the neg operator to an Episode variable thus involves a single negation marker negating such a grouping of SoAs. Various scholars have observed that this occurs in different languages:

3. Where the distinction between ep-negation and e-negation is not in question we will use the contraction e(p)-negation.

(15) English
Mark didn't wash the dishes and hoover the floor. (Bond 2011: 83)

In (15), the negative is syntactically associated with the tense auxiliary *did*, which scopes over the States-of-Affairs 'Mark wash the dishes' and 'Mark hoover the floor'. The representation is accordingly as follows:

(16) $(p_i$: (neg past ep_i: [(e_i) (e_j)] (ep_i)) $(p_i))$ (= (19))

Episode negation is frequently encountered in languages that make use of converbs, where finiteness/tense is expressed only on the last of the verbs that occur in sequence. Consider the following example:

(17) Burushaski
Khíruman sis majít-ar n-úu-nin nimáaz
some people mosque-DAT CVB-3PL.HUM.SBJ(go)-CVB prayer
ay-é-č=á-am.
NEG-do-DUR=AUX-3PL.HUM.SBJ (Tikkanen 1995: 511, in Bond 2011: 102)
a. 'Having gone to the mosque some people do not pray' (but read)
b. 'Some people do not pray after getting to the mosque.' (but after getting up)
c. 'Some people do not go to the mosque and do not pray.'

Example (17) has three interpretations. In interpretations (17a) and (17b), the negative prefix *ay-* has scope only over the second State-of-Affairs in the Episode; these two interpretations do not differ at the Representational Level but at the Interpersonal Level, since there is a difference in the extent of the Focus: in the first interpretation, only *nimáaz … -é-* is in Focus; in the second *majítar núunin nimáaz … -é-* is in Focus. In interpretation (17c), however, the negation takes the entire Episode in its scope; this corresponds to a difference at the Representational Level:

(18) a. $(p_i$: $(ep_i$: [(e_i) (neg e_j)] $(ep_i))$ $(p_i))$ (= (17a/b))
b. $(p_i$: (neg ep_i: [(e_i) (e_j)] $(ep_i))$ $(p_i))$ (= (17c))

Consider a comparable example from Turkish:

(19) Turkish
Ev-e gel-ip el-ler-in-i
house-DAT come-NARR hand-PL-POSS.3SG-ACC
yıka-ma-d-ı.
wash-NEG-PST-3SG (Johansson 1995: 126)
a. 'He came home and didn't wash his hands.'
b. 'He didn't come home and didn't wash his hands.'

This example is subject to two contextually determined interpretations (Zeynep Işıl Hitit, p.c.): in interpretation (19a), the negative suffix *-mE-* has only the second State-of-Affairs in its scope, while in interpretation (19b), it is again the entire Episode that is negated. The representations in (18) again apply, respectively.

Turkish thus has both ep-negation and e-negation. However, this language also manifests p-negation, but here a different strategy is used, namely a 'negative copula' *değil*. This copula behaves as a non-verbal predicate and takes the corresponding personal suffixes, as in (20):

(20) *Öğretmen değil-im.*
teacher NEG.COP-1SG
'I am not a/the teacher; it is not the case that I am a/the teacher.'

This negative copula can also occur in double negative constructions as in (21), analysed as in (22):

(21) Turkish
(Ben) bugün maç-a git-me-yecek değil-im.
(1SG) today match-DAT go-NEG-FUT NEG.COP-1SG
'I will not not go to the match today.' (= 'It is not true that I will not go to the match today.') (Kornfilt 1997: 126)

(22) (neg p_i: (fut ep_i: (neg e_i) (ep_i)) (p_i))

Example (21) is the first of a number of cases we will see of double negation being used to make an (often emphatic) affirmative statement.

There is another phenomenon that may help us distinguish between p-negation and e(p)-negation. This concerns the occurrence of Negative Polarity Items (NPIs), such as *any* in English. In general terms, these items only occur under the scope of negation; in FDG, where it is a matter of grammatical alternation, this distinction may be treated as a matter for resolution at the Morphosyntactic Level. In English, it appears that NPIs arise under the scope of ep-negation (and hierarchically lower forms of negation) but not under the scope of p-negation. Consider the following examples, with ep-negation in (23b):

(23) a. He bought some books (−smx_i) and sold some (−smx_j) too.
b. He didn't buy any/*some books (−smx_i) or sell any/*some (−smx_j) either.

The expression of (−smx) (= non-specific multiple Individual) is, as shown in (23), dependent on the presence or absence of negative polarity at the ep-layer.[4] (Notice the polarity also affects the nature of the coordination (*and*/*or*) and the form of the additive marker *too*/*either*.) P-negation, however, does not impose the use of NPIs:

4. Specificity itself is treated at the Interpersonal Level in FDG.

(24) A. He bought some (–smx$_i$) books.
B. No, he did NOT buy some (–smx$_j$) books.
("It is not true that he bought some books.")

Notice that the use of *some* is allowed in (24B), while it is ungrammatical in (23b). This section thus has shown that there are compelling reasons for distinguishing between p-negation and ep-negation.

3.3 E-negation

The nature of e-negation is well captured by Bond (2013: 29): this kind of negation serves to "[…] model a binary contrast between a state of affairs in a grammatically framed alternate reality in relation to the state of affairs in the communicated reality such that some or all of the properties of the alternate reality are excluded from the set of possible properties of the communicated reality". The underlined sections of the sentences in the following example show the scope of e-negation within an Episode:

(25) a. Mark washed the dishes but didn't hoover the floor.
b. Mark didn't wash the dishes but hoovered the floor.

In neither of these sentences could *n't* be understood as scoping over the entire Episode. The circumstances under which a conjunction of States-of-Affairs becomes eligible for the kind of ep-negation observed in (15) above, here repeated as (26a), are restricted. Firstly, one of the arguments must be shared:

(26) a. Mark didn't wash the dishes and/or hoover the floor. (= (15))
b. Mark didn't wash, and/or Susan dry, the dishes.
c. *Mark didn't wash the dishes and/or Susan hoover the floor.

In (26a) the argument shared by both States-of-Affairs is Mark; in (26b) it is *the dishes*; in (26c), since there is no shared argument, the negation does not carry over to Susan hoovering the floor. Secondly, unlike the Burushaski and Turkish examples with coverbs cited above, ep-negation in English does not apply if the final verb is negated; (27) cannot be interpreted as synonymous with (26a):

(27) Mark washed the dishes and didn't hoover the floor.

Notice, finally, that a verb such as *want* can take a negated Episode as its argument, as in (28a); in this case, the second infinitive cannot take its own infinitive-marker *to*. However, if only the first of the States-of-Affairs is to be negated, the affirmative polarity of the non-first State-of-Affairs is marked by the presence of the infinitive-marker *to*:

(28) a. I wanted Mark not to wash the dishes and hoover the floor.
b. I wanted Mark not to wash the dishes and to hoover the floor.

Only (28b) allows addition of *instead*.

E-negation corresponds to Dik's 'predicational negation'. Semantically speaking, the neg operator scopes over the entire State-of-Affairs but in practice it is often the case that not all elements of the State-of-Affairs are central to the negation. This is because the Subacts that make up the Communicated Content (at the Interpersonal Level) divide into Focus and Background Subacts and only those in Focus are interpreted as falling under the scope of negation. Thus all of the following examples, in which the underlined constituents are Subacts with the pragmatic function Focus, will be regarded as involving e-negation:

(29) a. The Sun does not revolve around the Earth (but the Earth around the Sun).
b. Phobos and Deimos do not revolve around the Earth (but around Mars).
c. The Moon does not revolve around Mars, but Phobos and Deimos (do).

However, in context none of the examples is interpreted as a blanket negation. In (29a) the Focus elements (the Sun, the Earth) are central to the negation, while 'revolving' (which does happen) is not; in (29b) and (29c) it is (the Earth) and (the Moon) respectively that are in Focus; all non-Focus elements are in the Background, i.e. they correspond to presupposed information in the Conceptual Component. If we abstract from the Focus-Background opposition, however, we can see that semantically speaking the negation does apply to the entire State-of-Affairs in each case: for example the entire situation of the Sun revolving around the Earth does not correspond to reality.

E-negation in English is also recognizable from its triggering (where appropriate) an affirmative tag question:

(30) The Sun does not/doesn't revolve around the Earth, does it?

Tag questions are not found after p-negation, since tag questions serve interactionally to elicit the addressee's agreement, while p-negated statements serve to correct the addressee's assumptions. Thus, under the intended reading, (31B) is inappropriate:

(31) A. The Sun revolves around the Earth.
B. *The Sun does NOT revolve around the Earth, does it?

Let us now turn to negation of the head of one type of State-of-Affairs, the Configurational Property.

3.4 F^c-negation

The Configurational Property (f^c) differs from the Lexical Property in forming a configuration, i.e. a set of representational layers that corresponds to one of the predicate frames recognized in the grammar. The general format of the Configurational Property is shown in (32), where the material between square brackets constitutes the configuration (cf. Hengeveld & Mackenzie 2008: 182):

(32) $(\pi\ f^c_1\colon [(v_1) \ldots (v_n)_\varphi]\ (f^c_1)\colon \sigma\ (f^c_1)_\varphi)$

Mackenzie (2009) argues that the English verb *fail*, followed by a *to*-infinitive, has a semantically bleached sense in which any sense of a conscious but unsuccessful attempt is absent, leaving only the sense of negation, as in (33):

(33) a. It failed to rain for two years.
b. The train failed to arrive on time.

He further argues that bleached *fail to* is an expression of the operator 'neg' as applied to the Configurational Property, i.e. (neg f^c). He offers four arguments for this analysis.

Firstly, *fail to* occurs in the complement of 'aspectual' verbs that are known to take a Configurational Property as their complement, as in (34):

(34) a. His wife continued to fail to conceive.
b. His legs began to fail to hold him up.

Secondly, depictive secondary predications (cf. also Mackenzie 2013: 52) are included within the scope of the e-negation, as in (35a). Note, however, that they do not lie within the scope of f^c-negation, as shown in (35b):

(35) a. The negotiators did not leave the meeting satisfied.
b. *The negotiators failed to leave the meeting satisfied.

Thirdly, given that the Progressive operator (corresponding to the *be* … *ing* construction) applies at the Configurational Property, if *fail to* were an operator at the State-of-Affairs layer we would expect (36a) to be grammatical. In fact the correct form is (36b), which arises from both bleached *fail to* and the progressive operator applying to the (f^c) variable:

(36) a. *The child fails to be impressing the teacher.
b. The child is failing to impress the teacher.

Finally, Mackenzie (2009) observes that bleached *fail to* often occurs in double negative constructions, as in (37a):

(37) a. This book will not fail to leave a mark on English culture.
b. *This book will fail to not leave a mark on English culture.

In this type of construction the negation operator is to be found twice, once at the State-of-Affairs layer, expressed in (37a) as *not*, and also at the Configurational Property layer, expressed as *fail to*. Notice from the ungrammaticality of (37b) that, as is to be expected from its hierarchically lower position, in (37a) the negator *fail to* occurs closer to the central predicate *leave* than the negator *not*.

45 of the 1011 languages surveyed in Dryer (2005) use what we may characterize as a negative verb or negative auxiliary, some of which may have derived from verbs like *fail*. One such language is Bemba. Givón (2001: 268) traces the origin of the negative prefix *bulaa-* in Bemba from the compounding of two verbs, the main predicate and a verb with the sense 'avoid' or 'lack':

(38) a. *uku-bula*
INF-avoid
'to avoid'
b. *uku-boomba*
INF-work
'to work'
c. *n-a-bula* *uku-boomba*
1SG-PST-avoid INF-work
'I avoided working.'
d. *uku-bulaa-boomba*
INF-avoid-work (or INF-NEG-work)
'to avoid work; not to work'
e. *n-a-bulaa-boomba*
1SG-PST-NEG-work
'I didn't work, I failed to work.'

In (38c), we may assume that the verb *bula* takes an (f^c) complement; in (38d), in parallel with English *fail to,* it has grammaticalized as an operator and in (38e) is seen as a prefix in a finite verb.

Double negation in English can also be achieved by means of a double occurrence of the negator *not*; the negator closer to the predicate corresponds to (f^c)-negation:

(39) You cannot not attend your sister's wedding.
(… (neg poss e_i: (neg f^c_i: … (f^c_i)) (e_i)) …)

The interaction of modal and negative operators shown in this example is also apparent in the following data from French (personal knowledge); note, too, how in the English glosses the difference is reflected in the realization of Poss as *can* or *may*:

(40) a. *Jean ne peut pas aimer ça.*
John NEG can.3SG NEG like.INF that
'John cannot like that; it's not possible for John to like that.'
(neg poss e_i: (f^c_i: … (f^c_i)) (e_i))

b. *Jean peut ne pas aimer ça.*
Jean can.3SG NEG NEG like.INF that
'John may not like that; it's possible that John will not like that.'
(poss e_i: (neg f^c_i: … (f^c_i)) (e_i))

c. *Jean ne peut pas ne pas aimer ça.*
John NEG can.3SG NEG NEG NEG like.INF that
'John cannot not like that; it's not possible for John not to like that.'
(neg poss e_i: (neg f^c_i: … (f^c_i)) (e_i))

3.5 F^l-negation

Whereas f^c-negation, as we saw in 3.4, applies to a Configurational Property, f^l-negation applies to a single Lexical Property. In English, f^l-negation can apply to nouns or adjectives but not to verbs. In the case of adjectives, it is expressed by the negator *not* or the prefix *non-*, which is specialized in this function; with nouns, it can only be expressed as *non-*:

(41) a. a non-happy ending
b. a not happy ending, a not very happy ending[5]

(42) a. a non-issue
b. *a not issue

Both types of f-negation differ from e-negation in not triggering an affirmative checking tag:

(43) a. The story did not come to a happy ending, did it? (e-negation)
b. The story failed to come to a happy ending, didn't it? (f^c-negation)
c. The story came to a not (very) happy ending, didn't it? (f^l-negation)[6]
d. The story came to a non-happy ending, didn't it? (f^l-negation)

---

5. It seems more idiomatic to insert *very* in this kind of negation. The question then is whether *not* here negates *very* or *very happy.*

6. See Horn (2001: 517) for a distinction between *Kim isn't happy* (*is she*?) as 'inflected negation' (roughly equivalent to our e(p)-negation) and *Kim is not happy* or *Kim's not happy* (*isn't she?*) as 'particle negation' (roughly equivalent to our f^l-negation).

A lexical item may be simple or may arise from compounding. In Japanese, certain V-V compounds allow negation to apply either to the entire compound or to one of the component Lexical Properties:

(44) Japanese (Fukushima 2016)
a. *Hanako ga odori-tukare-nakat-ta.*
Hanako NOM dance-get.tired-NEG-PST
'Hanako did not dance and did not get tired.'
(neg f_i: (f_j: ($\$_i$|tukar) ($f_j$): ($f_k$: ($\$_j$|odor) ($f_k$)) ($f_j$)) ($f_i$))
b. 'Hanako danced and did not get tired.'
(f_i: (neg f_j: ($\$_i$|tukar) ($f_j$): ($f_k$: ($\$_j$|odor) ($f_k$)) ($f_j$)) ($f_i$))
c. 'Hanako did not dance and got tired.'
(f_i: (f_j: ($\$_i$|tukar) ($f_j$): (neg f_k: ($\$_j$|odor) ($f_k$)) ($f_j$)) ($f_i$))

(45) a. *Taroo ga gake-o mi-oros-anakat-ta.*
Taroo NOM cliff-ACC look-lower-NEG-PST
'Taroo did not look down the cliff.'
(neg f_i: (f_j: ($\$_i$|mi) ($f_j$): ($f_k$: ($\$_j$|oros) ($f_k$)) ($f_j$)) ($f_i$))
b. 'Taroo looked but not down the cliff.'
(f_i: (f_j: ($\$_i$|mi) ($f_j$): (neg f_k: ($\$_j$|oros) ($f_k$)) ($f_j$)) ($f_i$))

(46) *Umi ga hikari-kagayai-nakat-ta.*
ocean NOM shine-glitter-NEG-PST
'The ocean did not shine and glitter.'
(neg f_i: [(f_j: ($\$_i$|hikar) ($f_j$)) ($f_k$: ($\$j$|kagaya) ($f_k$))] ($f_i$))

According to Fukushima (2016), *odori-tukare-nakat-ta* in (44) exemplifies a right-headed compound, i.e. the semantic head of the compound (f_j: ($\$_i$|tukar) ($f_j$)) is placed to the right of the modifying element. Right-headed compounds are formed rather freely and when negated allow three interpretations: negation of the entire compound, as in (44a); negation of the head only, as in (44b); negation of the modifier only, as in (44c). Left-headed compounds are formed much less freely and when negated allow two interpretations: negation of the entire compound, as in (45a) or negation of the modifier only, as in (45b); *dvandva* or headless compounds, exemplified in (46), are so rare as to be listable and allow only negation of the entire compound (Kazuhiko Fukushima p.c.).

f^1-negation can occur in the scope of higher-layer negation, as in (47):

(47) I will not marry a non-smoker.

3.6 $-negation

Various forms of lexical derivation yield lexical items, represented here by means of the symbol '$' (see Smit & van Staden 2007), that in various senses negate the input to the derivation. This is captured by the derivational operator *antn* 'antonymous'.

(48) (antn $\$_m$|fair) > ($\$_n$|un-fair)

Among the prefixes involved in $-negation in English are *un-*, *dis-*, *in-* (and various morphophonologically conditioned variants of this prefix), and *a-*. Another use of the first two of these prefixes, distinct from negation but related to it semantically, is to indicate reverse movement on verbs, as with *un-* and *dis-* in *undress* and *disengage*, otherwise expressed by the prefix *de-* (as in *demilitarize*). Clearly, the effect of these prefixed derivations is very close to f^l-negation, but as Lieber (2005: 392) points out, f^l-negation is more 'objective'. Compare (49a) and (49b):

(49) a. a non-professional linguist[7]
b. an unprofessional linguist

While (49a) could be used to describe a person active in linguistics who has not made it their profession, (49b) can only identify a (professional) linguist whose behaviour is not becoming of someone with that profession.

$-negation shares with f^l- and f^c-negation (cf. (43b–d)) that it does not trigger an affirmative checking tag in English:

(50) The story came to an unhappy ending, didn't it/*did it?

$-negation may occur in the scope of f^l-negation; the result is often characterized as litotes, as in (51):

(51) He gave a not implausible explanation of his behaviour.
(neg f^l_i: (antn $\$_i$|plausible) ($f^l_i$))

In Czech (Grygar-Rechziegel 1988), the same marker (the prefix *ne-* on the verb) is used for e(p)-negation, for f^l-negation and for $-negation alike. Consider (52) to (53):

(52) *ne-souhlas*
'disagreement, non-agreement'

(53) *ne-profesionální*
'non-professional, unprofessional'

7. De Clercq (2013: 32) refers to this kind of negation as 'degree negation' since negation indicates the ultimate degree of absence: cf. *professional – semi-professional – non-professional*.

(54) *Ne-mám rád houb-y.*
NEG-have.1SG glad mushroom-ACC.PL
'I don't like mushrooms.'

A sentence like (55) could therefore be interpreted as be analysed as 'He did not agree with me' (e(p)-negation), 'He "non-agreed" with me' (f^{l}-negation) or 'He disagreed with me' ($-negation):

(55) *Ne-souhlasi-l se mnou.*
NEG-agree-3SG.M.PST.PTCP REFL 1SG.INSTR
'He did not agree/non-agreed/disagreed with me.'

Whereas in English $-negation applies only to predicates with a positive meaning (*fair*, *happy*, etc.), in Czech there is no such restriction, given that *ne-* can also express f^{l}-negation, cf. *ne-malý* 'big, considerable, lit. not-small', cf. English **unsmall* (cf. De Clercq & Vanden Wyngaerd 2017).

3.7 Zero-quantification

Following Dik's (1997) lead (see Section 2 above), we analyse *no* in such examples as the following as involving zero-quantification, i.e. the application of an operator with the value 'zero' to the Individual, Location, Time, etc. in question:

(56) a. *No man* is an island. ($\emptyset x_i$: (f_i: ($\$_i$|man) ($f_i$)) ($x_i$))
b. I'm going *nowhere*. ($\emptyset l_i$)
c. *No moment* was wasted. ($\emptyset t_i$: (f_i: ($\$_i$|moment) ($f_i$)) ($t_i$))
d. *No reason* was given. ($\emptyset r_i$: (f_i: ($\$_i$|reason) ($f_i$)) […] ($r_i$))
e. *No amount* of persuasion helped. ($\emptyset q_i$: (f_i: ($\$_i$|amount) ($f_i$)) […] ($q_i$))

In these cases the negative element is roughly equivalent to the numeral *zero*: it quantifies over the semantic category involved. This is reflected in the fact that in coordination a sentence containing a zero-quantifier does not behave like a negative one:

(57) a. I live nowhere and so does he/and he does as well.
b. *I live nowhere and nor does he/and he doesn't either;

Dutch has a zero-quantifying determiner *geen* 'no', shown in (58):

(58) Dutch (personal knowledge)
Ik heb twee dochter-s maar geen zoon-s.
1SG have-PRS.1SG 2 daughter-PL but 0 son-PL
'I have two daughters but no sons.'

However, in cases of e(p)-negation, where there is an indefinite argument in the Configurational Property, Dutch requires that argument to be marked with the Determiner *geen* too, rather than using the normal expression of e(p)-negation, the adverb *niet*:

(59) Dutch (personal knowledge)
a. *Ik heb het geld niet.*
1SG have.PRS.1SG DEF money NEG
'I don't have the money.'
b. *Ik heb geen geld.* (**Ik heb geld niet*.)
1SG have.PRS.1SG 0 money
'I don't have any money.'

The fact that (59b) does not involve zero-quantification is apparent from examples like (60), where *niet* (and not *geen*) is used in the second (truncated) clause:

(60) *Ik heb geen geld en mijn vrouw ook niet/*geen.*
1SG have.PRS.1SG 0 money and my wife also NEG/0
'I don't have any money, nor does my wife.'

Furthermore, the negation in (59b) must have higher scope than just the Individual, as it licenses NPIs, such as *hoeven* 'need' in (61):

(61) *Ik hoef geen geld te hebben.*
1SG need.PRS.1SG 0 money CJ have
'I don't need to have any money.'

So we must conclude that not all expressions of negation that are realized on the noun phrase are cases of zero-quantification; they can equally well be the expression of e(p)-negation. The extent to which languages apply this strategy differs widely, with languages like Dutch, employing this option frequently, representing one extreme, and languages like Scottish Gaelic (personal knowledge), illustrated in (62), not allowing this option at all, representing the other extreme.

(62) *Chan eil airgead agam.*
NEG COP.PRS.DEP money at.1SG
'I have no money.' (lit. 'I don't have any money.')

A further difference between zero-quantification and e(p)-negation is observable in the relation between the Representational and Interpersonal Levels. Whereas e(p)-negation is associated with Focus or Contrast in the Communicated Content, this is not necessarily true of zero-quantification. Consider the following contrast (Horn & Wansing 2016):

(63) a. In no clothes does Robin look good.
b. In no clothes Robin looks good.

In (63a), *in no clothes* is Focus, appearing in clause initial position and triggering subject-verb inversion. In (63b), however, *in no clothes* is neither Focus nor Contrast; the Focus is on *good*.

Finally, zero-quantification can occur within the scope of higher-layer negation:

(64) We never do things for no reason.

3.8 Summary

We have observed the possibility of negation occurring at each of the layers of the Representational Level. At all but the lowest layers, negation takes the form of the operator 'neg'. Only at the lowest layers does negation show up as zero-quantification (an option not present in all languages) or as derivation (in the case of negative lexical items). An overview of the various types of negation is shown in Table 2, which makes proposals for naming the different types.

Table 2. Types of negation at the Representational Level

Representational Level	p	ep	e	f^c	f^d	$	x, l, t, r, q
	Disagreement	Co-negation	Non-occurrence	Failure	Local negation	Antonymy	Zero-quantification

4. Negation at the Interpersonal Level

The various layers at the Interpersonal Level, too, allow negative operators. Negative operators at this level do not express negative meaning in the narrow sense. The layers of the Interpersonal Level are actional in nature, and concern the actions that the current speaker is carrying out at the moment of speaking. A speaker cannot at the same time carry out an action and negate that he/she is doing so, so the negative categories at this level express other shades of negativity that will be dealt with layer by layer below.

4.1 A-negation: Rejection

Hengeveld and Mackenzie (2008: 148–149) make a distinction between propositional and actional *yes* and *no*. Propositional *yes* and *no* fill in the truth value of a Propositional Content that is being questioned:

(65) A. Did John go home?
B. No (he didn't)./Yes (he did).

Actional *yes* and *no* challenge Discourse Acts executed by the interlocutor. Examples are given in (66)–(67):

(66) A. Go home!
B. No!/Forget it!/Get lost! (I don't accept your order.)

(67) A. Go home!
B. Okay! (I accept your order.)

The rejection in (66B) challenges the imperative speech act in (66A). Speaker B considers that speaker A is not in a position to tell him/her what to do. (67B), on the other hand, is an acceptance of (67A).

As (66B) shows, there are various options for realizing the rejecting Act. A rejecting Act is different from a negated Propositional Content, in that several of these options are not available for propositional *no*:

(68) A. Did Peter go home?
B. No!/*Forget it!/*Get lost!

Similarly, *okay* in (67B) can only be used as actional *yes*, not as propositional *yes*:

(69) A. Did Peter go home?
B. *Okay!

Actional *no* is thus a rejecting Act, which may be represented as in (70) (see Hengeveld & Mackenzie 2008: 149):

(70) (A_I: no (A_I))

4.2 F-negation: Prohibition & co.

Lyons (1977), Searle and Vanderveken (1985) and Dik (1997) all consider the following examples to be cases of illocutionary negation:

(71) I do not order you to go.

(72) I do not promise you to come.

A problem with this analysis is that (71)–(72) are not performative, while their positive counterparts are. This can be demonstrated through the standard test in which the adverb *hereby* is added to the expression:

(73) a. I hereby order you to go.
b. *I hereby do not order you to go.

(74) a. I hereby promise you to come.
b. *I hereby do not promise you to come.

The ungrammaticality of (73b) and (74b) shows that these are not performative utterances, hence the negation on these sentences cannot be illocutionary negation. These utterances rather contain a negated State-of-Affairs (cf. Section 3.3).

There are, however, illocutions with a negative value. The most common ones are the prohibitive illocution and the dishortative illocution. These are illustrated in (75) and (76):

(75) Tauya
Yate-ʔatene!
go-PROH.SG
'Don't go.' (MacDonald 1990: 213)

(76) Kamaiura
T=a-ha-uma=n.
HORT=1SG-GO-NEG.HORT=HORT
'Let me not go.' (Seki 2000: 333)

The illocutionary markers in (75) and (76) are dedicated expressions of the prohibitive and dishortative illocutions, that is, they are not composed of the corresponding imperative or hortative marker combined with a regular negative marker. In this sense they may be interpreted as negative illocutions, not as negated illocutions.

Negative illocutions like these may be represented as in (77)–(78), where abstract illocutionary predicates occupy the head position of the illocution (F) (see Hengeveld & Mackenzie 2008: 70–76):

(77) (F_I: PROH (F_I))

(78) (F_I: DISHORT (F_I))

4.3 C-negation: Denial

In FDG a Communicated Content (C) is a message that is communicated by a speaker in a Discourse Act, as opposed to a Propositional Content (p), which is a unit of thought that is not necessarily communicated but can be talked about. Given this difference, a Communicated Content is a unit at the Interpersonal Level, while a Propositional Content is a unit at the Representational Level.

A Communicated Content cannot be negated as such, as once it is produced it exists, but an interlocutor can deny its appropriateness. An example of this is given in (79):

(79) A: You hate me!
B: It's not that I hate you, it's just that I think you are a bit annoying.
B′: ??It's not true that I hate you, it's just true that I think you are a bit annoying.
B″: I DON'T (hate you).
B‴: I don't "hate you".

In (79B) the message expressed in (79A) is denied, and an alternative for it is offered. This differs from the negation of a Propositional Content, discussed in Section 3.1, where the truth of a proposition is at stake. As (79B′) shows, a paraphrase in terms of truth values is inappropriate using the same construction. To express propositional negation in this context, (79B″) has to be used. An alternative way of expressing the first part of (79B) is (79B‴), where the speaker accompanies the utterance with a gesture reminiscent of quotation marks written in the air.

In (79B) denial is expressed periphrastically using the expression *it is not that*. In similar contexts double negation can serve the same purpose, as illustrated in (80B):

(80) A. I have the feeling you don't like me.
B. I don't not like you.

A further frequent construction used to express this kind of negation is illustrated in (81):[8]

(81) Not that I regret any of it!

In this construction the copula present in (79B) is suppressed, which may be taken as a sign of fixation of the construction.

8. See e.g. Schmid (2013) for constructions of this type.

In Spanish, denial constructions exhibit the special property that they are expressed through a construction with the subjunctive, which is used here to express that the information given is presupposed. An example is (82):[9]

(82) *No es que me hayan engañ-ado*
NEG COP.IND.PRS.3SG CONJ 1SG.ACC AUX.SBJV.PRS.3SG deceive-PST.PTCP
a mí, es que han
ACC.DEF 1SG.OBL COP.IND.PRS.3SG CONJ AUX.IND.PRS.3SG
engañado a todo el mundo.
deceive-PST.PTCP ACC.DEF all DEF world
'It's not that they have deceived ME, it's that they have deceived EVERYBODY.'

This contrasts with propositional negation, which does not trigger the subjunctive, as illustrated in (83):

(83) A. *Te han engañado.*
2SG.ACC AUX.IND.PRS.3SG deceive-PST.PTCP
'They have deceived you'
B. *No, no me han engañado.*
NEG NEG 1SG.ACC AUX.IND.PRS.3SG deceive-PST.PTCP
'No, they have NOT deceived me.'

Denial may be represented as an operator at the layer of the (denied) Communicated Content, as in (84):

(84) $(A_I: [(F_I: \text{DECL } (F_I)) (P_I)_S (P_J) (\text{neg } C_I: [-\text{ I don't like you }-] (C_I))] (A_I))$

4.4 T-negation: Metalinguistic negation

An Ascriptive Subact T captures an act of predication executed by a speaker. The appropriateness of a Subact of Ascription can always be questioned or denied. In the latter case, we speak of T-negation, called metalinguistic negation in Horn (1985). Examples illustrating this type of negation are illustrated in (85) and (86):

(85) He is not "happy", he is ecstatic.

(86) She is not "pretty", she is gorgeous.

Example (85) is appropriate in a context in which the previous speaker has ascribed the property *happy* to the subject. This speaker is then corrected by the current

9. <https://www.huffingtonpost.es/2018/02/01/pablo-iglesias-va-a-ser-dificil-que-leonor-sea-jefe-del-estado_a_23350035/>

speaker who characterizes this ascription as inappropriate and provides an alternative. The same reasoning applies to (86). Metalinguistic negation may have the same surface morphosyntactic manifestation as e(p)-negation, but behaves quite differently. Example (86) above can only be interpreted as metalinguistic negation, while (87) can only be e(p)-negation:

(87) She is not pretty, and this has bothered her all her life.

Metalinguistic negation can be combined with other types of negation, for instance with antonymy, as in (88):

(88) She is not "unhappy", she is depressed.

Metalinguistic negation of this type may be represented as an operator at the layer of Ascriptive Subact, as in (89):

(89) (C_I: [(neg T_I)….] (C_I))

4.5 R-negation: Metalinguistic negation

A Referential Subact (R) captures an act of reference executed by the speaker. As in the case of Ascriptive Subacts, the appropriateness of the reference can be questioned or denied. The following example illustrates this:

(90) He is not "Mr Bergoglio", he is His Holiness the Pope.

Example (90) is an identificational construction, which in FDG is treated as a construction based on two Subacts of Reference (Hengeveld & Mackenzie 2008: 193). In (90) one Subact of Reference 'Mr Bergoglio' is replaced by a more appropriate one 'His Holiness the Pope'. This case is thus entirely parallel to the cases in 4.4, the only difference being that the appropriateness of a Subact of Reference is denied in (90), while the appropriateness of a Subact of Ascription is denied in (85)–(86). The similarity is also visible when we compare (90) to a parallel case of e(p)-negation:

(91) He is not Mr Bergoglio, Mr Bergoglio has moved to another place.

Another example of this type of negation is given in Huddleston & Pullum (2002: 788):

(92) She didn't have lunch with "your old man"; she had lunch with your father.

Metalinguistic negation of this type may be represented as an operator at the layer of the Referential Subact, as in (93):

(93) (C_I: [(neg R_I)….] (C_I))

4.6 Negation at IL – Summary

In this section we have shown that negation, when this notion is taken in a wide sense, occurs at each of the layers of the Interpersonal Level, just as it did at the Representational Level. An overview of the various types of negation is shown in Table 3, which also provides distinct labels for each category.

Table 3. Types of negation at the Interpersonal Level

	Rejection	Prohibition	Denial	Metalinguistic Negation	Metalinguistic Negation
Interpersonal Level	A	F	C	R	T

5. Double occurrences of negation

Double occurrences of negation in the same sentence may be the result of negative concord or may be instances of true double negation. In the latter case, there is a double occurrence of neg operators at the Interpersonal and Representational Levels. In the preceding sections, we have observed several such cases. The pragmatic and/or semantic effect of double negation is often to cancel the negativity (*duplex negatio affirmat*) and is frequently exploited for interpersonal purposes. As Horn (2001: 360) remarks, one reason for calling someone, for example, *not unattractive* rather than *attractive* is to convey "a strong negative proposition while observing the amenities of civilized social interchange". What the hearer understands in practice is that the speaker finds the person in question rather plain.

Here are the instances of double negation we have remarked on:

i. Negative Communicated Content – Negative Episode or State-of-Affairs

(94) A. I have the feeling you don't like me.
B. I don't not like you.

(neg C_I: (… [(p_1: (neg ep_1: [(e_1) … (e_1)] (ep_1)) (p_1))] … (C_I))
(neg C_I: (… [(p_1: (ep_1: (neg e_1) (ep_1)) (p_1))] … (C_I))

ii. Negative Ascriptive Subact – Derived Negative Lexical Item

(95) She is not UNHAPPY, she is DEPRESSED.

(neg T_I: (…(antn $\$_n|\blacklozenge$) … ($T_I$))

iii. Negative Propositional Content – Negative Episode or State-of-Affairs

(96) Turkish
(Ben) bugün maç-a git-me-yecek değil-im.
(1SG) today match-DAT go-NEG-FUT NEG.COP-1SG
'I will not not go to the match today.' (= 'It is not true that I will not go to the match today.') (Kornfilt 1997: 126)

(neg p_1: (neg ep_1: [(e_1) … (e_1)] (ep_1)) (p_1))
(neg p_1: (ep_1: (neg e_1) (ep_1)) (p_1))

iv. Negative State-of-Affairs – Negative Configurational Property

(97) This book will not fail to leave a mark on English culture.

(… (neg e_1: (neg f^c_1: … (f^c_1)) (e_1) …)

v. Negative State-of-Affairs or Configurational Property – Negative Lexical Property

(98) I will not marry a non-smoker.

(… (neg e_1: (f^c_1: […(neg f^l_1) …] (f^c_1)) (e_1) …)
(… (e_1: (neg f^c_1: […(neg f^l_1) …] (f^c_1)) (e_1) …)

vi. Negative Lexical Property – Derived Negative Lexical Item

(99) He gave a not implausible explanation of his behaviour.

(neg f^l_1: (antn $\$_n|\blacklozenge$) ($f^l_1$))

vii. Any higher Layer – Zero-quantification

(100) We never do things for no reason.

(neg v_1: … (f^c_1: […(∅ {x_1, l_1, t_1, m_1, r_1, q_1}) …] (f^c_1)) … (v_1))

This is just a selection of the logically possible combinations of negation at different layers, but it serves to show that an approach is called for in which negation is seen as a phenomenon that applies at all interpersonal and representational layers identified.

In principle, triple or indeed multiple negation should be possible. In this vein, we propose (101a), inspired by De Clercq (2013: 33), for discussion, for which we may suggest (101b) as an analysis:

(101) a. It's not that she isn't NOT unhappy.
b. (neg C_I: […(neg e_i: (f^c_i: [(neg f^l_i: (antn $\$_n$|happy)) ($f^l_i$)) $(1x_i)_U$] (f^c_i)) (e_i)) …] (C_I))

6. Conclusion

By way of conclusion, Table 4 now summarizes all types of negation described above.

Table 4. Types of negation in FDG

	Rejection	Prohibition	Denial	Metalinguistic Negation	Metalinguistic Negation		
Interpersonal Level	A	F	C	R	T		
Representational Level	p	ep	e	f^{c}	f^{d}	$	x
	Disagreement	Co-negation	Non-occurrence	Failure	Local negation	Antonymy	Zero-quantification

We hope to have shown in this chapter that there is evidence for the existence of all of these types of negation, and that their existence helps to explain multiple occurrences of negation in single utterances. At the same time, the chapter has given further support to the distinctions made between levels and layers in FDG, as negation has been found to be relevant in different ways to all of these.

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Interpersonal adverbs in FDG

The case of *frankly*

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The aim of this chapter is to present an FDG analysis of interpersonal adverbs like *frankly*, *fortunately* and *briefly*. Although the literature on these adverbs (also referred to as parenthetical, disjunctive, or comment adverbs) is extensive, and their discourse-pragmatic functions and semantic properties, as well as their formal (syntactic, prosodic) behaviour, have been described in considerable detail, no unified, theoretically framed account has been proposed that captures all these different features, and the interaction between them, in a single model. Concentrating on the adverb *frankly*, and using data from a variety of English corpora (COCA, BYU-BNC and NOW), this chapter argues that the theory of FDG, with its distinction between an interpersonal (speaker-bound) and a representational (non-speaker-bound) level, offers the means to provide such an account. Its layered organization provides the means to distinguish between adverbs of different scope, while the distinction between adverbs functioning as modifiers within a Discourse Act and those that functioning as separate Discourse Acts makes it possible to distinguish between interpersonal adverbs that are prosodically integrated in the linear realization of the utterance and those that are prosodically independent. Moreover, in accordance with the dynamic, top-down approach of the model, the syntactic behaviour and prosodic realization of adverbs is shown to follow systematically from their functional (discourse-pragmatic and semantic) features.

1. Introduction

The main aim of this chapter is to show how the distinctive features of Functional Discourse Grammar (henceforth FDG) allow for a unified and coherent treatment of interpersonal modifiers (in particular those that take the form of adverbs), providing the tools needed to capture their specific rhetorical, discourse-pragmatic, semantic, syntactic and prosodic features, as well as the interaction between these different features. This treatment will be illustrated by means of a case study of the adverb *frankly*.

The literature on interpersonal adverbs (also referred to as speaker-oriented, non-propositional, peripheral, parenthetical, disjunctive, or comment adverbs; e.g.

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frankly, *fortunately*, *allegedly* or *briefly*) is extensive; linguists of different theoretical persuasions have described these adverbs in terms of their discourse-pragmatic functions and semantic properties, as well as in terms of their formal (syntactic, prosodic) behaviour. A number of studies have also addressed the interaction between (some of) these different functional and formal properties (e.g. Allerton & Cruttenden 1974; Halliday & Matthiessen 2014; Espinal 1991; Huddleston et al. 2002; Bonami & Godard 2008).[1] So far, however, no unified, theoretically framed account has been presented that captures all the different features of these adverbs in a consistent and insightful manner.

In this chapter it will be argued that the framework of FDG is ideally suited to addressing the various issues involved. It provides the means to distinguish between interpersonal (speaker-bound) and representational (non-speaker-bound) adverbs, and, within each of these sets, makes it possible to distinguish between adverbs of different scope (e.g. within the set of interpersonal adverbs, *briefly* modifies the Discourse Act, *frankly* modifies the Illocution, and attitudinal adverbs like *unfortunately* modify the Communicated Content; see also Section 4.2). In addition, the model allows for a distinction between adverbs that function as modifiers within the same Discourse Act and those that function as separate Discourse Acts. This last distinction will prove to be crucial, since it allows us to distinguish between interpersonal (syntactically non-integrated) adverbs that are prosodically integrated in the linear realization of the utterance (analysed as modifiers) and those that are prosodically independent (analysed as separate Discourse Acts).

Moreover, in accordance with the dynamic, top-down approach of the model, the syntactic behaviour and prosodic realization of the different subclasses of adverbs are held to follow systematically from their functional (discourse-pragmatic and semantic) features. In this way, the model not only offers a diagnostic for determining which adverbs are interpersonal, but in addition makes certain predictions about their preferred clausal positions, their distribution (in particular in the complements of verbs or nouns), their behaviour with regard to coordination and modification, and their prosodic realization. One of the objectives of this chapter is to test some of these predictions by examining the function and distribution of the adverb *frankly* in its various uses. The methodology used will be a combination of qualitative and quantitative corpus research, using data from the Corpus of Contemporary American English (COCA; Davies 2008), with some additional examples from the British National Corpus (BYU-BNC; Davies 2004) and the News on the Web Corpus (NOW; Davies 2013).

The chapter will start with a brief discussion of the distinction made in FDG between interpersonal and representational modifiers (Section 2). This will be

1. Adverbs of this kind have also been studied from a diachronic and a cross-linguistic perspective. For diachronic discussions of (some of) these adverbs, see Van de Velde (2009), Haselow (2015) and Schäfer (2015); for a cross-linguistic/comparative accounts, see Averintseva-Klisch (2008) and De Cesare (2015).

followed by an overview of previous work on interpersonal (speaker-oriented, non-propositional, peripheral, parenthetical, disjunctive, or comment) adverbials, which will introduce the various classifications proposed, as well as the different kinds of criteria (semantic, syntactic, prosodic) on which these classifications are based (Section 3). Most importantly, this section will address the question of whether these different kinds of criteria can be used to distinguish a single group of adverbials. In Section 4 it will be argued that this is not the case, and that the syntactic, semantic, prosodic and discourse-pragmatic features of different kinds of adverbials can only be accounted for in a classification based on two separate dimensions. Finally, in Section 5, the treatment proposed is illustrated with a discussion of the adverb *frankly*. Section 6 presents a conclusion.

2. Interpersonal vs. representational adverbs in FDG

One important distinction in the FDG analysis of adverbs is that between interpersonal and representational modifiers. Modifiers at the Interpersonal Level (IL) have a speaker-oriented function, such as indicating the manner in which the Illocution is carried out (*frankly*), expressing the speaker's attitude towards the Communicated Content (*unfortunately*), emphasizing the Communicated Content (*really*) or indicating that the speaker is passing on information obtained from someone else (*allegedly*). Adverbs at the Representational Level (RL), on the other hand, function as modifiers of the various semantic categories distinguished, with modal and evidential adverbs modifying the Propositional Content, frequency and location adverbs modifying the State-of-Affairs, manner adverbs modifying a Verbal Property, etc.

Support for the distinction between interpersonal and representational adverbs can, according to Hengeveld & Mackenzie (2008: 128–129), be found in differences in the truth-conditionality of these two broad categories of modifiers, as shown in examples (1) and (2):

(1) *Frankly*, Sheila is ill.
  a. No. (She isn't.)
  b. *No. (You are not being frank.)[2]

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2. Note, however, that whereas 'direct' negation is not possible, 'indirect' negation is, as shown in the following example (from Ifantidou 1993: 84):

(i) Peter: *Frankly*, this party is boring.
  Mary: You're not being frank. I've just seen you dancing with the blond beauty in blue.

The reason for this is that these adverbs, although non-truth-conditional, are still lexical (FDG) or conceptual (Relevance Theory). As such the content (or applicability) of the adverb itself can still be evaluated (and denied); cf. Rouchota's (1998: 115) distinction between truth-conditional and truth-evaluable; see also Asher (2000: 33).

(2) Peter told me *frankly* that Sheila is ill.
  a. That's not true. (She isn't.)
  b. That's not true. (He was not being frank.)
(Hengeveld & Mackenzie 2008: 128–129)

In (1) the Propositional Content as a whole can be denied (see (1a)), but the information conveyed by the interpersonal adverb *frankly* cannot (see (1b)). In (2), where *frankly* is used as a representational (manner) adverb, it is possible to deny the contribution made by the adverb (2b)).

Further support for the IL-RL distinction is found in the relative ordering of the different kinds of adverbs: according to the top-down, outward-inward placement of elements (see Hengeveld & Mackenzie 2008: 311–314), interpersonal modifiers are more likely to occur in the (left) periphery of the clause, with representational modifiers taking more central positions; this is as illustrated in (3), where *unfortunately* occurs in a more peripheral position than, for instance, the representational (evidential) adverb *presumably* (Keizer 2015: 189):[3]

(3) a. Unfortunately, she presumably saw him again last week.
  b. P^{pre} | P^{I} P^{M} P^{F-1} P^{F} | P^{post}
  unfortunately presumably again last week

In addition, the FDG analysis of adverbs can account for the fact that not all adverbs can occur in all embedded environments (i.e. within the complement of all predicates; Hengeveld & Mackenzie 2008: 363–365). For instance, since a verb like *know* takes a Propositional Contents as its complement, this complement can contain adverbs modifying this layer, such as *presumably* (4), but not higher-layer adverbs like *reportedly* (which modifies the Communicated Content):

(4) Somebody back there was smart enough to know that Nairam *probably* (**reportedly*) had the line tapped. (COCA, fiction)
(cf. Hengeveld & Mackenzie 2008: 364)

Let us finally consider the role of intonation (prosodic integration) in the analysis of modifiers. In the treatment of adverbs proposed in Hengeveld & Mackenzie (2008) prosodic integration (comma-intonation in spoken language, punctuation in written text) does not seem to play a role. Thus, in (5a) and (5b), the adverb *honestly* is given the same analysis, namely that of a modifier of the Illocution; this means that no distinction is made between the prosodically integrated use of *honestly* in (5a)

3. Similar claims have been made in a large number of studies on the position of adverbs within the clause, e.g. Jackendoff (1972), Bellert (1977), Cinque (1999), Laenzlinger (2004, 2015), Ernst (2002) and Haumann (2007).

(indicated by the presence of commas) and its prosodically non-integrated use in (5b). The same would hold for the two instances of *frankly* in (6).

(5) a. Finally, she *honestly* reportedly has been drinking again.
(Hengeveld & Mackenzie 2008: 313)

b. *Honestly*, she reportedly has been drinking again.
(Hengeveld & Mackenzie 2008: 313, see also p. 82)

(6) a. I *frankly* don't care what these scientists are out to prove.
(BYU-BNC, religious)

b. What she is saying, with her big white collars, is, 'I am a clean, controlled and decent Christian woman. I believe in marriage and the family. And smacking. You, *frankly*, are a bit of a slut.' (BYU-BNC, pop-lore)

In what follows, however, it will be claimed that a distinction needs to be made between, on the one hand, the interpersonal vs. the representational function of a modifier, and, on the other, between those adverbs that are prosodically integrated (examples (5a) and (6a)) and those that are prosodically non-integrated (examples (5b) and (6b)). Interestingly, in their discussion of illocutionary modifiers, Hengeveld and Mackenzie (2008: 49–50, 58, 82) mention that for an element to function as a modifier it needs to be restrictive, with non-restrictive interpersonal modifiers (such as the non-restrictive relative clause in (7a) and the *although*-clause in (7b)) functioning as separate Discourse Acts. However, what exactly is meant by non-restrictive here,[4] why this distinction is not made in the case of adverbs like *frankly* and *honestly* (note that *frankly* in (7b)) is still analysed as a modifier), and why it only applies to interpersonal modifiers, remains unclear.

(7) a. Please tidy your sister's room, *although why am I asking you?*
(Hengeveld & Mackenzie 2008: 82)

b. The students, *who, frankly, had worked hard*, passed the exam.
(Hengeveld & Mackenzie 2008: 58)

As we will see in the next section, however, this lack of precision in describing the interaction between the discourse-pragmatic, semantic, syntactic and prosodic features of adverbs seems to pervade the extensive literature on the subject of English adverbs.

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4. The term 'restrictive' is used here in a purely technical sense, as in Functional Discourse Grammar all modifiers, including interpersonal ones, are regarded as 'restricting' (applying to, commenting on) the unit they modify. Although unproblematic at the Representational Level, the terminology is rather unfortunate when it comes to interpersonal modifiers like *frankly*, as these are, at the same time, non-truth-conditional (i.e. non-restrictive in the sense that they do not restrict a set denoted by a representational unit).

3. Interpersonal modifiers: Some previous accounts

Since the 1960s, it has been generally acknowledged that the group of adverbs referred to as interpersonal adverbs in FDG behave differently, in terms of function and form, from other adverbs. As we will see, however, different criteria have been used to distinguish the two types, leading to a number of largely overlapping (but not necessarily identical) dichotomies, all using a different terminology. In this section some previous accounts of interpersonal adverbs will be discussed. Note, however, that no attempt is made at an exhaustive description of these accounts, nor at a detailed comparison between them – instead, the aim of this section is merely to given an impression of some of the major distinctions made in the literature, and, in particular, the types of criteria used to justify these distinctions.

3.1 Speech Act theory & Relevance Grammar

According to Speech Act theory, the adverbs listed in (8) do not contribute to the proposition expressed in an utterance (are not truth-conditional), but instead function to indicate the speaker's attitude towards the speech act or the proposition it contains (e.g. Urmson 1963; Strawson 1973; Allerton & Cruttenden 1974: 7–8; Bach & Harnish 1979; Chafe 1986; Palmer 1986; Fraser 1996):

(8) Illocutionary: e.g. *frankly*, *confidentially*, *honestly*
Attitudinal: e.g. *unfortunately*, *sadly*, *luckily*
Evidential: e.g. *evidently*, *obviously*
Hearsay: e.g. *allegedly*, *reportedly*

Ifantidou (1993: 69) shows that application of the standard test for truth-conditionality confirms that illocutionary and attitudinal adverbs are indeed non-truth-conditional. This standard test (the 'embedding test'; Wilson 1975) consists in embedding the sentence containing the adverb into a conditional to see if the adverb falls within the scope of *if*; if it does, it is truth-conditional; if not, it is non-truth-conditional. Ifantidou (1993: 74–75) provides the following example to show that attitudinal adverbs like *(un)fortunately* are non-truth-conditional:

(9) *Unfortunately*, Mary has missed the deadline.

To apply the test, sentence (10) is embedded into a conditional:

(10) Mary has *unfortunately* missed the deadline.

(11) If Mary has *unfortunately* missed the deadline, she can reapply in May.

The question to be answered is: what are the truth conditions of the main clause in (11), i.e. under which conditions can Mary reapply in May: (12) or (13)?

(12) Mary missed the deadline.

(13) It is unfortunate that Mary missed the deadline.

Since the answer is (12), we can conclude that the attitudinal adverb *unfortunately* is not truth-conditional. The same is true, according to Ifantidou (1993: 80–81), for illocutionary adverbs like *frankly* and *honestly*.

When it comes to prosodic integration, however, Ifantidou's account is somewhat ambivalent. On the one hand, Ifantidou (1993: 88) characterizes non-truth-conditional adverbs as parentheticals, i.e. as constructions that 'are phonologically, syntactically and semantically independent from their host clause' (see also Rouchota 1998: 97, 102). When it comes to applying the truth-conditionality test, however, Ifantidou does not distinguish between prosodically integrated and prosodically non-integrated instances: example (9), with prosodically non-integrated *unfortunately*, is treated as synonymous with example (10), with prosodically integrated *unfortunately*, the latter being preferred for the test because it sounds 'less odd' when embedded (Ifantidou 1993: 75).

In actual fact, however, example (11) sounds odd; an 'oddness' which, from the point of view of FDG, is only to be expected. *If*-clauses are, by their nature, non-propositional: they denote (hypothetical) State-of-Affairs (or Episodes), but do not contain higher layers (i.e. no Propositional Contents, nor any interpersonal layers, e.g. Communicated Contents or Illocutions). As such, they cannot contain modifiers of these higher layers – including modifiers like *frankly* and *unfortunately* thus leads to (at best) a questionable result. This clearly suggests that the standard test for truth-conditionality cannot be applied to higher-level (interpersonal) adverbs, nor to any kind of prosodically non-integrated adverbs (see also Section 5.2.1).

3.2 Descriptive grammars

Quirk et al. (1985: 612–631) make a distinction between adverbials functioning as adjuncts and disjuncts. Adjuncts are characterized by the fact that they 'closely resemble other sentence elements such as [subject, object or complement]. Like them, for example, and unlike other adverbials, an adjunct can be the focus of a cleft sentence'. Adverbs indicating manner (*carefully*), time (*previously*) or frequency (*often*) typically function as adjuncts. Disjuncts, on the other hand, 'have a superior role as compared with the sentence elements' and 'are syntactically more detached

and in some respects 'superordinate', in that they have scope over the sentence as a whole' (Quirk et al. 1985: 613). Disjuncts come in two kinds (Quirk et al. 1985: 615):

- Style disjuncts: *frankly*, *seriously, confidentially; briefly; personally,* etc.
- Content disjuncts: *admittedly; allegedly, reportedly; really, actually; correctly; wisely; amazingly, inevitably; fortunately, sadly* etc.

Apart from the fact that they cannot be used as the focus of a cleft (14b) (cf. e.g. Espinal 1991: 729; Contreras 1976; Haegeman 2009 [1991]), disjuncts differ from adjuncts in that they cannot be made the basis of contrast in alternative interrogation or negation (14c) and cannot be focused by focusing subjuncts like *only* (14d). Moreover, they cannot be elicited by question words like *when*, *where*, *why* or *how* and do not come within the scope of ellipsis or pronominalization (Quirk et al. 1985: 504, 612–613; cf. e.g. Espinal 1991; Haegeman 2009 [1991]) (see discussion in Section 5.1.3.1 below).

(14) a. *Sadly*, the storm destroyed the entire tobacco crop.
b. *It is *sadly* that the storm destroyed the crop.
c. *Did the storm destroy the crop *sadly or* …?
d. *The storm destroyed the crop *only sadly.*

In distinguishing disjuncts from adjuncts, however, no mention is made of prosodic features, despite the fact that the examples provided all seem to suggest a degree of prosodic independence (comma intonation).

In Pullum & Huddleston's (2002: 575–576) discussion of adjuncts, however, the notion of prosodic (non-)integration plays an important role. They stress that all adjuncts (whether VP-oriented adjuncts, indicating frequency, means, manner etc. or clause-oriented adjuncts, including evaluative and speech-act related adverbs) can be 'prosodically detached, i.e. set off from the rest of the clause by intonational phrase boundaries' (Pullum & Huddleston 2002: 577). In that case they have the status of supplements: elements that occupy a linear position but are not integrated into the structure of the clause, as modifiers are. Supplements are thus by definition prosodically detached from their host (Huddleston et al. 2002: 1350): in speaking, they are marked by prosody; in writing by commas, dashes, parentheses, etc. In addition, supplements are not syntactically integrated into the clause, in the sense that they do not function as a dependent of some head in the clause and cannot be coordinated with any clausal constituent (Huddleston et al. 2002: 1350).

Huddleston et al. (2002: 1352) further observe that '[b]y virtue of not being integrated into the syntactic structure, supplements are necessarily semantically non-restrictive'. They also point out, however, that not all integrated modifiers are restrictive (Huddleston et al. 2002: 1353; cf. Bolinger 1989: 198); this is shown in

the examples in (15), where the appositional modifier *George* and the premodifier *friendly* are both prosodically integrated and non-restrictive (in (15a) the speaker has only one husband, and (15b) is not meant to imply that there is also unfriendly staff):

(15) a. This is *my husband George*. (Huddleston et al. 2002: 1353)
b. *Our friendly staff* is here to make sure that you have an outstanding experience. <www.brecksvilledermatology.com/meet-us/our-friendly-staff/>

Rather than relying on the notion of (non-)restrictiveness, Huddleston et al. therefore prefer 'a distinction in terms of integrated vs. supplementary', since this 'reflects the semantic difference more accurately and also matches the prosodic difference that distinguishes them in speech' (Huddleston et al. 2002: 1353). This means that Huddleston et al. base their distinction between adjuncts and supplements on prosodic features, but at the same time assume supplements to be syntactically non-integrated. Unfortunately, they then ignore this distinction in their discussion of adverbs (Huddleston et al. 2002: 1360), where they conclude that since in examples like (16) the function of the supplement *frankly* 'is very much like that of a modifier', the general term adjunct can be used to refer to both.

(16) *Frankly*, I think we could do better ourselves.

3.3 Systemic Functional Grammar

Within the framework of Systemic Functional Grammar, Halliday & Matthiessen (2014) distinguish numerous classes of adjuncts. Some of these adjuncts fall within the Mood element of a clause (i.e. the element consisting of the subject and the finite verb), and are, as such, 'closely associated with the meaning of the Finite element' (Halliday & Matthiessen 2014: 184); examples are adjuncts of temporality (*already*, *eventually*), modality (*always*, *certainly*) or intensity (*totally*, *hardly*, *simply*). Another major class of adjuncts is part of the Residue (the part of the clause that is not the Mood); this class consists of so-called circumstantial adjuncts (e.g. time, place and manner adjuncts). Finally, there is a group of comment adjuncts, which 'serve outside the Mood + Residue structure of the clause', and which function as comments on either the proposition (propositional comment adjuncts) or on the act of exchanging a proposition (speech-functional comment adjuncts) (Halliday & Matthiessen 2014: 184, see also 190–193). Although these two classes of comment adjuncts are distinguished mainly on the basis of their semantic, pragmatic or discourse function, Halliday & Matthiessen also add some observations about their prosodic features.

Propositional comment adjuncts are used by the speaker to comment either 'on the proposition as a whole' (e.g. *obviously*, *(un)fortunately*) or 'on the part played by the Subject' (e.g. *wisely*) (Halliday & Matthiessen 2014: 190). Although they occur in the same positions as mood adjuncts, propositional comments are, according to Halliday and Matthiessen (2014: 190), 'less integrated into the mood structure, being located rather according to their significance for the textual organization of the clause'. This is reflected in the fact that they tend to occur at the boundary between information units and are often preceded and/or followed by commas in writing.

Speech functional comment adjuncts, like *frankly*, *actually* and *confidentially*, can, but need not, be construed as a separate intonation unit. If they are, their specific discourse function determines which tone they carry: if they function as claims of veracity, the tone is typically a (rise-)fall-rise; if they function as signals of assurance or admission, they typically have a falling tone. Halliday and Matthiessen further observe that speech functional adjuncts strongly prefer initial or final position (Halliday & Matthiessen 2014: 192–193).

Halliday and Matthiessen thus acknowledge that comment adverbs (both propositional and speech-functional ones) can, but need not, be realized as separate intonation units; apart from some very general observations concerning their clausal position, however, no further characteristics (concerning truth-conditionality or syntactic behaviour) are discussed.

3.4 Generative Grammar

Working within the generative framework, Haegeman (2009 [1991]) distinguishes two classes of adverbial clauses: central ones, like the *if*-clause in (17a), and peripheral ones, like the *if*-clause in (17b) (Haegeman 2009 [1991]: 331):

(17) a. This match will be canceled *if it rains*. (central)
b. I've lost my money, *if you want to know* (peripheral)

The distinction between the two types of adverbial clauses is made on the basis of syntactic behaviour. Thus, unlike central adverbials, peripheral adverbials cannot be clefted or questioned, and fall outside the scope of the negative operator of the associated main clause (see Haegeman 2009 [1991]: 332–334).[5] What is interesting, however, is that Haegeman (2009 [1991]: 333) also includes a phonological property,

5. In addition, Haegeman (2009 [1991]: 332–334) mentions two more theory-specific syntactic features of peripheral adverbials, concerning the co-referentiality of the subject NP and the occurrence of parasitic gaps. However, since these criteria do not apply to adverbs, I will not discuss these in detail.

claiming that '[u]nlike central adverbial clauses, peripheral adverbial clauses are set off by comma intonation from the clause they relate to.' She subsequently proposes a 'radical orphan approach' for peripheral adverbials, analysing them as being outside the syntactic representation of the sentences they modify. Although defended in later work (Haegeman, Shaer & Frey 2009), the orphan approach was criticized by other generative linguists, who argued for some degree of syntactic integration (e.g. Espinal 1991; De Vries 2007; Ackema & Neeleman 2004: 96–99).

Espinal's (1991) distinction between parenthetical constituents (disjuncts) and sentential constituents (adjuncts) is similar to Haegeman's distinction between peripheral and central adverbial clauses. Espinal's distinction, however, is not restricted to clauses; instead, the term 'parenthetical' covers '[a] wide variety of constituents [which] bear *no obvious syntactic relationship* to the sentences they seem to be included in' (Espinal 1991: 726, emphasis added). This means that here, too, the difference between parentheticals and sententials is made in terms of syntactic behaviour, and Espinal (1991: 729–735) presents a long list of syntactic properties (26 in all) characterizing parentheticals. Of these, however, only some apply to adverbs, and these largely coincide with the criteria mentioned by Quirk et al. (1985) and Haegeman (2009 [1991]). There are, however, two important differences. First, Espinal includes a (partially) semantic (truth-conditional) property in her list:

> We may add or delete certain constituents in either the host or the disjunct structure without affecting the grammaticality *or meaning* of the rest of the syntactic structure (Espinal 1991: 730; emphasis added)

Secondly, Espinal acknowledges that there is no one-to-one relationship between phonological non-integration and syntactic non-integration:

> […] having an independent intonational unit is neither a sufficient nor a strictly necessary property to identify parentheticals: not all syntactic units with independent intonation […] correspond to independent syntactic units, as illustrated by subject-oriented adverbs, modal and evaluative adverbs, etc.
> (Espinal 1991: 734–735)

However, whereas for Espinal illocutionary adverbs like *frankly* and attitudinal adverbs like *unfortunately*, are parenthetical (i.e. disjuncts), irrespective of their prosodic realization, generative accounts of the (relative) word order of adverbs, such as Cinque (1999), Ernst (2002) and Haumann (2007), treat all prosodically integrated adverbs (including speech act adverbs like *frankly* and evaluative adverbs like *surprisingly*) as syntactically integrated, i.e. as adjuncts. In Cinque's feature-based (or carthographic) approach (see also Cinque 2004; Laenzlinger 2004, 2015), for instance, the surface position of adverbs is determined by their position in the hierarchical structure of the clause, leading to cross-linguistically fixed (relative)

order of adverbs, with adverbs occupying higher position in the clause structure precede those in lower position in the clause structuring when it comes to their linear position in the clause. In other words, all prosodically integrated adverbs are treated as part of the clause.

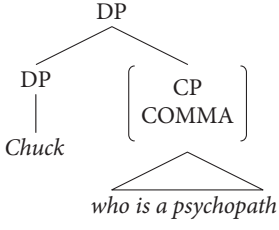
3.5 Natural Language Semantics

Building on Grice's (1975) distinction between conversational and conventional implicatures, Potts (2005) characterizes parenthetical expressions (which he refers to as supplements) as expressing conventional implicatures (CIs), which are defined as follows (where 'at-issue content' is to be understood as regular asserted content, or 'what is said' in Grice's terms):

> [CIs] are secondary entailments that cooperative speakers rarely use to express controversial propositions or carry the main themes of a discourse. Rather, CI expressions are used to guide the discourse in a particular direction or to help the hearer to better understand why the at-issue content is important at that stage.
> (Potts 2005: 6–7, see also p. 11)

Although the class of supplements is formally quite heterogeneous, including *as*-parentheticals, non-restrictive relative clauses, as well as speaker-oriented (*amazingly*), topic-oriented (*thoughtfully*) and utterance-modifying (*frankly*) adverbs, Potts provides them with the same kind of analysis: one in which the conventional implicature is triggered by an underlying COMMA feature (Potts 2005: 97–103, 133–136). This is illustrated for non-restrictive (Potts' supplementary) relative clauses in (18):

(18)



The syntactic COMMA feature, Potts argues, is central to the analysis of supplements:

> It is a signal to isolate the subtree it dominates intonationally, accounting for the commas in print and the intonational boundary marks in speech. Semantically, it performs a type shift: it takes at-issue content to CI content. (Potts 2005: 98)

Like Haegeman, Potts thus analyses supplements (including parentheticals) as necessarily prosodically separated from the rest of the clause. Unlike Haegeman, however, Potts (e.g. 2005: 90, 97, 103) regards the distinction between CIs and at-issue content

as grounded entirely in semantics;[6] syntactically supplements behave, according to Potts, as regular modifiers. More specifically, Potts analyses them as right-adjoined adjuncts, an analysis which, Potts (2005: 103–111) claims, is supported by the fact that their placement is restricted (to a position immediately adjacent to their host), that they are assigned case (e.g. nominal appositions in German), and that they do not occur in languages (like Turkish) which do not allow for right-dislocation.

3.6 Thetical Grammar vs. Sentence Grammar

The final distinction to be discussed in this brief overview is that made by Heine et al. (2013) between 'sentence grammar', which has been the main focus of linguistic theory so far, and 'thetical grammar', consisting of elements ('theticals') which (in clear contrast to Potts (2005)) are characterized by the fact that they are not part of a sentence or phrase, but are (in most cases at least) loosely related to some other sentence or phrase (the host). The class of thetical expressions is formally and functionally very diverse: it includes traditional parenthetical expressions (in itself, as we have seen, a heterogeneous group), as well as various other extra-clausal units such as vocatives, imperatives, formulae of social exchange, and interjections. Generally speaking, thetical expressions have the following properties (see also Dik 1997: 379–407):

(19) Properties of theticals (Heine et al. 2013: 159):
   a. They are syntactically independent from their environment.
   b. They tend to be set off prosodically from the rest of the utterance.
   c. Their meaning is non-restrictive.
   d. They tend to be positionally mobile.
   e. Their internal structure is built on principles of [Sentence Grammar] but can be elliptic.

It will be clear that the strictest criteria are syntactic and semantic (19a&c); prosodic and positional features (19b&d) are presented as tendencies (see also Heine et al. 2013: 165). Moreover, once again the link between syntactic (non-)integration, prosodic (non-)integration and (non-)restrictiveness remains unclear, while also the choice between a prosodically integrated and a non-integrated use of adverbs like *frankly* and *(un)fortunately* is left unexplained.

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6. This focus on semantic rather than syntactic criteria for defining parentheticals can also be found Bonami & Godard's (2008: 300) analysis of French evaluating adverbs. Bonami and Godard propose to distinguish adverbs along two parameters, ±parenthetical vs. ±incidental. Incidentality is a prosodic property, relating to the prosodic integration of a unit in the sentence. Parentheticality, on the other hand, is defined in semantico-pragmatic terms: parentheticals are expressions that do not contribute to the main semantic content of a proposition.

3.7 Summary

As will have become clear from the preceding overview, many different terms and concepts have been introduced to deal with more or less the same group of adverbs (non-truth-conditional adverbs, comment adjuncts, (paren-)theticals, disjuncts, supplements). However, although all these terms and concepts are definitely related, they are clearly not identical; as a result, the classifications mentioned are based on different, partly overlapping criteria.

A number of important tendencies can, however, be identified. First, there is a strong tendency for syntactic non-integration to coincide with prosodic non-integration. There is, however, no one-to-one relationship between the two phenomena: even prosodically integrated adverbs can (to some extent) be syntactically non-integrated, while the syntactic (non-)integration of prosodically non-integrated adverbs is also a matter of debate (where for Huddleston et al. (2002: 1350), for instance, supplements (i.e. prosodically non-integrated elements) are not syntactically integrated into the clause, Espinal (1991: 734–735) explicitly states that some prosodically non-integrated adverbs (e.g. subject-oriented, modal and evaluative adverbs) are syntactically dependent, while Potts argues that all supplements (which by his definition are prosodically non-integrated) are syntactically integrated.)

Secondly, there is a tendency for syntactic (non-)integration to coincide with the semantic features of (non-)truth-conditionality/(non-)restrictiveness. Once again, however, there is no one-to-one relationship, since syntactically integrated elements need not be restrictive or truth-conditional (example (15)); nor, as we will see, are non-truth-conditional elements necessarily fully syntactically non-integrated (see Section 4 for further discussion).

Finally, there is no direct relation between truth-conditionality and prosodic integration: non-truth-conditional adverbs can be prosodically integrated, while the truth-conditionality status of non-prosodically integrated (manner) adverbs (rarely discussed) is far from straightforward (see discussion in Section 5.2.1).

Most importantly, however, despite various attempts to capture the relation between syntactic (non-)integration and prosodic (non-)integration (and, to a lesser extent (non-)truth-conditionality), the exact nature of the interaction between these levels of analysis has never been explored in sufficient detail, and no attempt has been made to describe or model this interaction in a systematic, function-to-form fashion.

4. Adverbs in FDG: Modifiers vs Discourse Acts

In this section we will reconsider the three dimensions of (non-)integration mentioned in the literature to distinguish between parenthetical and sentential adverbs. It will be argued that although none of the three types of (non-)integration goes hand-in-hand with any of the other types, they do interact in a complex but systematic fashion (Section 4.1). Subsequently, it will be demonstrated how the distinctive features of FDG allow us to deal with this interaction by combining two distinctions present in the model: (i) the distinction between interpersonal and representational modifiers within a single Discourse Act (Section 4.3), and (ii) the distinction between (interpersonal and representational) modifiers within a Discourse Act and those functioning as separate Discourse Acts (Section 4.4). Before these two distinction are discussed, Section 4.2 will discuss some relevant aspects of the Discourse Act.

4.1 Dimensions of integration

From the preceding it has become clear that we cannot simply assume a simple distinction of two classes of adverbs, with corresponding semantic, syntactic and prosodic behaviour, as represented in (20):[7]

(20)

Truth-conditional & Syntactic adjunct & Prosodic integration	vs.	Non-truth-conditional & Syntactic disjuncts Prosodic non-integration

Nor is it very helpful to discuss each distinction separately, as illustrated in (21):

(21)

Truth-conditional	vs.	Non-truth-conditional
Syntactic adjunct	vs.	Syntactic disjuncts
Prosodic integration	vs.	Prosodic non-integration

Instead, in what follows it will be argued that we need to recognize two interacting formal distinctions, both part of the operation of Encoding in FDG: syntactic (non-)integration on the one hand, and prosodic (non-)integration on the other. Truth-conditionality, as a semantico-pragmatic notion, however, belongs to Formulation; as indicated in Section 2, it can be regarded as one of the functional features

7. See Dehé (2014: 40) for a similar conclusion concerning the six types of parentheticals she discusses.

that triggers specific syntactic behaviour. However, not all distinctive syntactic features of interpersonal modifiers follow directly from their non-truth-conditional status. In fact, in classifying and analysing different types of modifiers, three subsets of syntactic features need to be distinguished (see also Keizer 2018a, b):

1. syntactic properties that follow directly from the truth-conditionality of an adverb; e.g. clefting, questioning and the scope of predication proforms/ellipsis/negation (see Section 5.1.3.1);
2. syntactic properties that are unrelated to truth-conditionality, e.g. position and distribution in embedded environments. These features suggest that non-truth-conditional adverbs like illocutionary *frankly* do, in fact, still have a certain degree of syntactic integration, and only become fully non-integrated when they form independent intonation units (see Section 5.1.3.2);
3. further syntactic properties that vary according the kind of adverb (the level and layer of analysis), but which are unrelated to the truth-conditionality status or syntactic integration of an adverb, and are not affected by prosodic non-integration (e.g. constraints on coordination and modification; see Section 5.1.3.3).

Consider, for instance, the examples in (22):

(22) a. So, I *frankly* think the commission, as a concept, was the wrong one. (COCA, spoken)
b. And, *frankly*, that's what we all should be doing. (COCA, spoken)
c. No woman had ever spoken so *frankly* to him in his life. (COCA, fiction)
d. You write about – *very frankly* – about losing your virginity when you were 14 years old. (COCA, spoken)

In examples (22a) and (22b), *frankly* functions as an interpersonal, illocutionary adverb, whereas in (22c) and (22d) it is used as a manner adverb. There is general consensus that illocutionary *frankly* in example (22b) is parenthetical: it is non-truth-conditional (semantically non-integrated), as well as syntactically and prosodically non-integrated. Equally uncontroversial is the status of manner *frankly* in (22c), which is truth-conditional as well as syntactically and prosodically integrated. In (22a), *frankly* is non-truth-conditional, but at the same time prosodically integrated; syntactically speaking, as we will see, this use of *frankly* is characterized by a certain degree of syntactic integration (see Section 5.1.3.2). In terms of degree of integration (or conversely parentheticality) it is therefore situated between examples (22b) and (22c). Finally, manner *frankly* in example (23d) is prosodically non-integrated, as a result of which its truth-conditional and syntactic status is equivocal (see Section 5.2.1).

In other words, what needs to be acknowledged is that the syntactic and the prosodic features of an adverb need not be triggered by the same functional (i.e.

pragmatic or semantic) properties. Thus, where some syntactic features follow from the truth-conditional status of the adverb in question, others are triggered by other functional properties (in particular their specific interpersonal or representational function). Their prosodic features, on the other hand, are triggered neither by the truth-conditionality, nor by the syntactic features of an adverb, but rather by yet other (discourse-pragmatic) functions of the adverb in question.

In what follows it will be argued that, unlike other approaches, the architecture of FDG already supplies us with the means to capture the discourse-pragmatic, semantic, syntactic and prosodic differences between different classes (or uses) of adverbs, as well as the interaction between the different types of properties. Thus, along one dimension, FDG allows us to distinguish between adverbs functioning as interpersonal and representational modifiers within a single Discourse Act (accounting for differences in truth-conditionality, as well as some differences in syntactic behaviour). In addition, however, adverbs (both interpersonal and representational) can function as separate Discourse Acts, in which case we are dealing with a relation between a nuclear and a dependent (subsidiary) Discourse Act (accounting for differences in both prosodic and syntactic realization).[8] These two dimensions will be discussed and exemplified in Section 4.3 and 4.4. First, however, we need to look at some relevant aspects of the Discourse Act.

4.2 Discourse Acts: Three important properties

Discourse Acts, defined as the 'smallest identifiable units of communicative behaviour' (Kroon 1995: 65), form the basic unit of analysis in FDG (Hengeveld & Mackenzie 2008: 4). In terms of internal structure, Discourse Acts have a configurational head, consisting of (maximally) four other interpersonal units. Externally, they can combine with other Discourse Acts to form a larger structure (the Move). In terms of formal realization, Discourse Acts tend to be identified by certain prosodic features, corresponding typically (though not necessarily) to Intonational Phrases at the Phonological Level (Hengeveld & Mackenzie 2008: 432). In what follows, each of these three aspects of the Discourse Acts will be discussed in some more detail: the internal structure in Section 4.2.1, the relation between Discourse Acts in Section 4.2.2, and the prosodic features in Section 4.2.3.

8. As argued in Keizer (2018a, 2018b), a third distinction is needed to account for the presence of non-truth-conditional, prosodically integrated representational adverbs (in particular subject-oriented adverbs like *cleverly*, *wisely*, etc.). Since it is not relevant for the analysis of (both illocutionary and manner) *frankly*, this distinction is not discussed here.

4.2.1 *The internal structure of the Discourse Act*

Discourse Acts (A) consist of up to four elements:

- An Illocution (F): the formally expressed conventionalized means available in a language to indicate a Speaker's communicative intentions (DECL, INTER, IMP);
- Two Speech Participants (P_1 and P_2): functions alternating as Speaker and Addressee;
- A Communicated Content (C): the totality of what the speaker wishes to communicate.

Discourse Acts may be expressed by means of a complete clause, but may also be 'elliptic': they may be expressed as 'sentence fragments' (NP, PPs, etc.), or as single words (*yes*, *ok*, *why*), and may even consist of an Illocution only (as in the case of vocatives like *Hey!* or interjections like *Ouch!*). Each Discourse Act must, however, contain a slot for the Speaker $(P_1)_S$ and one (and only one) Illocution (Hengeveld & Mackenzie 2008: 63). An example of a Discourse Act is given in (23a); a simplified IL representation is provided in (23b), where the Ascriptive Subact T_1 corresponds to the Property expressed as *come*, while *Joan* and *tonight* correspond to the Referential Subacts R_1 and R_2:

(23) a. Joan will come tonight.
b. IL: $(A_I: [(F_J: \text{DECL } (F_I)) (P_I)_S (P_J)_A (C_I: [(T_1) (R_1) (R_2)] (C_I))] (A_I))$

4.2.2 *Discourse Acts as parts of a Move*

When two or more Discourse Acts combine into one Move, they can be related in two ways. If the two Discourse Acts have equal communicative status, the relationship between them is one of equipollence. If, on the other hand, the Speaker wants to indicate that one Discourse Act (the Nucleus) is communicatively more important than some other Discourse Act (a Subsidiary), the relationship between them is one of dependence. In that case a rhetorical function representing the relationship between the two Acts is assigned to the Subsidiary Act (Hengeveld & Mackenzie 2008: 52–58). An example is given in (24), where the Subsidiary Discourse Act *my sister* is assigned the rhetorical function Orientation:

(24) a. My sister? She had forgotten all about it.
b. $(M_I: [(A_1)_{\text{Orientation}} (A_J)] (M_I))$

4.2.3 *The prosodic features of the Discourse Act*

When it comes to their prosodic realization, there is a default (and transparent) one-to-one relationship between Discourse Acts at the Interpersonal Level and Intonational

Phrases (IPs) at the Phonological Level (Hengeveld & Mackenzie 2008: 432).[9] Intonational Phrases are characterized by some or all of the following external and/or internal features, the most important ones being the presence of a complete intonational contour and boundary tones preceding and following the unit in question (see e.g. Crystal 1969: 205–206; Bolinger 1989: 185–189; Cruttenden 1997: 30–34; Knowles 1991; Nespor & Vogel 1986; Gussenhoven 2004; Dehé 2009, 2014):

(25) a. The presence of a complete intonational contour (CTC), i.e.
  i. The presence of minimally one accented syllable
  ii. Pitch movement on at least one of the accented syllables
  b. The presence of prosodic boundary markers preceding and following the unit in question; i.e. the presence of edge tones (L% or H%) in Autosegmental-Metrical analysis). The following clues help to recognize such boundaries:
    i. Pitch reset after a boundary (e.g. Gussenhoven 2004: 113–116); or a 'change in pitch level and/or pitch direction among unaccented syllables' (Cruttenden 1997: 34)
    ii. Pauses preceding and following the unit in question (optional; see e.g. Nespor & Vogel 1986: 188; Dehé 2014: 93)
    iii. Absence of certain processes of connected speech (e.g. assimilation, elision, gemination of stops, contraction) (optional)
    iv. Syllable lengthening (optional)
    v. Change in speech rate (optional)

As is well known, however, non-default relations are possible (cf. Crystal 1969; Bolinger 1989; Gussenhoven 2004; Dehé 2009, 2014: 43, 107; see also Hengeveld & Mackenzie 2008: 432), but these are normally triggered by one or more specific (and identifiable) factors. Non-transparent (one-to many or many-to-one) relations may, for instance, be pragmatically motivated (e.g. by the presence of emphasis, Focus or Contrast), as in example (26), where each word within the Discourse Act forms a separate IP (expressed with strong emphasis and falling pitch on each word).

(26) a. THAT. IS. NOT. TRUE
  b. IL: $(M_I: (A_I) (M_I))$
  PL: $(U_i: [(IP_i) (IP_j) (IP_k) (IP_l)] (U_i))$

Production or processing factors (including rapid speech, hesitation, (syntactic or prosodic) length/complexity) may also lead to non-default realizations (e.g.

9. As well as to Propositional Contents at the Representational Level and Clauses at the Morphosyntactic Level.

Cruttenden 1997: 30–31; Dehé 2014: 42). In (27), for instance, processing is facilitated by interrupting a Nuclear Discourse Act with a Subsidiary Discourse Act (an Aside), leading (potentially at least) to the use of three separate IPs.

(27) a. My sister, who is not very organized, had forgotten all about it.
b. IL: $(M_I: [(A_I)\ (A_J)_{Aside}]\ (M_I))$
PL: $(U_i: [(IP_i)\ (IP_j)\ (IP_k)]\ (U_i))$

Finally, in rapid speech a sentence like (28), consisting of two Discourse Acts, can be expressed as one IP (in which case it is used, according to Bolinger (1989: 97) as a 'macro-constituent answering to a mood or passion').

(28) a. I didn't make you lose it what are you talking about! (Bolinger 1989: 97)
b. IL: $(M_I: [(A_I)\ (A_J)]\ (M_I))$
PL: $(U_i: (IP_i)\ (U_i))$

4.3 Adverbs as modifiers within a single Discourse Act

As mentioned in Section 2, in FDG adverbs are analysed at either of the two levels of Formulation (IL or RL), and at different layers within these levels. A discourse-organizational adverb like *finally*, for instance, is analysed at the IL, as a modifier of the Discourse Act, while attitudinal adverbs like *unfortunately* or *understandably*, are analysed as modifiers of the Communicated Content, another IL layer. Being speaker- rather than proposition-oriented, all these adverbs are non-truth-conditional. Modal and evidential adverbs (e.g. *probably* or *presumably*), on the other hand, are regarded as being truth-conditional, modifying a representational layer, that of the Propositional Content (cf. Ifantidou 1993; Papafragou 2006).

The distinction between IL and RL modifiers is supported by the fact that they exhibit different syntactic behaviour, e.g. when it comes to clausal position and occurrence within the complement of verbs (see Section 2). In addition, IL and RL modifiers behave differently on each of the syntactic criteria mentioned in the literature on parenthetical adverbials/disjuncts: whereas RL modifiers are syntactically integrated, IL modifiers are not. What all these modifiers have in common, however, is that they are indeed modifiers within a single Discourse Act (whether at the IL or the RL), and as such (by default) prosodically integrated.

Consider the examples in (29) and (30). In (29a), the adverb *unfortunately*, as a non-truth-conditional adverb, is analysed at the Interpersonal Level, where it modifies (expresses the speaker's attitude towards) the Communicated Content (C_I), as shown in the representation in (29b). The adverb *probably* in example (30a), on the other hand, is truth-conditional, functioning as modifier at the Representational Level, where it modifies the Propositional Content (p_1; expressing the speaker's

commitment to the truth of the proposition; example (30b)). In both cases, the entire Discourse Act (A_I) corresponds to a single Intonational Phrase (IP_i) at the Phonological Level (PL).

(29) a. John *unfortunately* won't come tonight.
b. IL: $(A_I: [(F_I: \text{DECL } (F_I))\ (P_I)_S\ (P_J)_A\ (C_I: [(T_I)\ (R_I: \text{John } (R_I))\ (R_J)]\ (C_I): \textbf{unfortunately}\ (C_I))]\ (A_I))$
PL: (IP_I)

(30) a. John *probably* won't come tonight.
b. RL: $(p_i: (\text{neg } ep_i: (e_i: (f_i: [(f_j: \text{come } (f_j))\ (x_i)_A\ (t_i: \text{tonight } (t_i))]\ (f_i))\ (e_i)\ (ep_i))\ (p_i): \textbf{probably}\ (p_i))$
PL: (IP_i)

4.4 Adverbs as separate Discourse Acts

Central to the analysis proposed in this chapter is the assumption that adverbs (both interpersonal and representational) can also be analysed as separate, 'elliptic',[10] typically Subsidiary Discourse Acts, related, by means of a rhetorical function, to a Nuclear Discourse Act (its host).[11] Adverbs like *unfortunately* or *probably*, for instance, can function as an Afterthought, following the Nuclear Discourse Act (example (31)), as an Aside, interrupting the Nuclear Discourse Act, or as a Prelude, preceding the Nuclear Discourse Act (see Section 5.2.4 below).

(31) a. John won't be able to come, *unfortunately*/*probably*
b. IL: $(M_I: [(A_I)\ \mathbf{(A_J)_{Afterthought}}]\ (M_I))$
PL: $(\text{IP}_i)\ \mathbf{(IP_j)}$

Note that the functions Prelude and Afterthought do not yet exist in FDG; they have been introduced because none of the existing rhetorical functions (e.g. Motivation, Orientation, Concession or Correction; Hengeveld & Mackenzie 2008: 53–56) really capture the communicative contribution made by the adverb *frankly* (or any other interpersonal adverb for that matter). Having said that, one might argue that the existing function of Orientation constitutes a particular subtype of the new,

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10. Elliptic is used here in a broad, pre-theoretical way, as no elements from the Interpersonal level are actually elided from these Discourse Acts. What is meant here is that the Discourse Act has a non-default structure in that it does not contain any Subacts corresponding to a predicate and its arguments, and as such is not expressed as a full clause; see also Section 5.2.1).

11. Compare the analysis of non-restrictive nominal appositions suggested by Hannay & Keizer (2005).

broader function of Prelude, while Correction can be regarded as a subcategory of Afterthought.

Finally, as separate Discourse Acts, these adverbs have their own Illocutionary force (DECL, INTER or IMP), recognizable by the tone they carry; in example (31), for instance, the adverbs *unfortunately*/*probably* function as declaratives, expressed as separate Intonational Phrases with a falling tone. Moreover, as separate Discourse Acts, these adverbials may be considered to be syntactically non-integrated and non-truth-conditional (but see discussion in Section 5.2.1).

5. Case study: *Frankly*

In this section, the two-dimensional approach advocated in the previous sections will be illustrated by a corpus study of the adverb *frankly*. The data consists of 316 examples (spoken and written) from the Corpus of Contemporary American English (COCA), collected in two different searches: one to retrieve all the relevant instances of *frankly* in the complement of a verb (95 examples; see Section 5.1.3.2), and one to collect a set of (randomly selected) examples to determine the exact discourse and rhetorical functions of interpersonal *frankly* (221 examples; Sections 5.1.1 and 5.2.3). Since the spoken part of the corpus consists of transcribed material only, the analysis relies on punctuation added by the transcriber.[12] Each example was studied in its textual context and classified according its exact (rhetorical, pragmatic or semantic) function, its truth-conditionality and various aspects of its syntactic behaviour. In addition, quantitative information will be used where relevant. Section 5.1 will deal with the difference between interpersonal and representational modifiers within the Discourse Act; subsequently, Section 5.2 will be concerned with the difference between adverbs used as modifiers within a Discourse Act and those used as separate Discourse Acts.

5.1 Within the Discourse Act: Interpersonal vs. representational *frankly*

In this section a number of aspects of the adverb *frankly* will be discussed to illustrate the difference between its interpersonal or representational uses. These aspects include various (discourse-pragmatic and semantic) functions it can serve (Section 5.1.1), its truth-conditionality status (Section 5.1.2), and its syntactic properties (Section 5.1.3).

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12. This means that in this chapter tone will not be taken into consideration; this remains a subject for future research (for which use will be made of the Fisher Corpus of Spoken American English).

5.1.1 *Function*

Let us begin by looking at the original representational function of *frankly*, that of indicating the manner in which the action, process or state designated by the verb is being performed or takes place (at the layer of either the Lexical Property or the Configurational Property; see Hengeveld & Mackenzie 2008: 208–209). An example of this use of *frankly* is given in (32a), the (partial) representational structure in (32b):

(32) a. The two men spoke *frankly*. (COCA, magazine)
b. RL: (p_i: (ep_i: (e_i: (f_i: [(f_j: speak (f_j)): (f_k: **frankly** (f_k)) (f_j) (2 x_i)$_A$] (f_i)) (e_i)) (ep_i)) (p_i))

Occasionally, *frankly* serves a different, though semantically related, function. Thus it could be argued that in (33) *frankly* has an evidential function (based on the reasoning that if something is done in a frank manner, all relevant information (evidence) is available); in these cases the meaning of *frankly* is similar to that of such evidentiality adverbs as *obviously* and *clearly* (see also Ifantidou 1993: 78):

(33) but all in service of a chaotically plotted story and a central character so *frankly* unappealing he almost makes Jar Jar Binks seem like tolerable company by comparison. (COCA, newspaper)

As mentioned in Section 3, it has long been recognized that adverbs like *frankly*, *honestly*, *truthfully* or *confidentially* can also function as comments on the illocutionary force of a speech act; in that case they are, as it were, manner adverbs modifying an implicit performative, paraphrasable as 'I'm telling you frankly/honestly/truthfully/confidentially that' (see also Mittwoch et al. 2002: 773). An example is given in (34), where the *frankly* indicates the speaker's claim to honesty in uttering the Discourse Act.

(34) a. I *frankly* don't care.
b. IL: (A_I: [(F_I: DECL (F_I): **frankly** (F_I)) (P_I)$_S$ (P_J)$_A$ (C_I)] (A_I))

However, an examination of corpus data shows that *frankly* often communicates more than just honesty on the part of the speaker. Thus, it is often used to express concession, being paraphrasable (more or less) as 'I/we have to admit', or 'What follows may be negative: unpleasant, offensive, unusual, inappropriate, disappointing, unexpected, etc.' (cf. Fraser 1996: 168). This use of *frankly* typically involves a certain degree of counterexpectancy, indicating that the speaker assumes the information he/she presents to be unexpected to the hearer (and sometimes the speaker him/herself). An example is given in (35):

(35) But we work with our allies. We share information. And it's one of the things, that we *frankly* have to do better. (COCA, spoken)

Sometimes, however, the use of *frankly* is more assertive, expressing the speaker's intention to persuade the addressee. In those cases the Discourse Act containing *frankly* is used to express an opinion of the speaker, one he/she expects other people to disagree with. In example (36), for instance, *frankly* seems to communicate that the speaker is offering his honest opinion ('if you ask me') – an opinion he is inviting other people to share, even though he knows they may not like what he is saying.

(36) NAVARRO: OK. You know that President Obama is not known for working with the Republicans in Congress, not even the Democrats in Congress. You know they're not going to get in the weeds and this has no chance. This is *frankly* red meat for the base. This is rhetoric that makes the progressive base of the Democrat Party happy. (COCA, spoken)

Finally, it is interesting to observe that when used as a (prosodically integrated) interpersonal modifier, the content that is communicated in the rest of the Discourse Act is typically new (unfamiliar to the addressee) and the subject of the clause often refers to the speaker (for further discussion, see Section 5.2.3).

5.1.2 *Truth-conditionality*

As already mentioned in Section 2 (see examples (1) and (2)), all interpersonal adverbs are assumed to be non-truth-conditional (Hengeveld & Mackenzie 2008: 128–129). Application of the 'embedding test' (Wilson 1975) confirms that *frankly* is non-truth-conditional. Thus, when we embed the sentence in (37) into a conditional (38), we find that the adverb does not fall within the scope of *if* (and actually becomes very difficult to interpret; see Section 3.2, as well as example (51) below).

(37) John's book has *frankly* sold very little.

(38) ??If John's book has *frankly* sold very little, they will not renew his contract.

It will be clear that the conditions under which the *if*-clause holds (i.e. under which John's contract will not be renewed) are specified in (39), not in (40). From this it follows that the illocutionary adverb *frankly* is not truth-conditional.

(39) If the book has sold very little.

(40) If the speaker tells him frankly that the book has sold very little.

If, however, *frankly* is used as a representational manner adverb, the adverb does contribute to the truth-value of the proposition in the main clause, as shown in the examples below, where the proposition expressed in the main clause in (41) is true when John speaks to them and does so frankly. Representational *frankly* is therefore truth-conditional.

(41) If John speaks to them *frankly*, they will be willing to listen.

5.1.3 *Syntactic properties*

As shown in Section 3, the literature on parenthetical expressions, or disjuncts, has supplied a number of tests for syntactic non-integration. This section will apply these tests (or at least the ones applicable to adverbs) to *frankly*, again with the intention of illustrating the difference between its interpersonal and representational use. In accordance with the three types of syntactic properties distinguished in Section 4, Section 5.1.3.1 will start with those syntactic properties that are a direct result of the truth-conditional status of the adverb (clefting, questioning, and scope of proforms, ellipsis and negation). This will be followed by a discussion of those syntactic features that are unrelated to truth-conditionality: clausal position and distribution in Section 5.1.3.2 and coordination and modification in Section 5.1.3.3.

5.1.3.1 *Clefting, questioning and scope of proforms/ellipsis/negation*

One of the most popular tests used to distinguish between syntactically integrated and syntactically non-integrated adverbs is the clefting test (Quirk et al. 1985: 504–505, 612–631; Espinal 1991: 729; Contreras 1976; Haegeman 2009 [1991]). As shown by the following examples, interpersonal *frankly* in (42) does not allow clefting, whereas the manner adverb *frankly* in (43) does:

(42) a. I *frankly* don't care.
b. *It is *frankly* that I don't care.

(43) a. He spoke *frankly* to me.
b. It was *frankly* that he spoke to me.

As it turns out, however, this test cannot be used to distinguish between interpersonal and representational modifiers in general, since most types of representational adverbs (e.g. modal, evidential, factual and subject-oriented adverbs) do not allow clefting either, as demonstrated in example (44) (see also Allerton & Cruttenden 1974: 4; Quirk et al. 1985: 504).

(44) It was **probably*/**evidently*/**actually*/**stupidly* that John had taken the money.

The same applies to the questioning test. Example (50) shows that interpersonal *frankly* cannot be elicited by questions (Quirk et al. 1985: 504–505; Espinal 1991: 729; Haegeman 2009 [1991]: 332). Strictly speaking, elicitation of the manner adverb *frankly* is possible (though rather unnatural, see example (46)). Note, however, that this test suffers from the same weakness as the clefting test, since elicitation is very much restricted with many representational adverbs as well (e.g. modal, evidential or subject-oriented adverbs).

(45) And I *frankly* failed. (COCA, newspaper)
A. How did you fail?
B. *Frankly.

(46) John *frankly* admitted that he had taken the money.
A. ?How did John admit that he had taken the money?
B. ?Frankly.

In fact, both clefting and questioning seem to be restricted to elements of the State-of-Affairs (or predication), i.e. the who, what, where, when, how and why. Since non-truth-conditional adverbs like *frankly* are not part of the proposition, they cannot be part of the State-of-Affairs; in other words, the fact that illocutionary *frankly* does not allow clefting and questioning follows directly from its non-truth-conditional status.

Finally, as observed in previous accounts (Quirk et al. 1985: 504–505, 612–631; Haegeman 2009 [1991]: 332–334), interpersonal *frankly* does not fall within the scope of predication proforms, ellipsis or negation, whereas representational *frankly* does. Thus, in (47B) illocutionary *frankly* does not fall within the scope *do-so*, whereas manner *frankly* in (48B) does:

(47) A. When I came here, I did try to implement those ideas. And I *frankly* failed. (COCA, newspaper)
B. *So did* I. (= 'I also failed')

(48) A. The IIF admitted *frankly* that the banks were the cause of the crisis. (COCA, academic)
B. And *so did* the government. (= 'the government also frankly admitted it')

However, since the scope of proforms, ellipsis and negation is always (part of) the proposition, this difference between the two uses of *frankly* follows once again directly from the difference in their truth-conditional status: as a non-truth-conditional adverb, illocutionary *frankly* is not part of the proposition, and therefore automatically falls outside of predication proforms, ellipsis and negation; manner *frankly*, on the other hand, is part of the proposition, and as such falls within the scope of predication proforms, ellipsis and negation.

5.1.3.2 *Clausal position and syntactic distribution*

Other differences in syntactic behaviour between illocutionary and manner *frankly* do not, however, follow from their truth-conditional status, but rather from the specific layer of analysis they belong to. In this section, it will be argued that two of these additional syntactic properties, clausal position and syntactic distribution, suggest that non-truth-conditional adverbs like *frankly* are to some extent syntactically integrated.

In accordance with what is recorded in the literature (e.g. Jackendoff 1972; Cinque 1999; Pullum & Huddleston 2002: 579–580; Laenzlinger 2004, 2015; Ernst 2002; Haumann 2007), interpersonal and representational *frankly* differ in the

kinds of clausal position they prefer. Thus, although both can, and often do, occur in medial position, illocutionary *frankly* has a clear preference for more leftward positions (initial (28%) and post-subject (28.8%)), and is virtually absent in final position; the manner adverb *frankly*, on the other hand, predominantly occurs in post-verbal (including final) position (90%). Note, however, that the very fact that not only manner *frankly*, but also illocutionary *frankly* is restricted when it comes to clausal position is a clear indication that in this respect illocutionary adverbs are still part of the clause, i.e. syntactically integrated (see also Section 5.2.1).

As for the syntactic distribution of the two uses of *frankly*, it was mentioned in Section 2 that the layered organization of the FDG model makes certain predictions about which adverbs can occur in which verbal complements. On the assumption that different types of verbs take different layers as their clausal complement (i.e. have different selectional or subcategorizational properties), there are constraints on the occurrence of adverbs in the clausal complement of a verb in the sense that a complement cannot contain adverbs that function as modifiers at a higher layer than that of the complement itself (Hengeveld & Mackenzie 2008: 363–365; see also Bach 1999: 358; Potts 2005: 145–146). For instance, since verbs of knowing take a Propositional Content as their complement, their complements can contain propositional modifiers like *probably* in (49), but not higher-layer adverbs, like *reportedly* (which modifies the Communicated Content):

(49) Somebody back there was smart enough to know that Nairam *probably* (**reportedly*) had the line tapped. (COCA, fiction) (= example (4))

Given the fact that interpersonal *frankly*, as a modifier of the Illocution (i.e. as a prosodically integrated adverb), is a high-layer modifier, the prediction is that it can occur in the complement of only very few verbs, namely only of those verbs that take a whole Discourse Act or Move as their complement, i.e. *conclude*, *summarize*, *go without saying*. Non-integrated uses of *frankly* (whether interpersonal or representational), on the other hand, are expected to freely occur in the complements of lower-level verbs. Note that the restrictions on the use of illocutionary *frankly* in the complement of verbs once again shows that despite its parenthetical nature, illocutionary *frankly* is still to some extent syntactically integrated (see also Section 5.2.1).

This prediction is largely borne out by the data. Out of a total of 94 relevant examples of *frankly* occurring in the complement of a lower-level verb (identified by the search string [verb *that* … *frankly*], within 9 words), 76 can easily be accounted for. The largest group (66 instances) consists of prosodically non-integrated instances of *frankly* (example (50a)). Although the complement-taking verbs in these cases (*say*, *think*, *argue*, *know*, *find*, *mean*, *show, was worried*, *hope*) all select

complements below the layer of the Illocution, these examples are unproblematic, since (as will be argued in Section 5.2) in these instances *frankly* does not function as a modifier within the complement (nor within the matrix clause), but instead forms a separate Discourse Act. The same holds for examples such as (50b), where the complement takes the form of quoted speech (2 instances); since in this case we are dealing with an embedded Discourse Act, the use of illocutionary *frankly* is fully acceptable. Finally, the manner adverb *frankly*, as a low-layer modifier, can be found in the complement of any (semantically compatible) verb. Eight instances were found, with eight different verbs (*note*, *urge*, *reveal, know, say, argue, hope, feel*). An example is given in (50c).

(50) a. I would argue that, *frankly*, the Justice Department is much more subjected to internal political forces, especially in certain administrations. (COCA, academic)

b. Manent's trenchantly comments that 'it is *frankly* absurd to suggest that the Nazis killed because they felt directly threatened by the Bolsheviks, …' (COCA, academic)

c. But his charm offensive flopped after WikiLeaks revealed that he also spoke *frankly* to America about China. (COCA, newspaper)

This leaves us with 18 seemingly unexpected instances. Of these, the large majority (13 instances) consists of cases where *frankly* follows the sequence *I think that*. If, following for instance Thompson (2002), we assume that in those cases where *think* is used with the first person subject and in the present tense we are no longer dealing with a main clause, but rather with an epistemic formulaic fragment, these cases are again unproblematic.

Only a few cases remain (with the verbs *say* and *believe*), two of which are given in example (51). Although it cannot be denied that the use of interpersonal *frankly* is unexpected in these cases, it is also true that the sentence in question are difficult to interpret. Thus, in (51a&b), it is difficult to determine who exactly is being frank (reporting or reported speaker), which actually supports the idea that the use of *frankly* in this position is infelicitous.

(51) a. I think you would be surprised how ambivalent they are to both sides. When we first started talking with them, they had nothing but contempt for Moqtada al-Sadr, but they also said that *frankly* there's part of them that wanted the Mahdi Army to win and to defeat the Americans because they didn't have much trust in the Americans anymore. (COCA, spoken)

b. We believe that you can *frankly* run most of these programs less expensively at the state level. (COCA, spoken)

5.1.3.3 *Coordination and modification*

Finally, illocutionary and manner *frankly* differ with regard to coordination and modification. These differences are not related to the truth-conditional nature of the adverbs, nor do they provide evidence for syntactic (non-)integration. Nevertheless, these differences follow from the differences between interpersonal adverbs (as pragmaticized, bleached elements) and representational adverbs (as fully lexical, semantic elements).

As for coordination, the examples in (52) confirm Quirk et al.'s (1985: 504–505, 612–631) observation that disjuncts like interpersonal *frankly* cannot be made the basis of contrast in alternative interrogation or negation:

(52) a. It *frankly* stuck with her. (COCA, fiction)
b. *Did it stick with her *frankly* or …?
c. *It didn't stick with her *frankly* but …
d. *It *frankly and immediately* stuck with her.

In the case of representational *frankly*, on the other hand, coordination (with other manner adverbs) is possible, as shown in example (53).

(53) 'I wouldn't want to do that,' he adds *frankly but anonymously*, 'because I'm afraid that what I might blame somebody else for might come back to haunt us in a similar case against us.' (COCA, newspaper)

Similarly, illocutionary and manner *frankly* differ with regard to the type of modification they accept. In FDG adverbs that are represented as modifiers at the Interpersonal Level can themselves only be 'modified', or 'specified', by other interpersonal elements, i.e. by grammatical(ized) adverbs like *quite*, *very*, *just*, but not by representational modifiers (e.g. those indicating degree). The prediction is, therefore, that the latter group of modifiers is only used in combination with the manner adverb *frankly*. This predication is borne out by the corpus data. Thus interpersonal *frankly* is modified only by *quite* (very frequently), *very* and *just* (14 examples in all).

(54) a. We know very little about what works and *quite frankly* they do not want to be treated. (COCA, spoken)
b. And what people are asking now is that the military become some sort of social science laboratory, and *very frankly* our first and foremost job is not to advance social causes, however meritorious they may be. (COCA, newspaper)
c. And what was questioned there was a case of one of the assumptions, but *just frankly* the other scientists didn't agree with one of his assumptions. (COCA, spoken)

Representational (manner adverb) *frankly*, on the other hand, can also be modified by degree modifiers like *so*, *too*, *how* and *equally* (examples (55a–c)) (12 examples in all); as shown in (55d), it can also occur in *as*-comparatives (2 examples):

(55) a. No woman had ever spoken *so frankly* to him in his life. (COCA, fiction)
b. You think I speak *too frankly*. (COCA, fiction)
c. 'Did you like Helen Etheridge, Mr. Hamilton?' Pitt asked it so candidly that it was robbed of implication. 'Yes,' Hamilton said *equally frankly*. (COCA, fiction)
d. But a couple of brave souls told Bush *as frankly* as they dared that he was getting bad advice from his economists. (COCA, magazine)

5.1.4 *Summing up*

On the basis of the examples discussed in this section, we can conclude that it is indeed justified to distinguish between an interpersonal and representational use of the adverb *frankly*, since the two adverbs not only perform different (discourse-pragmatic vs. semantic) functions, but, as a result, also exhibit consistent differences in their syntactic behaviour. At the same time, it has been shown that the relation between truth-conditionality and syntactic integration is far from straightforward. This is first of all due to the fact whereas that some syntactic differences between illocutionary and manner *frankly* follow directly from the difference in truth-conditionality between the two adverbs, other features are unrelated to their truth-conditionality status; and secondly, to the fact that in some respects, even illocutionary *frankly* can still be considered to be syntactically integrated.

5.2 Adverbs as separate Discourse Acts

We now turn to the second dimension of the classification and analysis of adverbs, i.e. to the distinction between, on the one hand, interpersonal and representational adverbs that function as modifiers within a Discourse Act (as discussed in the previous section) and, on the other, adverbs that function as separate Discourse Acts. It will be shown that, when functioning as a separate Discourse Act, the adverb *frankly* exhibits a number of specific features in terms of its prosodic and syntactic integration and truth-conditionality (Section 5.2.1), its interpersonal status (Section 5.2.2) and its discourse-pragmatic and rhetorical functions (Sections 5.2.3 and 5.2.4, respectively).

5.2.1 *Prosodic, syntactic and semantic integration*

As mentioned in Section 4.2.3, adverbs functioning as separate Discourse Acts typically correspond to independent prosodic units (Intonational Phrases); or, in writing, to units separated from their host by means of punctuation. In addition,

their status as separate Discourse Acts affects the degree of syntactic integration of these adverbs. As shown in Section 5.1.3, when used as an interpersonal modifier, *frankly* is still to some extent syntactically integrated, in the sense that there are restrictions on its clausal position and distribution. These restrictions are lifted, however, when *frankly* is used as a separate Discourse Act, and, consequently, realized as an independent prosodic unit. Thus, whereas as an interpersonal modifier, *frankly* can only occur towards the left of the clause (the post-verbal positions being restricted to the manner adverb *frankly)*, when used as a separate Discourse Act, *frankly* has a much higher degree of positional mobility, as illustrated in the following examples:

(56) a. That doesn't surprise me, *frankly*. (COCA, spoken)
b. The Democratic Party is very much about drawing contrast, *frankly*, with the Republican Party. (COCA, spoken)

Similarly, any restrictions on its (linear) occurrence in the complement of verbs taking a low-level complement are lifted when *frankly* forms its own Discourse Act:

(57) a. I would argue that, *frankly*, the Justice Department is much more subjected to internal political forces, especially in certain administrations. (COCA, academic) (=50a)
b. And then the leisure elements in Charlotte continue to, *frankly*, outperform many other markets (Internet, Charlotte Business Journal)

In other words, when illocutionary *frankly* is used as a separate Discourse Act, it becomes entirely non-integrated.

But what about prosodically non-integrated cases of manner *frankly*, as illustrated in example (22d) (here repeated as (58)); do these also become syntactically non-integrated? And what about their truth-conditional status?

(58) You write about – *very frankly* – about losing your virginity when you were 14 years old. (COCA, spoken)

Manner adverbs, as we have seen, are generally assumed to be truth-conditional: they contribute to the truth-value of the proposition they are part of. In example (58), however, *frankly* is not part of the proposition expressed in the Nuclear Discourse Act. Thus, even if the adverb itself is still truth-conditional, it would only be so in relation to the proposition expressed in its own separate Discourse Act, not in relation to the Nuclear Discourse Act (which is why they are regarded as non-truth-conditional (or non-restrictive) by, for instance, Huddleston et al. (2002) and Potts (2005)). This ambivalent status explains why these adverbs still pass the negation test: in (59) B's answer can relate either to the proposition expressed in the

Nuclear Discourse Act ('No, John did not tell us about his youth'; most likely reading) or to the proposition expressed in the Subsidiary Act ('No, John didn't do so in a very frank manner'; possible reading). Whether or not one regards these adverbs as (non-)truth-conditional thus depends on whether one takes into consideration the relation to the host (in which case they are non-truth-conditional) or their contribution to their own Discourse Act (in which case they are truth-conditional).

(59) A. John told us, *very frankly*, what he had done.
B. No, that's not true.

Similarly, it is difficult to determine to what extent manner *frankly* in (22d) is syntactically integrated. This is first of all due to lack of internal complexity of the Subsidiary Discourse Act, which means that most of the tests for syntactic integration cannot be applied. One syntactic test that could be applied, the scope-of-proform test, again seems to yield an ambiguous result: in (60B) the proform *do-so* could, but need not be interpreted as including the manner in which the action was performed:

(60) A. John told us, *very frankly*, what he had done.
B. So did his brother.

It might be argued that, in those cases where *very frankly* is interpreted as being included in the proform *do-so*, this is due to a process of inference, as the relation between the two Discourse Acts, encourages the addressee to still interpret the adverb as commenting (indirectly, i.e. by creating what Potts (2005) would describe as a Conventional Implicature) on the proposition contained in the Nuclear Discourse Act. Strictly speaking, however, the manner adverb in (60A), forming its own Discourse Act, cannot be syntactically integrated into another Discourse Act (Huddeston et al.'s (2002) position; see Sections 3.2 and 3.7); nevertheless it could be argued to be syntactically integrated in its own separate Discourse Act.

In FDG, this complex situation can be represented (in somewhat simplified form) in (61):

(61) John told us, *very frankly*, what he had done.
IL: $(M_I: [(A_I: [(F_I: \text{DECL}\ (F_I))\ (P_I)_S\ (P_J)_A\ (C_I: [(T_I)\ (R_I)\ (R_J)\ (R_K)]\ (C_I))]\ (A_I))\ (A_J: (F_J: \text{DECL}\ (F_J))\ (P_I)_S\ (P_J)_A\ (C_J: (T_J)\ (C_J)\ (A_J))_{\text{Aside}}]\ (M_I))$
RL: $(p_i: (\text{past}\ ep_i: (e_i: (f_i: [(f_j: \text{tell}\ (f_j))\ (1\ x_i)_A\ (m\ x_j)_R\ (e_j)_U]\ (f_i))\ (e_i))\ (ep_i))\ (p_i))$
$(p_j: (f_k: [(f_j: [\ ]\ (f_j): (f_l: \textbf{very frank}\ (f_l)))\ (1\ x_i)_A\ (m\ x_j)_R\ (e_j)_U]\ (f_k))\ (e_j))\ (ep_j))$
$(p_j))$

In (61) we find two separate Discourse Acts, one corresponding to the host (the Nuclear Discourse Act A_I) and one to the parenthetical adverbial phrase *very frankly* (the Subsidiary Discourse Act A_J). A_I is a fully specified Discourse Act, realized as a clause; apart from an Illocution (declarative), it contains a Communicative Content

consisting of a number of Subacts (the Ascriptive Subact T_I evoking the property 'tell', and three Referential Subacts, R_I, R_J and R_K, evoking the three referents *John*, *us* and *what he had done*). At the Representational Level, these units correspond, in a default manner, to the Verbal Property *tell* (f_j) and its three arguments (the Actor x_i, the Recipient x_j and the Undergoer e_j), which together make up the Configurational Property f_i heading the State-of-Affairs e_i. The State-of-Affairs, in turn, is part of an Episode ep_1, and, finally, a Propositional Content p_i.

In the Subsidiary Discourse Act A_J, on the other hand, the Communicated Content C_J consists of a single Ascriptive Act (T_J), evoking the property 'very frankly'. On the Representational Level, this Discourse Act is expressed as a separate Propositional Content p_j, consisting solely of a Configurational Property f_k containing all the units making up the Configurational Property f_i in A_I. Not being evoked at the Interpersonal Level, however, these units are not realized morphosyntactically. The only part that is realized is the additional Adjectival Property f_l (corresponding to T_J), modifying the non-expressed Verbal Property f_j (co-indexed with the Property 'tell' in f_i).

The analysis proposed not only accounts for the morphosyntactic and phonological realization of the parenthetical manner adverb (a single phrase functioning as a separate prosodic unit), but also of its intended meaning (modifying the verb *tell* in the host construction). In addition, it allows us to regard the adverb as both syntactically integrated (in its own Discourse Act) and non-integrated (with regard to the Nuclear Discourse Act). Similarly, the analysis captures the ambivalence in the truth-conditionality status of parenthetical manner adverbs, as being both truth-conditional (occurring at the Representational Level in its own Discourse Act) and non-truth-conditional (with regard to the Nuclear Discourse Act, although still linked to it through co-indexation).

5.2.2 *Interpersonal status*

When functioning as separate Discourse Acts, adverbs like *frankly* can serve as separate, identifiable units of communicative behaviour. Nevertheless, they still tend to have a subsidiary function with regard to some other Discourse Act. In such cases, the Subsidiary Act is provided with a rhetorical function specifying its relationship to the Nuclear Act. In example (62), for instance, *frankly* functions as a Subsidiary Discourse Act with the rhetorical function Afterthought:

(62) a. And I hope this works out for him, *frankly*. (COCA, spoken)
b. IL: $(M_I$: [… (A_I) $\mathbf{(A_J)_{Afterthought}}$ …] $(M_I))$

Since in FDG it is assumed that every Discourse Act contains an Illocution (Hengeveld & Mackenzie 2008: 69), we may assume that interpersonal adverbs used as separate Discourse Acts can also have their own illocutionary force. That this is indeed the case is shown in example (63), where *frankly* is clearly used as a question.

(63) As someone who ACTUALLY WORKS IN FILM, I'm going to tell you now that here is plenty of desire south there. A director sometimes works much less hard than all [t]he rest of the crew. I've worked with award winning male AND female directors, *and frankly?* The women actually work harder.
(NOW Corpus)

Occasionally, interpersonal adverbs can be used as independent Discourse Acts, as in the following example, where the adverb *frankly* is used at the beginning of a new paragraph, as a reaction to a previous Move:

(64) At any rate, British hopes are being raised at the Eton Dorney rowing venue – where I am today. The weather's mixed, but the site itself is wonderful. Quintessentially British countryside, complete with happy, fat, sheep and one of the largest outdoor bicycle 'locker' (sic) I have ever seen. There are few if any empty seats here and the crowds are enthusiastic and knowledgeable.
Frankly? If I was a tourist this would be the one venue I'd be moving heaven and earth in order to see. Shame about the instant coffee in the media centre, however. (NOW Corpus)

5.2.3 *Discourse-pragmatic functions*

In Section 5.1.1 we saw that, when used as an interpersonal modifier, *frankly* can perform a number of (related) discourse functions, from indicating honesty on the part of the speaker to expressing concession or the intention to persuade the addressee. Naturally, it would be interesting to find out whether *frankly* performs the same functions when used as a separate Discourse Act. Generally speaking, it may be assumed that, due to its more independent communicative status, information provided in a separate Discourse Acts is given more emphasis or weight. Given the fact that as a modifier within the Discourse Act, *frankly* has already developed a number of new functions, it is perhaps not unlikely that, when used as a separate Discourse Act, *frankly* has developed some additional ones.

Examination of the corpus data shows that when used as a separate Discourse Act, interpersonal *frankly* can serve a range of functions. Firstly, like the modifier *frankly*, it can serve to express concession and persuasion, as illustrated in examples (65a) and (65b), respectively:

(65) a. I haven't been particularly impressed, *frankly*, by anybody at this point on either side of the aisle. (COCA, spoken) [Concession]
b. That's one question where I would have thought he would have had an answer figured out before he got into the middle of this. It was an inevitable question that would be asked. And that the way to deal with it, *frankly*, is to say, you don't make policy by going back and reliving old decisions.
(COCA, spoken) [Persuasion, weak]

Two additional functions can, however, be identified. The first can also be placed under the general heading of persuasion, but seems to be more emphatic than the 'if you ask me' interpretation illustrated in (36) above for the interpersonal modifier *frankly* and in (65b) for Discourse Act *frankly*, expressing something like 'take it from me' (example (66)). The terms weak and strong persuasion will be used to describe these two uses.

(66) Let me put it in context, then, because I was in that room. And it was, *frankly*, verbal rape. (COCA, spoken) [Persuasion, strong]

Finally, there is an even more powerful interpersonal function of *frankly*, in which the speaker strongly appeals to the hearer to share his/her opinion. In this case, *frankly* is used almost like a hortative, inviting the addressee to share in collective admission of something unpleasant (expressing something like 'let's face it'). In these cases, the information that follows need not be new to the addressee; quite often it merely serves as a reminder, with the speaker appealing to common knowledge to make his/her point. An example of this particular use of *frankly* is given in (67).

(67) Goodwill doesn't work. What works is strength and power. America's job in the world, *frankly*, is not to be loved. But it's to it, you know, whether we like the burden or not, we are a force for good. (COCA, spoken) [Appeal]

When we now compare the distribution of the different discourse pragmatic functions over the two dimensions (*frankly* as modifier vs. *frankly* as separate Discourse Act), we find that the extra communicative weight associated with the use of a separate Discourse Act results in a shift towards stronger discourse-pragmatic functions, away from the basic function of expressing honesty to the functions of strong persuasion and appeal (Table 1).[13]

The results lend further support to the proposed distinction between modifier *frankly* and Discourse Act *frankly*, in the sense that they are not only distinguishable in terms of formal features (in particular their prosodic features, due to the presence of an Illocution and a lack of prosodic integration), but also in terms of the range of discourse-pragmatic functions they can perform.

13. The specific discourse-pragmatic function of each instance of illocutionary *frankly* was determined on the basis of which of the paraphrases provided fitted best in the given context. A study of interpersonal *frankly* in a corpus of spoken American English (the LDC Fisher Corpus; Cieri et al. 2004) yielded a similar distribution among prosodically integrated occurrences (≈ modifiers) and prosodically non-integrated occurrences (≈ separate Discourse Acts) (where prosodic (non-)integration was determined on the basis of the presence of a nuclear accent and the presence of boundary tones, with change in shift, pauses and final syllable lengthening as additional features).

Table 1. The discourse functions of interpersonal frankly as Modifier and Discourse Act (COCA)

	Basic function	Concession	Persuasion		Appeal	??
			weak	strong		
Modifier (80)	8.8% (7)	88.8% (71)	2.5% (2)	0% (0)	0% (0)	0% (0)
Discourse Act (141)	0% (0)	65.2% (92)	7.1% (10)	11.4% (16)	15.6% (22)	0.7% (1)

Note, however, that unlike the rhetorical functions to be discussed in the next section, the different discourse-pragmatic functions of illocutionary *frankly* discussed in this section are not regarded as being part of the grammar (for this, their influence in the form of an utterance is too unsystematic; see Hengeveld & Mackenzie (2008: xii, 11–12), as well as Keizer's (2015) Principle of Formal Encoding). Instead, it will be assumed that these communicative intentions are part of the Conceptual Component, from where they may influence the likelihood of a certain (prosodic) realization being preferred. Thus, these intentions may increase the chances of a speaker using a separate Discourse Act, but will not, by themselves, trigger this choice.

5.2.4 *Rhetorical functions*

As mentioned in Section 5.2.1, when used as a Subsidiary Discourse Act, *frankly* is very flexible when it comes to its linear position; thus it may precede the host (Nuclear Discourse Act), follow the host, and interrupt the clause corresponding to the host at almost every point. Very provisionally, we may suggest that which position *frankly* occurs in is determined by a combination of rhetorical function (see also Section 4.4) and processing factors,[14] for instance:

- Planned comments on the Illocution/Communicated Content as a whole ('Prelude'): P^{pre}
- Planned comments on the Illocution/Communicated Content targeted at a particular element within the utterance ('Aside'): P^{int}[15]
- Unplanned comments on the Illocution/Communicated Content as a whole ('Afterthought'): P^{post}

Asides can be inserted at different positions in the utterance. This is not done randomly (e.g. Huddleston et al. 2002: 1351; Potts 2005: 104; Blakemore 2006: 1685):

14. Clearly, each of the rhetorical functions suggested covers a range of (related) functions; i.e. a Prelude can express any of the five discourse-pragmatic functions of illocutionary *frankly*.

15. The extra-clausal position Interpolated does not yet exist in FDG.

although they do not function as dependents within a clause, Asides are usually semantically or pragmatically related to a particular element within the utterance; to what I will call the 'target' (Huddleston et al.'s (2002: 1351) 'anchor'):[16]

(68) What she is saying, with her big white collars, is, 'I am a clean, controlled and decent Christian woman. I believe in marriage and the family. And smacking. **You, *frankly*, are a bit of a slut.**' (BYU-BNC, pop-lore) (= (6b))

Notice how the coherence of the sequence and the intention of the speaker depends on *frankly* following the contrastive element *you* (the target).

5.2.5 *Summing up*

The preceding discussion has shown that, in addition to the distinction between interpersonal and representational adverbs, it is justified to make a second distinction between adverbs functioning as (interpersonal or representational) modifiers within a single Discourse Act, and adverbs functioning as separate Discourse Acts. In particular, it has been shown that Discourse Act *frankly* can be distinguished from modifier *frankly* both in terms of formal behaviour (in terms prosodic non-integration, degree of syntactic integration and extra-clausal position) and in terms of its pragmatic properties (the presence of an Illocution and its specific discourse-pragmatic and rhetorical functions).

6. Conclusion

The main goal of this chapter has been to show that the specific discourse-pragmatic, semantic, syntactic and prosodic properties of interpersonal adverbs like *frankly* cannot be accounted for by any of the one-dimensional distinctions (i.e. (non-) truth conditionality, syntactic (non-)integration, prosodic (non-)integration) proposed so far; instead, it has been argued, these properties can only be accounted for if we thoroughly investigate the interaction between these different dimensions of integration.

In particular, it has been argued that syntactic integration is by no means a unified notion, as some syntactic features follow directly from the (non-)truth-conditional status of the adverbs in question (clefting, questioning and scope of

16. Note that, in those cases where the adverbs targets a Subact, Asides can also be inserted into a noun phrase (e.g. *that frankly awful tie*, where *frankly* modifies the property *awful*). Such an approach would remove the need for providing noun phrases (or Referential Subacts) with an Illocution (Van de Velde 2011: 20), since the Illocution would simply be part of Discourse Act containing this Subact.

proforms, ellipsis and negation), whereas other syntactic features do not (clausal position and distribution), with the latter suggesting a certain degree of syntactic integration even for non-truth-conditional (interpersonal) adverbs. In addition, it has been shown that prosodic non-integration (itself triggered by the pragmatic status of an adverb) affects the (degree of) syntactic integration on non-truth-conditional (and possibly truth-conditional) adverbs.

Finally, it has been shown that the distinctive features of Functional Discourse Grammar (its distinction between four different levels of analysis, in combination with the fact that it takes the Discourse Act as its basic unit of analysis) provide the tools needed to capture not only all the specific features of (interpersonal and representational) adverbs, but also the interaction between these features, and, as such, the interaction between the different dimensions of integration mentioned in the literature on parenthetical adverbs. In particular the following distinctions has been argued to be relevant to the analysis of parenthetical (non-propositional, interpersonal) and sentential (propositional, representational) adverbs:

1. The distinction between interpersonal and representational adverbs functioning as modifiers within a single Discourse Act, accounting for differences in truth-conditionality and syntactic behaviour. Some syntactic properties follow from the truth-conditional status of the adverb (those relating to clefting, questioning and the scope of proforms, ellipsis and negation), whereas other syntactic properties do not (those relating to clausal position, distribution, coordination and modification);
2. The distinction between adverbs functioning as modifiers within a single Discourse Act and those functioning as separate (Subsidiary) Discourse Acts, accounting for a difference in prosodic integration, as well as for certain differences in syntactic behaviour (relating to clausal position and distribution).

In other words, by using features already available in FDG, we can accommodate all previously introduced concepts and distinctions into one coherent analysis. Moreover, unlike other approaches, FDG allows us to do this in a truly function-to-form fashion. This being said, it is clear that further research into the syntactic and prosodic features, as well as the semantic properties and discourse-pragmatic functions of other adverbs will be needed to test the analysis proposed.

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External possessor constructions and Cree relational inflection compared

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This chapter presents the results of fieldwork and research on the relational inflection in Cree (Cenerini 2014). This form is functionally and formally similar to External Possessor Constructions (EPCs) in Romance and Germanic languages: they both acknowledge participants who are not syntactically licensed by the verb, but that the Speaker perceives to be topical, or particularly affected by the action, and with which she/he empathises. However, unlike the EPC, the relational inflection is not restricted to cases of possession, and is limited only to third person referents. Also, rather than indirect object marking, the relational is realized as a verbal suffix. Finally, it will be argued that, as both constructions are motivated by pragmatic factors, Van de Velde's (2013) representation of EPCs as Subacts at the Interpersonal Level can be extended to the relational inflection.

1. Introduction

The relational inflection is attested in Cree, a language belonging to the Algonquian family, often grouped with the Innu-aimun and Naskapi languages as part of the Cree-Innu-Naskapi continuum. Cree-Innu-Naskapi is one of the most widely spoken languages in Canada, with approximately 95,000 speakers spread from Alberta to Labrador (Statistics Canada 2011). Early missionaries were the first to note the relational paradigm in Cree, stating that it is "very puzzling to beginners" (Horden 1881: 28), and "one of the leading difficulties in the Algonquian dialects, [which] therefore demands particular attention" (Howse 1844: 265). Bloomfield (1928: 329), one of the most influential classic Algonquianists to date, first introduces the term "relational" in 1928, and emphasizes the paradigm's uniqueness, describing it as a *peculiarity* of the Cree language.

The relational, in essence, marks the involvement of an animate third person, who is neither the Actor nor the Undergoer, either as a recipient, beneficiary, or simply as an interested party, without giving any indication of number or gender (Ellis 1971: 81; Wolfart 1973: 60) (Section 2). Junker (2003) is the first to establish a

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connection between the relational inflection found in Cree and External Possession Constructions (EPCs), which are widely attested typologically (Section 3), indicating that both occur in contexts of possession and mark the prominent presence of an additional participant as an unlicensed argument for which there is no room in the valency of the verb. In the relational construction (1), the 'unlicensed' argument is the speaker's future husband, whose presence is marked only by the relational *-w* and the portmanteau morpheme *-ak*, which marks the presence of a first person singular actor and a third person participant:

(1) Cree Relational verb construction (Plains Cree):
osâm êka cêskw âhpô o-hkwâkan ê-wâpaht-am-*w*-*ak*
too not yet or;even 3POSS-face CONJ-see-TI-*REL*-*1SG>3*
'because I had not yet seen his (her future husband's) face' (Minde 1997: 58)

In the external possessor construction (2), the unlicensed argument is also a possessor, in this case the first person singular *mij*.

(2) Dutch External Possessor construction:
Zij rukte mij een been af.
she tear;PST *me* a leg off.
'She tore my leg off.' (Van de Velde 2013: 160)

However, we will show that similarities between these constructions are much greater and extend to the pragmatic factors which motivate their use. Both forms are triggered by the Speaker's feelings of empathy towards the unlicensed participant, as well as the latter's level of affectedness and topicality (Section 4). These constructions are also both considered 'in-between' constructions, which mark equal involvement of both possessor and possessee (Section 5). However, they are structurally very different: Cree is a non-configurational polysynthetic language and, thus, the grammatical information is carried in the verb. Western Germanic and Romance languages which make use of EPCs are configurational and, as such, the possessor is marked as a dative or indirect object (Section 6). The pragmatic relevance of both constructions, in spite of their morphosyntactic differences, can be represented within Functional Discourse Grammar at the Interpersonal Level, similarly to what is argued by Van de Velde (2013) for Dutch EPCs (Section 7).

2. The relational inflection

There are three orders of inflection in the Cree verb, in all of which the relational can be attested: the independent order, which appears in independent clauses; the conjunct order, which appears primarily in dependent clauses; and the imperative

order (Ellis 1971; Wolfart 1973; Ahenakew 1987). We will consider the relational inflection in the independent and conjunct orders only. It is important to note that the conjunct order in Cree does not only encompass contexts where the conjunct is syntactically licensed as an embedded clause, but also includes discourse situations where there is an established context to which the conjunct clause refers or relates. The term dependent or "anaphoric" (Cook 2008: 6) refers to the fact that the conjunct may not appear in out-of-the-blue contexts and requires either a previously established context or a main clause to which it is subordinate.

Since Algonquian languages are polysynthetic, a considerable number of agreement markers are suffixed to the Algonquian verb, including person and number agreement, tense, mode and negation (Table 1):

Table 1. *Non-relational Algonquian verb template* (based on Oxford 2014: 97)

Conjunct / Independent		Verb Stem	Theme sign	Neg		Central suffix		
	Prefix				Formative		Mode	Outer suffix

The prefix, theme sign, central suffix and outer suffix index both person and number agreement. The prefix preferentially agrees with second persons over firsts, and speech-act participants over non-participants in a 2 > 1 > 3 cline (Bloomfield 1928; Goddard 1967); the theme signs, in more recent analyses (Oxford 2014) are considered *object* agreement markers; the central suffix indexes both person and number features, agreeing with plural participants over singulars and often agreeing with the *actor* (Xu 2016); finally, the outer suffix indexes third person features only such as number, animacy and topicality (Oxford 2014). The Proto-Algonquian negative suffix has been lost in most of its daughter languages or displaced (Goddard 1991).

The formative suffix's function is somewhat unclear (Pentland 1999; Goddard 2007), but Oxford (2014: 13) has shown that it is a "fossilized nominaliser that lacks obvious function". Finally, the mode slot indexes modes such as the subjunctive, which expresses condition, and the iterative, for repeated events (Wolfart 1973).

The Cree verb has traditionally been classified into four categories based on animacy and transitivity. Inanimate Intransitive verbs (VII) only involve an inanimate actor (3):

(3) Plains Cree
ê-wâpiskâk nitastotin.
ê-wâpiskâ-k ni(t)-astotin
CONJ-be.white.II-0 1POSS-hat.INAN
'My cap is white.' (Ahenakew 1987: 73)

Animate Intransitive verbs (VAI) are intransitive verbs which involve an *animate* actor (4):

(4) Plains Cree
ê-pimôhtê-yân.
CONJ-walk.AI-1SG
'I am walking.' (Ahenakew 1987: 50)

Transitive Inanimate verbs (VTI), on the other hand, are transitive verbs which involve an *animate* actor and an *inanimate* goal (5):

(5) Plains Cree
niwâpahtên kimasinahikan.
ni-wâpaht-ê-n ki-masinahikan
1-see-TI-1SG 2-book.INAN
'I see your book.' (Ahenakew 1987: 85)

Finally, with Transitive Animate verbs (VTA), the Actor *and* Undergoer are *animate* entities (Wolfart 1973: 38) (6):

(6) Plains Cree
ni-pamih-â-nân.
1-look.after.TA-3OBJ-1EXCL
'We (exclusive) look after him.' (Ahenakew 1987: 93)

The relational inflection occurs only in VAI and VTI inflections (Lacombe 1874; Bloomfield 1928; Edwards 1961; Ellis 1971; Wolfart 1973; Junker 2003), the two orders which typically involve only *one* animate participant.[1] These two orders are grouped under the same category in Wolvengrey's 2011 classification of Cree verbs, which orders verbs according to the number of animate participants they encode (Figure 1).

The relational inflection incorporates elements of V1 (AI and TI verbs) and elements of V2 constructions (such as TA verbs), which encode *two* animate arguments. For example, in the independent order, the third person object marker *-â* typically found in TA verbs in 1 > 3, 2 > 3 and 3 > 3′ interactions follows the relational morpheme *-w* in both VAI (7) and VTI constructions (8).

1. In the present discussion, we are only focusing on the relational form in the narrow sense, i.e. the morpheme *-w* found in VAI and VTI stems. Junker (2002; 2003), Ellis (2004), Cenerini (2014), Drapeau (2014) and Junker and Thoivonen (2015) have argued that the morpheme *-im* in VTA stems should also be considered a relational.

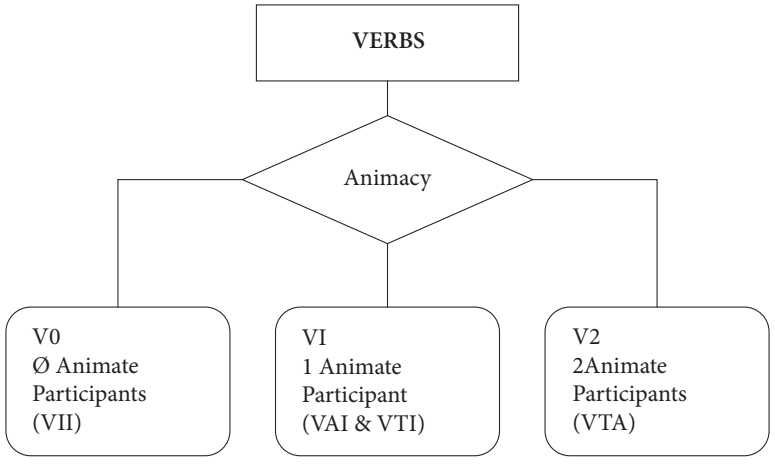

Figure 1. Wolvengrey's Animacy-based verbal classification (Wolvengrey 2011: 154)

(7) Independent order VAI relational and non-relational forms (Swampy & Moose Cree)

a. Non-relational
ni-nipâ-n
1-sleep.AI-1SG
'I sleep.' (adapted from Ellis 1971: 87)

b. Relational
ni-nipâ-w-â-n
1-sleep.AI-REL-3OBJ-1SG
'I sleep (in relation to him/her/them).' (adapted from Ellis 1971: 94)

(8) Independent order VTI relational and non-relational forms (Swampy & Moose Cree)

a. Non-relational
ni-wâpaht-ê-n
1-see-TI-1SG
'I see it.' (adapted from Ellis 1971: 93)

b. Relational
ni-wâpaht-am-w-â-n
1-see-TI-REL-3OBJ-1SG
'I see it (in relation to him/her/them).' (adapted from Ellis 1971: 94)

In the Conjunct order, the relational morpheme in AI and TI verbs is simply followed by TA (V2) person agreement, such as the suffix *-ak* '1SG>3' found in (9b):

(9) Conjunct order VTI relational and non-relational forms

a. Non-relational
ê-wâpaht-am-ân
CONJ-see-TI-1SG
'(as) I see it.' (adapted from Ellis 1971: 94)

b. Relational
ê-wâpaht-am-w-ak
CONJ-see-TI-REL-1SG>3
'(as) I see it in relation to him/her/them.' (adapted from Ellis 1971: 94)

Thus, the relational inflection incorporates both elements of intransitive and transitive constructions.

The negation and the formative morphemes, which occur between the theme sign and person agreement suffixes, as well as the mode have been omitted in the relational paradigm template (Table 2) as they are not relevant to our discussion.

Table 2. Expanded relational Cree verb template

Conjunct						TA person agreement	
Independent	Prefix	Verb Stem	AI/TI Theme sign	Relational marker *-w*	TA theme sign *-â*	AI/TI person agreement	Outer agreement (3rd person agreement)

According to Junker (2002; 2003) and Junker and Toivonen (2015), the relational form in East Cree has three main uses: it occurs in contexts of possession where there is disjoint reference, in cases of "presentative interpretation" (Junker 2003: 324), and in complex sentences. In contexts of possession, there are some limitations to the occurrence of the relational: it cannot occur in cases of co-reference, i.e. where the actor acts on *its own possessee* (10a). In East Cree, the relational marks disjoint reference (Junker 2002; 2003; Junker & Toivonen 2015) and the presence of obviation[2] in (10b) forces the interpretation of disjoint reference, even without the presence of overt noun phrases. In fact, the relational inflection does not license overt noun phrases: the relational participant cannot be referred to *overtly* as in (10c):[3]

2. Obviation in Algonquian marks point of view, or focalization. Algonquian languages oppose an unmarked third person, i.e. the proximate (3), and a marked third person, i.e. the obviative (3′). The third person which is highly topical (i.e. the possessor in (10)) will be unmarked or proximate, and the third person the least topical (i.e. the possessee) will be marked as the obviative (Wolfart 1973).

3. Throughout the chapter, glossing has been adapted from original publication for internal consistency when necessary.

(10) East Cree NP licensing in relational inflection

a. **wapahtamweu umuhkuman.*
wapaht-am-w-e-u u-muhkuman
see-TI-REL-3OBJ-3SG 3POSS-knife
*'S/he sees his/her (own) knife.' (Junker 2003: 320)

b. *wapahtamweu umuhkumaniyu.*
wapaht-am-w-e-u u-muhkuman-iyu
see-TI-REL-3OBJ-3SG 3POSS-knife-OBV
'S/he sees his/her (someone else's) knife.' (Peter sees John's knife.)
(Junker 2003: 320)

c. **Mary niwâpahtamwân.*
Mary ni-wâpaht-am-w-â-n
Mary 1-see-TI-REL-3OBJ-1SG
*'I see it, in relation to Mary.' (Junker 2003: 318)

The second use for the relational form is to increase the number of discourse participants in an action, as to "do it in the presence of someone else" (Junker 2003: 324). This occurs especially in negative clauses (i.e. 'I see a stick but s/he does not'). It could also refer to the unlicensed participant's spatiality, as "I see a stick where he is standing" (Junker 2003: 325):

(11) East Cree
niwâpahtamwân mistikuyû.
ni-wâpaht-am-w-â-n mistiku-yû
1-see-TI-REL-3OBJ-1SG wood-OBV
'I see a stick (but s/he does not) / (over at her/his place).' (Junker 2003: 325)

Lastly, Junker has recorded the relational verb appearing in complex sentences, i.e. when the subject of the embedded verb triggers the occurrence of the relational in the main verb (Junker 2003: 326):

(12) East Cree
nimiyêyihtamwân e-mîchisuyich utawâshimh.
ni-miyêyiht-am-w-â-n e-mîchisu-yich ut-awâshim-h
1-like-TI-REL-3OBJ-1SG CONJ-eat.AI-3′ 3POSS-child-OBV
'I am happy (in relation to the child) that his child is eating.'
(Junker 2003: 327)

Thus, the child, actor of the embedded clause, becomes the *additional participant* to which the first event relates. Additionally, the relational can also be triggered in the embedded verb by the prominent presence of the main verb actor. (13) is an excerpt of a trickster story and his attempt to trick some forest birds:

(13) Eastern Swampy Cree
'ta-wî-kiskên'tamwak kêkwâniw kâ-pimiwatêwak.
ta-wî-kiskêniht-am-wak kêkwâniw kâ-pimiwat-ê-w-ak
FUT-VOL-know-TI-3PL.AN what CONJ-carry.a.burden-AI-REL-3PL.AN
'They [the birds] will want to know what I am carrying on my back (in relation to them).' (Ellis 1995: 120)

Junker's findings for the use of the relational form in East Cree serves as a basis of comparison for this work, started in 2014, which focuses on the use of the relational inflection in Western Cree varieties, particularly Plains Cree ('Y' dialect) and Swampy Cree ('N' dialect). As the relational is a fairly infrequent form, the question arises whether there are any other motivators or limitations which condition the use of the relational other than syntactic factors such as embedded clauses and disjoint reference possession.

Fieldwork research has been done in the community of Kinosao Sipi (Norway House), where Swampy Cree (or the 'N' dialect) is spoken. I met with nine members of the community of Kinosao Sipi,[4] whose age ranged from 40 to 75. All speakers spoke their language fluently, but perceived their language abilities differently: younger speakers, for example, felt they had lost some of their linguistic ability due to the influence of residential schools and the ever-growing presence of English in the community.

The purpose of this fieldwork research was simply to confirm whether the relational form was still active in one dialect that has not been well documented. The fieldwork was part of a wide-scoped project on the relational form which also included a review of textual resources in Plains Cree, Moose Cree and Eastern Swampy Cree.

This work has shown that, contrary to East Cree, the relational is not obligatorily used to indicate disjoint reference for third persons. For the example *the woman there saw his canoe*, the following are all possible:

(14) Disjoint reference in Swampy Cree
a. kî-wapâht-am-w-ê-w o-cîmân-iniw.
PST-see-TI-REL-3OBJ-3SG 3POSS-boat-OBV
'She saw his canoe.'
b. iskwêw ana wapâht-am o-cîman.
woman this.AN see-TI 3POSS-boat
'That woman sees his canoe.'

4. I would like to thank each of them for spending time with me and acknowledge once again the contributions of wâpi-pinêsiw, nipîwaskawiskwêw, Byron Apetagon, Sarah Gamblin, Ken, Robert Hart, Reverend Olive Flett, Alex Anderson and Wayne Anderson as well as the guidance and help of Ken Paupanekis. The community has been receptive to the project, and their positiveness and welcome were very touching and made it a pleasure to spend time in the community.

c. iskwêw ana kî-wapâht-am-w-ê-w o-cîmân.
woman this.AN PST-see-TI-REL-3OBJ-3SG 3POSS-boat
'That woman saw his canoe.'

Example (14a) is a comparable context of occurrence for the relational attested by Junker (2002; 2003) and Junker and Toivonen (2015), where the presence of the obviative on the inanimate object (i.e. *boat*) marks disjoint reference (i.e. *someone else's boat*), triggering the use of the relational. In (14b–c), the inanimate *cîmân* is not marked with the obviative, as is often the case in Western Cree varieties, and the verb 'to see' may (14c) or may not (14b) carry the relational inflection. Such examples would suggest that the relational is optional only in varieties where the obviation system has fallen apart.[5]

Text and fieldwork examples (Cenerini 2014) show that the relational occurs particularly when there is an intimate relationship between the possessor and the possessee, when the speaker clearly feels empathy for the participant or when the participant is particularly topical, which are exactly the same pragmatic factors which have been claimed to trigger the use of External Possessor Constructions (EPCs).

3. External possessor constructions (EPCs)

External possessors are known either as dative external possessors, or more precisely, as many languages which have these constructions have lost the distinction between the accusative and dative cases, indirect object external possessors (Van de Velde and Lamiroy 2016: 353).

In the case of EPCs, the possessor and possessee are not encoded in the same noun phrase and are considered two separate constituents in the clause. (15) is an example of external possession in Spanish, and (16) a prototypical example of German EPCs:

(15) *Los ojos se le llenaron de lágrimas.*
the;PL eye;PL REFL 3DAT fill;PST;3PL of tear;PL
'His eyes filled with tears' (Haspelmath 1999: 112)

In Spanish (15), the possessor is in the dative case, while the accusative and dative cases are both possible in German EPCs (16). In both cases, as typical for EPCs, there is no pronominal possessive marking on the possessed object.

5. I'm indebted to one of the chapter's reviewers for the suggestion.

(16) *Er hat ihn / ihm in den Hals gebissen*
3SG.M.NOM have.PST 3SG.M.ACC/DAT in the.M.ACC neck bite.PST.PTCP
'He bit him in the neck.' (Van de Velde & Lamiroy 2016: 359)

This type of construction violates the theta criterion, i.e. the possessor is not a direct argument of the verb. Rather, it is an "'unlicensed' argument, a role for which there is no room in the 'valency' of the verb" (Van de Velde 2013: 156). These forms contrast with internal possession constructions (IPCs) (17), where both possessor and possessee are expressed in the same constituent:

(17) *Sus ojos se llenaron de lágrimas.*
3PL.POSS eye;PL REFL fill.PST.3PL of tear;PL
'His eyes filled with tears.' (O'Connor 2007: 578)

In (17), the possessor is encoded in a possessive pronominal. Other means of expressing internal possession include the Saxon genitive (i.e. *my sister's book*), the prepositional phrase (PP) possessor (i.e. *the book of my sister*), and the prenominal periphrastic possessive, or resumptive possessive pronoun (*zijn* in (18)):

(18) *mijn vader zijn fiets*
1SG.POSS father 3SG.POSS bike
'My father's bike' (lit. 'my father his bike')
(Van de Velde & Lamiroy 2016: 356)

The prenominal periphrastic possessive originates from the *dativus commodi*, or the dative of benefit or harm, which expresses the advantage and disadvantage of an event for someone. *Dativus commodi* constructions still exist in Dutch (18) and in Spanish (19):

(19) Spanish *dativus commodi*
Nos han entrado ladrones en casa.
1PL.DAT have enter;PTCP thief;PL in house
'Thieves entered our house.' (Van de Velde & Lamiroy 2016: 371)

Other constructions similar to EPCs include other dative case functions, such as the *dativus iudicantis*. The *dativus iudicantis* is neither governed by the verb nor is it a free dative; rather, it is an indirect object "expressing the person marking a judgement or assessing a situation" (Van de Velde 2013: 166). It is also referred to as the 'estimative dative': in German, (20) could be interpreted as the fact that the brother's driving was not to the mother's liking:

(20) *Mein Bruder ist der Mami zu schnell gefahren.*
1POSS brother is the.F.DAT mom too fast drive;PST;PTCP
'My brother drove too fast for mom.' (Lee-Schoenfeld 2006: 106)

Finally, EPCs have also been linked to possessor splitting constructions, in which a possessive pronoun or IPC does not need to be included: both *in de rug* or *in zijn rug* are grammatical in (21).

(21) Possessor splitting constructions
Balthasar stompte hem in de/zijn rug.
Balthasar punch;PST 3M.OBJ in *the/his* back
'Balthasar punched him in *the/his* back.' (Van de Velde 2013: 157)

In these cases, Payne & Barshi (1999: 3) argue that the possessor is an argument licensed by the verb's valency, and that they are not true external possessors.

4. Pragmatic similarities between EPCs and the relational

Van de Velde (2013) and O'Connor (2007) agree there are certain pragmatic factors which justify the existence of EPCs. Important characteristics include the fact that the possessor in EPCs is considered highly affected (4.1), that they are a focus of empathy (4.2) and that they are highly topical (4.3) (Payne & Barshi 1999; O'Connor 2007). These are the same factors we have identified as motivators for the relational inflection.

4.1 Possessor affectedness

Firstly, EPCs are conditioned by how the Speaker perceives the possessor will be affected by the outcome of the action committed on its possessee. Affectedness can refer to physical, social or emotional effects, although prototypical EPCs primarily concern physical affectedness on a body-part possessee. As such, what affects the part also affects the whole, or the individual, in a very significant way.

Prototypical EPCs are also often motivated by *negative* affect: in Dutch, for example, EPCs most consistently occur with *privative* verbs involving physical contact. These are cases where the possessor is extremely affected by the action and, in fact, is at a loss or deprivation of something (22, external possessor in italics):

(22) Prototypical example of Dutch EPC
Zij rukte mij een been af.
3F.NOM tore.PST 1OBJ a leg off
'She tore my leg off.' (Van de Velde 2013: 160)

Furthermore, Dutch EPCs are restricted to cases of inalienable possession, where there is a "natural association between the possessor and the possessee" (Van de

Velde 2013: 162). Inalienable possession in Dutch does not only include body parts and clothes, but also itineraries and culturally associated objects. In marginal cases in Dutch (23), and more commonly so in German and Spanish, EP constructions are also attested with alienable terms:

(23) *Zij deed hem de jas aan.*
3F.NOM put.PST 3M.OBJ the jacket on.
'She put his coat (on him).'[6]

Lee-Schoenfeld (2006: 103) argues that in German, it is also essential that the Possessor Dative have an obligatory relationship with the possessee and that it be an *affectee* argument of the verb. In fact, the greater the effect evident on the possessor, in this case either positive or negative, the more appropriate is the EPC:

(24) **Tim wohnt Lena im Garten.*
Tim lives Lena[DAT] in.the garden
'Tim lives in Lena's garden.' (Lee-Schoenfeld 2006: 108)

(25) ?*Tim steht Lena im Garten herum.*
Tim stands Lena[DAT] in.the garden around
'Tim stands around in Lena's garden.' (Lee-Schoenfeld 2006: 108)

In (24) and (25), the involvement of the possessor is not evident: the fact that Tim lives or stands around in Lena's garden *might* have some kind of effect on Lena, but it is not clear. It is only in (26) and (27), where Lena is evidently affected, and in these instances in a negative way, where EPCs are fully acceptable.

(26) *Tim steht Lena den ganzen Tag im Weg.*
Tim stands Lena[DAT] the whole day in.the way
'Tim stands in Lena's way all day.' (Lee-Schoenfeld 2006: 108)

(27) *Tim ruiniert Lena den schönen Garten.*
Tim ruins Lena[DAT] the beautiful garden
'Tim ruins Lena's beautiful garden.' (Lee-Schoenfeld 2006: 108)

In (26), Lena's movements are impeded by Tim's interference, and in (27), her work in her garden is completely destroyed.

In Mandarin Chinese, the Double-Unaccusative Construction is considered an external possessor construction. The Double-Unaccusative Construction (Li 2005) refers to forms in which there is a pre-verbal and post-verbal NP, the possessor preceding the verb and the possessee following it, as $NP_{Possessor}$ V $NP_{Possessee}$.

6. Thank you to Evelien Keizer for the example.

(28) Mandarin DU construction
Zhangsan xia-le yi-zhi yan.
Zhangsan blind-PFV one-CLF eye
'One of Zhangsan's eyes became blind.' (Li 2005: 203)

Li (2005: 208) shows that this construction is not motivated by syntactic factors, such as possessor raising, but rather by semantic and pragmatic factors. Li, in fact, identifies two semantic constraints, namely the "inalienability constraint" and the "adversity constraint" (Li 2005: 208). Double unaccusative constructions are attested only in cases of inalienable possession, i.e. where the possessee cannot occur without a reference to the possessor. It is also attested only where the possessor is in a *Malaffectee* role, and the event consequently *negatively* affects the part and the whole (28). In cases of neutral and positive affect, the double unaccusative construction is ungrammatical. For example, in (29a), the fact that Zhangsan's hairs have become white is indicative that he is becoming old (hence a negative effect); as such the double negative construction can be used. In (29b), however, the fact that his teeth have been whitened can be perceived as positive, or at least neutral, and as such the double unaccusative construction is ungrammatical:

(29) a. *Zhangsan bai-le ji-gen toufa.*
Zhangsan white-PFV several-CLF hair
'Several of Zhangsan's hairs have become white.' (Li 2005: 208)
b. **Zhangsan bai-le ji-ke ya.*
Zhangsan white-PFV several-CLF tooth
'Several of Zhangsan's teeth have become white.' (Li 2005: 208)

Consequently, like EPCs in West Germanic and Romance languages, external possession constructions are motivated by perceived affectedness of both the part and whole and like Dutch prototypical examples of EPCs, which occur with *privative* verbs, Mandarin DUCs are also triggered by *negative* affect.

O'Connor (2007) provides indications that the level of affectedness necessary to trigger the use of EP constructions could be dependent on the Speech-Act Participants' perception. For example, although all her speakers agreed that the use of EPCs was appropriate in (30), the use of EPCs in (31) was not uniformely accepted:

(30) *Mi padre se me murió el año pasado.*
my father REFL 1DAT die;PST the.M year past
'My dad died last year.' (O'Connor 2007: 605)

In (30), the EPC emphasizes the experience the speaker had losing his father. However, in the case of a cousin's death (31), one of O'Connor's speaker thought the EPC could be acceptable if the cousin and the speaker lived together in the same house. Another

speaker, on the other hand, thought that no matter how close you were to the cousin or how affected you were by his death, the use of EPCs was not acceptable:

(31) ??*Mi primo se me murió el año pasado.*
my cousin REFL 1DAT die.PST the.M year past.
'My cousin died last year.' (O'Connor 2007: 605)

A similar pair of phrases, opposing a spouse, secretary and co-worker, gives a similar impression. For example, the use of EPCs is perfectly acceptable in (32):

(32) *La esposa se me fue a Nueva York.*
the.F wife REFL 1DAT go.PST to New York
'My wife left for New York.' (O'Connor 2007: 606)

The EPC is also acceptable in the case of my secretary, provided that if the boss is dependent on him or her and that their departure leaves the boss on a lurch. However, EPCs are not accepted in cases where it is a co-worker that leaves, even if the co-worker's departure has negative consequences on the boss (O'Connor 2007). 'Wife', 'secretary' and 'co-worker' are all relational nouns, but they embody very different relationships. Furthermore, in Czech, external possession is accepted in the case of the death of a company's accountant, but not an individual's personal accountant (O'Connor 2007: 607). The death of an accountant would wreck havoc on the company, and as such, the EPC then does not express personal feelings on the Speaker's part for the accountant, but the extent of work consequences.

These examples show that even though, in certain cases, there may be variability within speakers in the use of EPCs, this construction cannot be used optionally to convey affectedness of the possessor. Donahue (1999) and Fried (1999) show that for Tukang Besi and Czech respectively, it is not possible to use EPCs even in cases where "affectedness of the possessor is stipulated and contextually supported" (O'Connor 2007: 605). The two main hypotheses to explain the occurrence of EPCs, i.e. affectedness and empathy (cf. 4.2) will sometimes not be enough to predict the occurrence of EPCs.

Thus, O'Connor (2007) argues rather than emotional consequences unique to the possessor, EPCs convey *conventional* consequences. The death of a cousin or the departure of a co-worker (in Spanish) do not have conventional consequences, and as such, do not trigger the use of EPCs. O'Connor (2007) proposes that EPCs could be understood as *conventional implicatures*, which not only add new content and but make space for the speaker to editorialize. In other words, the occurrence of EPCs should be interpreted as a *commitment* on the speaker's part to express and recognize "the applicability of the consequence for the possessor and its importance to the discourse" (O'Connor 1996: 146).

In the case of the relational inflection, its use is optional, but the frequency of its occurrence increases when the impact of the possessor is greater and the

relationship between the possessor and possessee is more intimate. Under this approach, the use of the relational is indeed a *commitment* from the speaker to express the applicability of the consequence for the relational participant and its discoursal relevance.

Similarly to EPCs, the relational inflection often occurs in contexts of possession when there is a close relationship between possessor and possessee and the possessor is also affected and subsequently involved in the event performed on the possessee. In fact, most instances of the relational verb refer to an action performed on one of the possessor's body parts, which are inanimate, and inalienably possessed in Cree, as in (33) and (34):

(33) *(ni)kî-tahkopitamwânân oskâta.*
ni-kî-tahkopit-am-w-â-nân o-skât-a
1-PST-tie.up-TI-REL-3OBJ-1EXCL 3POSS-leg-INAN.PL
'We (excl) tied up its [the deer's] legs.' (Cenerini 2014: 84)

(34) *papêyahtak nitotinamwân ospiton.*
papêyahtak ni(t)-otin-am-w-â-n o-spiton.
carefully 1-take-TI-REL-3OBJ-1SG 3POSS-arm
'I carefully take her/his [my wife/husband's] arm.' (Cenerini 2014: 82–3)

Example (34) is not only an instance of the husband or wife being particularly affected by the action (as their arm is hurt and might be broken), which usually triggers the use of the relational, but the speaker might also undoubtedly feel empathy for his or her partner, who is in pain and distress.

The relational form is also attested in cases where possession is not grammatically inalienable – however, even in these cases, the possessee could still be considered a personal and intimate possession, for example articles of clothing (35), or stories (36). References to the relational possessors are underlined, including the relational *-w,* while the verb with the relational inflection is bolded, and relevant parts of the excerpts are glossed:

(35) Plains Cree
"[…] êkosi, nitapin êkw êkota, wahwâ, konit êkwa ê-itohtêyân aw ôskinîkiskwêw, oskatâkay ôm ê-nitawi-âh-âyinamwak;
o-skatây ôma ê-nitawi-âh-âyin-am-w-ak.
3POSS-dress this.IN CONJ-go.to-oh-run.hand-TI-REL-1SG
âh, wâcistakâc iyikohk ê-katawatêyimak!"
"[…] So, I sat there, oh my, I just went over to this young woman and kept running my hand over her dress; oh, by gosh, I thought her so pretty!"
(Ahenakew & Wolfart 1992: 174)

(36) Plains Cree
"*êwako awa 'piyêsîs' kî-isiyîhkâsow awa kâ-wî-âcimak; wiya ê-kî-acimisot, ôma kâ-wî-âtotamwak*."
ôma kâ-wî-âtot-am-w-ak
this.IN CONJ-FUT-tell.story.about-TI-REL-1SG
"His name was Piyêsîs, the one of whom I will tell; he told it about himself, this story of his which I am going to tell." (Ahenakew 1987: 78)

In (36), the Speaker also clearly feels empathy for the man whose story he is about to tell. Thus, the level of empathy the speaker feels towards the relational participant may also motivate him or her to use the relational form, but not necessarily.

In work done with speakers from Norway House in 2014 (Cenerini 2014), the relational inflection appears to be optional. Both non-relational and relational inflections are possible in (37), where the relationship between possessor and possessee is contextually understood to be much more distant:

(37) Western Swampy Cree
a. Non-relational inflection
n(i)kî-apin otêhtapiwinihk.
ni-kî-api-n o-têhtapiwin-ihk
1-PST-sit.AI-1SG 3POSS-chair-LOC
'I sat in her chair.' (Cenerini 2014: 78)
b. Relational inflection
n(i)kî-cîpatap(i)wân otêhtapiwinih(k).
ni-kî-cîpatapi-w-â-n o-têhtapiwin-ihk
1-PST-sit.up.AI-REL-3OBJ-1SG 3POSS-chair-LOC
'I sat up in her chair.' (Cenerini 2014: 78)

The relational inflection occurred most consistently in cases where a consequence for the possessor is clearly established: in examples where the possessor has lost his/her possession and spends time frantically looking for it, and enlisting the help of speaker. The context given for the elicitation of (38) included the following information: *You and your sister are walking in the park, talking, and looking for her new hat, that she lost earlier that day*:

(38) Western Swampy Cree
niwâpahtamwân otastotin, mwâc mâka wîna wâpahtam.
ni-wâpaht-am-w-â-n ot-astotin mwâc mâka wîna wâpaht-am.
1-see-TI-REL-3OBJ-1SG 3POSS-hat not but her see-TI
'I saw her hat but she did not.' (Cenerini 2014: 84)

The relational also occurs most frequently in cases where there is a concrete action taken on a body part, such as tying up the deer's legs to drag him after a hunt (39).

(39) Swampy Cree Relational inflection
(ni)tahkopitamwânân oskâta.
ni-tahkopit-am-w-â-nân o-skât-a
1-tie.up-TI-REL-3OBJ-1PL 3POSS-leg-PL.INAN
'We (excl) tie up his/her legs.' (Cenerini 2014: 94)

The speaker's choice seems to be dictated by the impact of the event and emotional responses as well as the closeness or intimacy of possessor-possessee unit, but these parameters don't predict the precise occurrences of relational.[7]

4.2 Speaker empathy

The second pragmatic factor motivating the use of EPCs and the relational inflection is Speaker empathy (O'Connor 2007: 592–3). For example, in Spanish, the use of an EPC in (40) is very strange in the context of an autopsy:

(40) ??*Ahora le cortamos los pies.*
now him.DAT cut;PRS;1PL the.M.PL foot;PL
'We now cut his feet.' (O'Connor 2007: 592)

The judgement value given by the Speaker is that this statement is exceedingly strange because it feels as "you're putting human feeling into it" (O'Connor 2007: 592). If the possessor has passed on, he feels nothing and is not truly affected by the event, and thus the Speaker should not feel empathy for him. Affectedness and empathy are thus closely related concepts: the possessor, in this context, feels no pain from his feet being cut, and the Speaker thus feels that it is strange to be empathetic towards him.

O'Connor (2007: 593) notes that the difference between Spanish Internal Possession in (41) and External Possession in (42) is that the EPC is much more sympathetic:

(41) *Si se muere tu gata, la enterramos.*
if REFL die 2POSS cat 3F.ACC bury.1PL
'If your cat dies, we'll bury it.' (O'Connor 2007: 593)

(42) *Si se te muere la gata la enterramos.*
if REFL 2DAT die the.F cat 3F.ACC bury.1PL
'If your cat dies on you, we'll bury it.' (O'Connor 2007: 593)

In effect, (42) implies a reading like "Ohh, if your dear cat dies, we'll help you bury it (said softly and sympathetically)" (O'Connor 2007: 593). In this case, using internal

7. In further fieldwork research, we hope to consider whether or not, with a third person actor, we get the meaning of disjoint reference with the relational in Western Cree dialects like in East Cree (Junker 2002; 2003; Junker & Toivonen 2015).

possession such as in (41) may even imply that there is absence or even rejection of any feeling of empathy. Thus, in Spanish, Speaker empathy is a potential trigger or condition for the use of EPCs when there is a choice between Internal and External possessor constructions.

In Italian, EPCs are more restrained than in Spanish and can only occur with kinship terms. For example, in (43), a friend's mother passed away: not only would the Speaker perceive the friend to be considerably affected by the events, as they have lost someone dear to them, but also feel empathy for him or her:

(43) *Gli è mancata la mamma poco fa.*
3SG.DAT is miss;PTCP the.F mother little ago
'His mother died not long ago.' (Van de Velde & Lamiroy 2016: 370)

On the other hand, (44) is considered ungrammatical, the stain on the table not being an item with which the Speaker can empathize:

(44) **Gli ho pulito le macchie al tavolo.*
3SG.DAT 1.have wipe;PTCP the.PL.F stain;PL to.the table.
'I wiped the stains off the table.' (Van de Velde & Lamiroy 2016: 369)

Similarly, Speaker empathy is a possible condition for the occurrence of the relational construction even beyond contexts of possession. In (45), for instance, the parents feel great empathy for their child who is so excited to get his first job:

(45) *niminêntamwânân ê-cihkênihta(hk).*
ni-minênt-am-w-â-nân ê-cîhkêniht-ahk
1-like-TI-REL-3OBJ-1EXCL CONJ-eager.for.it-3SG
'We (exclusive) like it/are happy that he (our son) is eager for it.'
(Cenerini 2014: 91)

Thus, their child's excitement and joy provoke in the parents a great happiness. The same sentiment is felt in (46) in East Cree, where the Speaker is happy because of the relational participant's departure.

(46) *Niminuenitamuan tshe-tshitutet.*
Ni-minuenitam-u-a-n tshe-tshitute-t.
1-be.happy-TI-REL-3OBJ-1SG CONJ-leave-3SG
'I'm happy (in relation to her) that s/he's leaving.' (Junker 2003: 326)

Examples such as these would indicate that the relational inflection is in fact not triggered by the syntactic context of complex sentences, but rather by indications that the Speaker somehow *relates* to the participant. This would also justify the occurrence of the relational in negative complex sentences and cases of presentative interpretation, such as *I see a stick but she does not* and *I see a stick where she*

is standing, examples provided by Junker (2003: 324–5). DeLancey (1981) argues that the speaker can choose from several possible viewpoints to describe a scene: either an external viewpoint from a disinterested observer, or from any involved participant. In relational 'presentative interpretations', the speaker is choosing to take the relational participant's viewpoint, or perspective, a sign of empathy towards said participant.

4.3 Participant topicality

Finally, O'Connor (2007: 587) discusses topicality of the possessor as a possible condition for the use of EPCs, i.e. that an EPC is chosen by the speaker when the possessor "is highly ranked as a topic in the ongoing discourse" (O'Connor 2007: 587) and is particularly salient. The rest of the utterance is simply comment on the topicalized possessor.

Van de Velde notes that EPCs follow the topicality hierarchy (Van de Velde 2013: 161) and that examples decrease in acceptability as the possessor moves from left to right on this cline:

(47) Topicality of possessor[8]
1/2 person pronoun > 3 person pronoun > proper name > human NP > other animate NP > inanimate NP

The possessor in (48) is encoded as a third person pronoun, and as it involves a body-part possessee and a privative verb, it can be considered a Dutch prototypical example of EPCs:

(48) *Ze* *heeft* *hem* *de* *keel* *door-gesneden.*
3SG.F have.3SG.PRS 3M.OBJ the.SG throat through-cut;PST.PTCP
'She cut his throat.' (Van de Velde 2013: 161)

Examples (49) and (50) could also be considered prototypical instances of EPCs, as they both involve body-part possessees and privative verbs. However, the acceptability of both statements is questionable, because the possessors are not high on the topicality scale: (49) involves a non-human animate NP possessor (*zijn hamster*) and (50), an inanimate NP possessor (*de boom*):

(49) ?*Ze* *heeft* *zijn* *hamster* *een* *oog* *uit-gestoken.*
3SG.F has 3POSS hamster an eye out-gouged
'She has gouged out his hamster's eye.' (Van de Velde 2013: 161)

8. This is a prototypical and expected hierarchy of topicality, which might be modified in certain discourse-specific examples.

(50) ??*Ze heeft de boom de takken door-gezaagd.*
3SG.F has the.SG tree the.PL branch;PL through-saw;PST.PTCP
'She sawed the branches off the tree.' (Van de Velde 2013: 161)

Mandarin Double-Unaccusative Constructions are also motivated by possessor topicality: these constructions are triggered specifically when the possessor, not the possessee, is the discourse topic and will be further talked about (Li 2005: 212). In other words, "the unaccusative EPC is primarily motivated by the speaker's purpose to say something about the possessor instead of the possessee" (Li 2005: 211), i.e. making the possessor the topic, placing it in initial position. Unaccusative EPCs are allowed only in topic prominent languages, which privileges topic over subject marking, such as Mandarin Chinese, Japanese (51) and Korean (52) (Li 2005: 213–4).

(51) *Ken-ga pokkuri neesan-ga sin-da.*
Ken-NOM suddenly older.sister-NOM die-PFV
'It is Ken whose older sister died suddenly.' (Takahashi 1999: 229)

(52) *Zhangsan-i kapcaki apeci-ka cuk-essta.*
Zhangsan-NOM suddenly father-NOM die-PST
'Zhangsan's father died.' (Li 2005: 214)

Thus, in (51) and (52), the topic of discourse is not the deceased family member, but *Ken* and *Zhangsan*, and they will be the ones discussed further in the discourse.

Participant topicality also has important repercussions on linguistic realization in Algonquian languages: the Algonquian person scale, or hierarchy (Hockett 1966; DeLancey 1981; Wolvengrey 2011) is a reflection of participants' prototypical topicality:

(53) Algonquian Topicality Scale (adapted from Wolvengrey 2011: 58)
SAP >3 >3′
high ----------Topicality---------- low

Speech Act Participants (SAP) are considered highly topical and preferentially encoded over other non-participants. There is also a grammatical distinction between unmarked proximate third persons (3) and marked obviative third persons (3′), the least topical non-participant receiving obviative marking.

Another hierarchy with important underlying linguistic repercussion in Algonquian is the *animacy* hierarchy, as provided by Dik (1997: 37):

(54) Animacy Hierarchy
human > other animate > inanimate force > inanimate

The grammatical gender distinction is between *animate* and *inanimate* entities in Algonquian and animate participants are always preferentially marked over inanimate participants (Wolvengrey 2011: 59):

(55) Cree Animacy Hierarchy
Animate > Inanimate

Thus the relational possessor is always the more highly topical Non-Participant involved, and consequently, topicality plays a key role in the use of the relational form. Based on the Algonquian Topicality Scale (53) and the Cree Animacy Hierarchy (55), the animate relational possessor is prototypically more topical than the inanimate *possessee* or patient.

When the relational occurs outside of the context of possession, topicality can also be the main pragmatic trigger for the relational: it seems that a highly topical possessor within the discourse, such as the Old-Woman Dream-Spirit in (56) may condition the use of the relational form. A large portion of the story is provided here for context: the repeated references to the Old-Woman Dream Spirit are underlined and the relational verb, bolded.

(56) Plains Cree
hâw, êkot[a] êkwa kêhtê-ayak ôki, ôtê ôki k-âpicik, êkonik ê-kî-sawohkâtihcik, êkonik ê-kî-sawohkâtihcik, â, êkot[a] êkwa, êkâya ka-patahohkâtiht kîkway wîh-kâc, 'nôtikwêw' k-êsiyîhkâsot, êwako nôtikwêw-âtayôhkan. ê-tâpwêmakahk ôma nipâkwêsimowin, ka-kitâpamâyêkok iskwêwak ôtê ê-sâkaskinêkâpawicik, ôtê k-êtâpiyêk mitoni wâh-wâhyaw nâpêwa; îh! sôhkaniyiw âw iskwêw okâkîsimowin, êwak ôhci êkây patahohkâtihk, kîkway ka-miyâyêk! kiy-ês-âtamihâyêk anima nôtikwêsiw, êkos ânima k-êsi-naskomikonâwâw kîkway; êkos ôma ê-kî-itwêcik kêhtê-ayak. […] êkwa êwak ôma, kâ-ihkâtaman ôma, kâ-nistwapihkâtaman wîhkaskwa, êwakw ânima okisêwâtisiwin ***k-âpihkâtamwat*** *awa,*

êwakw ânima okisêwâtisiwin *k-âpihkâtamwat* awa

êwakw	ânima	okisêwâtisiwin	k-âpihkât-am-w-at	awa
there.it.is	that.INAN	grace	CONJ-braid-TI-REL-2SG	this.AN

êwak ohci, k-ôh-kî-miyiht ayisiyiniw, kiwâpamâw iskwêw ê-sêkipatwât, ê-nistwapihkâtahk ôhi.

'Indeed, it is then that the old people, those sitting over there, used to receive the blessing, they used to receive the blessing, well, and then there she is, never to be overlooked, the Old Woman as she is called, that Old Woman dream-spirit. The sun-dance is powerful, for you to watch these women standing crowded over there [on their side of the lodge] as you look over here where the men are few and far between; behold, the women's chanting is strong, therefore never overlook them, you should always give them something! With that you will make the Old-Woman-Spirit grateful so that she will answer your prayers with something; this is what the old people used to say. […] Now when you braid this, when you braid sweetgrass in three strands, you are **braiding that grace of the Sweetgrass-Spirit with respect to her** [the Old-Woman-Spirit], that is why people used to have it given to them, you see a woman with braids, she braids them in three strands.' (Kâ-Nîpitêhtêw 1998: 128)

As such, a highly topical participant may trigger the use of the relational form in Cree without being a possessor. However, topicality is usually not sufficient to condition the use of the relational form, just as it is not always sufficient to motivate the use of EPCs. Furthermore, although the use of EPCs and the relational entails a feeling of empathy from the Speaker or possessor affectedness, these factors are often not enough to predict the use of either the EPC or relational, a discussion to which we will return in Section 7.

5. Syntactic similarities between EPCs and the relational

In contexts of possession, both the relational form and EPCs can be considered 'in-between' constructions, where the part and the whole are equally involved and affected by the event. Thus EPCs do not solely mark possessor affectedness but also the fact that the possessees and possessors are both important to the event.

Lamiroy (2003) argues that in cases of inalienable possession, case-marking on the possessor (or its syntactic role), is indicative of his or her degree of involvement in the action: possessors indexed as direct objects or marked with accusative case are more crucially involved than their possessees or parts; possessors indexed as indirect objects or marked with dative case are *just as* involved as their part; and finally, possessors indexed in a genitive constructions are interpreted as much less involved as their part.

Draye (1996 in Lamiroy 2003) shows that an alternation between the dative and accusative in German is motivated by "the fact that the possessor is presented as being less affected when the dative is used (*mir*), than when the accusative is used (*mich*)" (Lamiroy 2003: 4):

(57) *Der Mann hat mir/mich ins Gesicht geschlagen.*
the man has 1SG.DAT/ACC in.the face slapped
'The man has slapped me in the face.' (Lamiroy 2003: 4)

Similarly, in Romanian, (58a) is interpreted by speakers to be "whole-centered" and (58b), as "part-centered":

(58) Romanian
a. *Ma închei la cămașă.*
1SG.ACC button;I at shirt
'I button my shirt.' (Lamiroy 2003: 4)
b. *Îmi închei cămașa.*
1SG.DAT button;I shirt;the
'I button my shirt.' (Lamiroy 2003: 4)

In fact, (58a) is only possible when the speaker is actually wearing the shirt and the possessor is foregrounded, while he is backgrounded in (58b). Lamiroy (2003) has also shown that diachronically, languages which favored the use of datives also used middle passives, two *intermediate* structures, i.e. datives between accusatives and genitives, and middle passives between active voice and periphrastic passives.

Consequently, in (59), a direct object construction, the possessor's presence is indispensable and the action is centered around Marie as a whole, rather than simply the part (i.e. *the arm*):

(59) *Paul a mordu Marie (au bras).*
Paul has bitten;PTCP *Mary[OBJ]* (*in.the.M arm*)
'Paul bit Mary (in the arm).' (Lamiroy 2003: 5)

In this instance, the possessor *Marie* is a direct argument of the verb, and no reference to Marie's arm, the possessed entity, is necessary for the sentence to be grammatical. The same can be said for Dutch split-possessor constructions, where the possessee is not obligatory and the possessor is a licensed argument of the verb (60):

(60) *Balthasar stompte hem (in de rug).*
Balthasar punch;PST *3M.OBJ* (in the back)
'Balthasar punched him in the back.' (Van de Velde 2013: 157)

In these constructions, the possessor is an indirect object: as such, they show greater possessor involvement, backgrounding the possessee to an optional role.

At the other end of the cline, genitive constructions mark the least involvement on the part of the possessor. The genitive can be marked by case, a possessive marker, or with a preposition, such as *de* in French (61). In each of these cases, the possessor is relegated to the role of prepositional complement of the noun phrase, rather than of the verb:

(61) *Le médecin examine le bras de Luc.*
the.M doctor examines the.M arm *PART Luke*
'The doctor is examining Luke's arm.' (Lamiroy 2003: 5)

While the possessor is indexed in an explicit NP in prepositional constructions (61), its only reference in (62) is the possessive determiner *son*:

(62) *Le médecin examine son bras.*
the.M doctor examines *3M.POSS* arm
'The doctor is examing his arm.' (Lamiroy 2003: 5)

Similarly, in Dutch IPCs, the possessor is also relegated to a very minor role, his/her presence marked only by the possessive determiner (63):

(63) *De tranen sprongen in zijn ogen.*
the.PL tear;PL jump;PST in *3M.POSS* eye;PL
'The tears came to his eyes.' (Van de Velde 2013: 164)

Dative Possessor constructions, or EPCs, fall in an intermediate position: the "possessor and possessee together play an equally important role: the part as well as the whole are affected by the process" (Lamiroy 2003: 6). In both French (64) and Dutch (65), the possessor is encoded as the indirect object:

(64) *Le médecin lui examine le bras.*
the.M doctor *him.DAT* examine;3SG the.M arm.
'The doctor examines Luke's arm.' (Cenerini 2014: 131)

(65) *De tranen sprongen hem in de ogen.*
the.PL tear;PL jump;PST *3M.OBJ* in the.PL eye;PL.
'The tears came to his eyes.' (Van de Velde 2013: 164)

In such constructions, like in German (57) and Romanian (58), are intermediate structures that focus on the 'part', where both part and whole are interpreted as being equally involved and affected by the event.

The relational inflection can also be considered an 'in-between' construction: Cree ditransitive or applicative constructions would license both possessor and possessee as arguments of the verb. In these forms, the animate possessor would be more important and overshadow the inanimate possessee, as the Cree verb pays more deference to animate rather than inanimate participants (cf. Section 3.3) (66):

(66) *kititohtatamawâw oskotâkay.*
ki(t)-itohtamaw-â-w o-skotâkay
2-take.TA-3OBJ-2SG>3 3POSS-jacket
'You take his jacket to him.' (Cenerini 2014: 135)

However, simply using a non-relational monotransitive form hardly acknowledges the presence of the possessor (67), its reference limited to the possessive prefix similarly to French and Dutch genitive constructions:

(67) *kitotinên ospiton,*
kit-otin-ê-n o-spiton
2-take-TI-2SG 3POSS-arm
'You take his arm.' (Cenerini 2014: 135)

Consequently, the relational form is an 'in-between' form, like the dative possessor, where possessee and possessor are both acknowledged. The theme sign and person inflection from Transitive Inanimate verbs marks the presence of the inanimate possessee, while the relational morpheme *-w* and the third person object marker *-â* mark the presence of a second animate entity involved in the action:

(68) *kitotinamwân ospiton.*
kit-otin-am-w-â-n o-spiton
2-take-TI-REL-3OBJ-2SG 3POSS-arm
'You take his arm (in relation to him).' (Cenerini 2014: 135)

The level of possessor and possessee involvement in direct object/benefactive, indirect object/relational and genitive/intransitive forms is represented in a cline of affectedness, from most effect on possessor to least (Table 3):

Table 3. Cline of affectedness

	Effect on Possessor		
	Most	**Intermediate**	**Least**
West Germanic & Romance	ACC (Direct object) (non-obligatory possessee)	DAT (Indirect object) EPC	GEN IPC
Cree	Transitive Animate (TA) Benefactive	Intransitive Animate (AI) & Transitive Inanimate (TI) Relational verb	AI & TI Nonrelational

However, the unlicensed nature of the additional participant and the equal prominence of part and whole in Cree and Indo-European languages are encoded in the languages' structure quite differently, which can be accounted for by the contrast in their NP configurationality.

6. Syntactic differences between EPCs and the relational

In the case of West Germanic and Romance languages, the use of EPCs is productive in Spanish and German, less so in Dutch and Italian, even more restricted in French, and practically non-existent in English (Van de Velde & Lamiroy 2016). The decline in EPC productivity is inversely proportional to the rise of Noun Phrase (NP) configurationality and the subsequent emergence of specialized slots for determination and modification (Section 6.1). However, even the less configurational West Germanic and Romance languages are by no means non-configurational in the classic sense of Hale (1983). Cree, on the other hand, is considered a truly non-configurational language, and coincidentally, the relational is productive beyond contexts of possession (Section 6.2).

6.1 Noun Phrase configurationality

NP configurationality may be defined as a process of grammaticalization, or a gradual shift towards more rigid structures (Van de Velde & Lamiroy 2016: 377). The rise of NP configurationality is closely related to the introduction of the determiner slot, which in turn has been connected to the recession of the EPCs. Indeed, in French and Italian, Romance languages in which the EPCs are most restrictive, the article has lost part of its autonomy, i.e. it cannot license Noun Phrase ellipsis. NP ellipsis, on the other hand, is grammatical in Spanish (69). Thus, while *la de Juan* is grammatical, its French and Italian counterparts are not:

(69) *la Ø de Juan/*Jean/*Giovanni*
the.F Ø PART John (Van de Velde & Lamiroy 2016: 388)

Another indication of NP configurationality is the grammaticalization of the partitive article. In French, the plural partitive article is used as the plural indefinite article (Van de Velde & Lamiroy 2016: 388). In Italian, the plural partitive can occur as a plural indefinite, but its use in this context is optional. In Spanish, however, its use as an indefinite article is completely ungrammatical and the indefinite plural is a null marker. Take the following examples for *I eat apples* (author's examples):

(70) Plural partitive as indefinite article
a. French: *Je mange des pommes.*
b. Italian: *Mangio (dei) pomodori.*
c. Spanish: *Como (*de las) manzanas.*

Finally, the NP is more configurational when the possessive determiner cannot co-occur with articles (Van de Velde & Lamiroy 2016: 389). While this combination is possible in Italian and Spanish, it is only possible in Old, but not Modern, French (71a–c):

(71) Combination of possessive determiners and articles
a. Old French
un mien fils
a.M mine son
'a son of mine'
b. Italian
il mio libro
the.M 3POSS book
'my book'

c. Spanish
el *libro* *mio*
the.M book 3POSS
'the book of mine' (Van de Velde & Lamiroy 2016: 389)

Consequently, Spanish is considered a less configurational language than French or Italian, and conversely EPCs in Spanish are more productive. For example, in French (72), EPCs may not be used with stative verbs such as *voir* 'to see', but only with dynamic verbs.

(72) *Je* *lui* *ai* *maquillé/cassé/*vu* *la* *figure.*
1SG 3SG.DAT have made.up/broken/*seen the.F face
'I have made up/ broken/ seen her face.' (Lamiroy 2003: 7)

In Spanish, however, EPCs are grammatical with both dynamic and stative verbs (73):

(73) *Le* *he* *pintado/roto/visto* *la* *cara.*
3SG.DAT have made.up/broken/seen the.F face
'I have made up/broken/seen her face.' (Lamiroy 2003: 7)

Similarly, in Cree, the relational inflection is attested with both dynamic and stative verbs, such as *otinam-* 'take it' and *wâpahtam-* 'see it' respectively.

In the case of West Germanic languages, Van de Velde & Lamiroy argue that the English article, which emerged from internal reinterpretation or reanalysis (Sommerer 2011), has become more "specialized" in the expression of definiteness than the Dutch article – which, in addition to definiteness, expresses information about gender and number – and much more so than the German article – which even expresses case (Van de Velde & Lamiroy 2016: 386).

In German and Dutch, which are less configurational, definiteness is not only marked in the article, but also in the adjective by a distinction between strong and weak inflections (74):

(74) Dutch:[9]
a. *een* *groot* *huis*
a big.INDF house
b. *het* *grote* *huis*
the big.DEF house

9. Thank you to Evelien Keizer for these examples.

Correspondingly, the diachronic loss of EPCs is much more progressed in English than Dutch or German, yet again an indication of the consistent relationship between the recession of EPCs and the rise of configurationality. While EPCs are fully productive in Modern German, they are somewhat so in Modern Dutch and Middle English and not all in Modern English (Table 4 adapted from Van de Velde & Lamiroy 2016: 379).

Table 4. Diachronic change of EPCs in West Germanic

Diachrony of EPCs in West Germanic	German	Dutch	English
Old	+	+	+
Middle	+	+	±
Modern	+	±	−

These are all indications that the cline of increased configurationality corresponds to the cline of recession of EPCs construction in not only West Germanic, but also Romance languages (approximation of configurationality cline in Table 5).

Table 5. Configurationality cline

	−EPC →			+EPC
Romance		French	Italian	Spanish
West Germanic	English	Dutch	German	
	+ Configurationality	←		−Configurationality

Romance and West Germanic languages are not perfectly aligned on the cline as EPCs are more productive in Romance.

6.2 Cree as a non-configurational language

However, if French and English are highly configurational, with a strict and well-established determiner slot; Italian, German and Dutch reasonably so; and Spanish even less, they still cannot be considered non-configurational languages in the sense of Hale (1983). Cree, on the other hand, additionally to not having any articles, is a truly non-configurational language in this sense. According to Hale in his study of Walpiri (1983), there are three main properties associated with the typological label of "non-configurational": (i) free word order (6.2.1); (ii) use of null anaphora (6.2.2); and (iii) use of syntactically discontinuous expressions (6.2.3), properties all found in Cree varieties.

6.2.1 *Word order*

Cree has a relatively free order of major constituents, with only a few syntactic constraints, such as the placement of question words and negation (Reinholtz 1999: 203). However, VOS order is considered unmarked and most natural: modifications to this order have pragmatic repercussions, conveying topic and focus information. For example, all but one of the following six possibilities are grammatical in East Cree (Junker 2004: 349):

(75) This child [*uu awaash*] likes [*miyeyimeu*] this dog [*uyuuh atimh*]
- a. SVO: [uu awaash] [miyeyimeu] [uyuuh atimh]
- b. SOV: [uu awaash] [uyuuh atimh] [miyeyimeu]
  (a-b)Pragmatic reading: It is this child who likes dogs.
- c. VSO: [miyeyimeu] [uu awaash] [uyuuh atimh]
- d. VOS: [miyeyimeu] [uyuuh atimh] [uu awaash]
  (d) Pragmatic reading: This child likes this dog (more natural).
- e. OVS: [uyuuh atimh] [miyeyimeu] [uu awaash]
  (e) Pragmatic reading: It is dogs that this child likes.
- f. *OSV: [uyuuh atimh] [uu awaash] [miyeyimeu]

Junker (2004) attributes the ungrammaticality of the *OSV order in East Cree to pragmatic functions, namely the topical (or, more specifically, the non-topical) marking of obviative vs. proximate. In East Cree, obviation helps determine word order (Junker 2004: 363) and the obviative argument cannot precede the proximate argument (75f). This particularity of East Cree is not shared in Swampy Cree, where all six orders are possible (Reinholtz 1999).

6.2.2 *Zero-anaphora*

In non-configurational languages, it is proposed that subject and object markers in the verbal construct are in fact pronominal arguments, in accordance to the Pronominal Argument Hypothesis (PAH): NPs are then not arguments but adjuncts referentially linked to pronominal arguments within the verb (Jelinek 1984; Reinholtz 1999). As such, there is a free omission of NPs in Cree: both Actor and Undergoer NPs can be dropped. In (76), the Undergoer NP occurs, but the Actor NP is omitted.

(76) *kîwâpamêw pisiskiwa*.

kî-wâpam-ê-w	pisiskiw-a.
PST-see.someone-3OBJ-3SG	animal-OBV
'S/he saw the animals.'	(Reinholtz 1999: 203–204)

In (77), the Actor NP occurs while the Undergoer NP is omitted.

(77) *aw awâsis kî-wâpamêw.*
awa awâsis kî-wâpam-ê-w
this.DEM.AN child PST-see.someone-3OBJ-3SG
'The child saw them.' (Reinholtz 1999: 203–204)

Finally, in (78), both NPs are omitted, and agreement is found only on the verb.

(78) *kî-wâpamêw.*
kî-wâpam-ê-w
PST-see.someone-3OBJ-3SG
'S/he saw them.' (Reinholtz 1999: 203–204)

Reinholtz thus argues that the null-anaphora properties of Cree are to be interpreted as a proof of the language's non-configurationality. Within the approach suggested by Hengeveld (2012), optional noun phrases (as exemplified in (76) and (77)) in Cree would be considered Contextual Agreement Markers, which are defined by the following criteria: firstly, they cannot expand on semantic information given by the NPs and secondly, they are more likely to occur with core or "pivotal" arguments, such as nominative and absolutive cases. In languages "with markers optionally co-occurring with a corresponding noun phrase which code a wide range of arguments on the verb, the markers of non-pivotal arguments are most likely to be *Appositional Referential Markers*" (Hengeveld 2012: 474). As such, under this analysis, Cree has both Contextual Agreement markers (as in 76–77), and Appositional Referential Markers, such as the relational.

6.2.3 *Discontinuous noun phrases*

Finally, discontinuous constituents refer to "cases where several words are understood as a single phrasal constituent, yet appear separately" (Reinholtz 1999: 207). There are modifiers in Swampy Cree, such as *kahkinaw* 'every', which may occur in a discontinuous constituent but not independently, proving the existence of true discontinuous constituents in (Swampy) Cree (Reinholtz 1999: 212–3).[10] (79a–c) outlines the different possibilities for the position of modifier *kahkinaw*:

(79) a. *kahkinaw* awiyak kî-sipwêhtê-w.
every person PST-leave-3SG
'Every person left.'
b. **kahkinaw* kî-sipwêhtê-w.
every PST-leave-3SG

10. However, *kahkiyaw* may be used alone in Plains Cree to refer to plural third persons as in *kahkiyaw kî-sipwêhtêwak* 'they all left'.

c. *kahkinaw* kî-sipwêhtê-w nâpêw.
every PST-leave-3SG man
'Every man left.' (Reinholtz 1999: 212–203)

The use of null anaphora, relatively free word order and discontinuous elements constitute characteristics which allow Cree to be defined as a non-configurational language. According to Van de Velde and Lamiroy's hypothesis (2016), its non-configurationality may permit Cree to have constructions functioning like EPCs, such as the relational inflection. Thus, Cree can be added at the end of the cline of configurationality (Table 6):

Table 6. Cree integrated into configurationality cline

– EPC →	+ EPC →		+ relational →
French	Italian	Spanish	>>>>>>> CREE
English	Dutch	German	
+ Configurationality ←			– Configurationality

As Cree is a non-configurational polysynthetic language, the relational form is not marked as an indirect object pronoun or dative case, but as part of the verb. Furthermore, it has a more extensive use than EPCs as it may apply not only to contexts of possession, but to other cases where a third person participant can be perceived to be affected or as a focus of empathy.

7. Interpretation of EPCs and relational within FDG

Van de Velde (2013) argues that, although in FDG Dutch external possession can be represented at either the Interpersonal Level or the Representational Level, the interpersonal representation is preferable. The valency of the verb is first established at the Representational Level: semantic roles are assigned to Individuals, such as Actor, Undergoer and Locative, roles which may considered to be of universal relevance. Other semantic categories can be language specific (Hengeveld & Mackenzie 2008: 199). Van de Velde thus proposes that, if the external possessor is to be encoded in the RL, it receives its own semantic role, i.e. *Affected*, either as an argument (81), or a modifier restricting the head (82). (80) is a prototypical example of Dutch analysed in (81) and (82):

(80) Dutch EPC
Zij rukten hem de kleren van het lijf.
they tear;PST 3M.OBJ the clothes of the body
'They tore the clothes off his body.' (Van de Velde 2013: 163)

In (81), the possessive dative *hem* is encoded as an argument, more specifically as an Individual (x_n) to which the semantic role *Affected* is assigned. Elsewhere, the subject *zij* receives the role of Actor (A), *de kleren* 'the clothes' is assigned the role of undergoer (U) and *het lijf* 'the body' is assigned the role of Locative.

(81) Possessor as Argument (Van de Velde 2013: 170):
$(p_i: (past\ e_i: (f_i: [(f_j: ruk\ (f_j))\ (x_i)_A\ (x_j)_{Aff}\ (mx_k: (f_k: kleed\ (f_k))\ (x_k))_U\ (x_k: (f_l: lijf\ (f_l))\ (x_k))_L]\ (f_i))\ (e_i))\ (p_i))$

In (82), on the other hand, there are only three arguments, namely A, U and L. The external possessor is interpreted as a modifier (x_l) of the predication frame (f_i), which includes the elements *ruk* 'to tear', *zij* 'they' as the agent, *kleed* 'clothes' as the undergoer; and *lijf* 'body' as the locative:

(82) Possessor as modifier restricting the head (Van de Velde 2013: 172):
$(p_i: (past\ e_i: (f_i: [(f_j: ruk\ (f_j))\ (x_i)_A\ (mx_j: (f_k: kleed\ (f_k))\ (x_j))_U\ (x_k: (f_l: lijf\ (f_l))\ (x_k))_L]$
$(f_i): (x_l)\ (f_i))\ (e_i))\ (p_i))$

However, Van de Velde is unconvinced by both alternatives, in the case of Dutch (Van de Velde 2013: 172): if the possessor was its own argument, one would have to consider four-place predicates in Dutch, otherwise rare. At the same time, modifiers are generally preceded by a preposition, bare NPs being rather signals of arguments.

Alternatively, Van de Velde proposes that although there is, typically, a one-to-one correspondence between arguments at the RL and Referential Subacts at the IL, this relationship *can* be violated. For example, in the case of noun incorporation, an incorporated noun is represented as an Individual or x-variable at the RL, but not as a Referential Subact, or R-variable, in the IL (Van de Velde 2013: 173). Van de Velde proposes that, conversely, external (or indirect object) possessors can be represented as a Subact at the IL, but not as an argument (x-variable) in the RL.

Essentially, the Interpersonal Level (IL) represents the "formal aspects of the speaker's choices with regard to how to set up the discourse […][in which] the speaker has to decide how prominently each participant will figure in the discourse" (Hengeveld & Mackenzie 2008: 46). By using a variety of Focus constructions such as cleft constructions and left-dislocations, participants can be encoded anywhere as a separate Discourse Act down to a Subact within a Subact. O'Connor's (2007) analysis of the External Possessor Constructions as a speaker's commitment to express both the applicability of the consequence for the possessor and its importance to the discourse suggests that EPCs pertain to the Interpersonal Level (IL).

Although O'Connor argues that the characterization of EPCs should be compatible with an interpretation of "a physically, psychologically, emotionally or socially affected possessor" (O'Connor 2007: 598) and that affectedness generally

pertains to semantics (and consequently, in the Representational Level (RL)), there are some indications (cf. 4.1) that the speaker's "stance or judgment with respect to the outcome of the event for the possessor is more relevant than any actual effect on the possessor" (O'Connor 2007: 598).

Following O'Connor's analysis of EPCs as conventional implicatures, Van de Velde (2013) proposes that, within a FDG framework, the use of EPCs involves the Contextual Component. The Contextual Component should contain information on genre, register and style that is "necessarily public, in the sense of being available to all participants in the ongoing interaction" and which has shown to have "a systematic effect upon grammatical choices in formulation" (Hengeveld & Mackenzie 2008: 10). Linguistic information contained in the Contextual Components includes the use of reflexives, anaphora and instances of narrative chaining.

Hengeveld and Mackenzie (2014) propose that the FDG Contextual Component is multi-stratal and contains both discoursal and situational analysis. Their interpretation limits the discoursal information to what has occurred in the preceding part of the current discourse and situational context to the immediate environment of the utterance (Connolly 2014). The Contextual Component is composed of four strata, i.e. the Interpersonal, Representational, Morphosyntactic and Phonological Strata, which feed into all four layers of the Grammatical Component.

In Van de Velde (2013)'s IL representation of external possessors, the question simply regards the possessor's prominence: in fact, the external possessor is interpreted as a separate, independent Referential Subact (83):

(83) Referential Subact: External Possessor (Van de Velde 2013: 179–180):
  a. *Zij rukten hem de kleren van het lijf.*
  they tear;PST 3M.OBJ the clothes off the body
  'They tore the clothes off his body.'
  b. … C_I: [(T_I) (+id R_I) **(+id aff R_J)** (+id R_K: (T_J) (R_K)) (+id R_L: (T_K) (R_L))] (C_I)…
  c. Clarification: R_I: zij ('they'); R_J: hem ('him'); R_K: de kleren ('the clothes'); R_L: het lijf ('the body'); T_I: rukten ('tore'); T_J: kleren ('clothes'), T_K: lijf ('body')

In (83), the operator aff (affected) is applied to (R_J), the external possessor, which refers to the commitment made to the Speaker about the importance of the participant's (or possessor's) affectedness.

The internal possessor, however, is downgraded at the IL to a Subact within a Subact (84), which is embedded in Subact $R_{K,}$ which refers to the possessed *lijf* 'body', and supports its realization:

(84) Subact within a subact: Internal Possessor (Van de Velde 2013: 180):
  a. *Zij rukten de kleren van zijn lijf.*
  they tear;PST the.PL clothes off his body
  'They tore the clothes of his body.'
  b. … C_I: [(T_I) (+id R_I) (+id R_J: (T_J) (R_J)) (+id R_K:[(T_K) (**+id R_L**)] (R_K))] (C_I) …
  c. Clarification: R_I: zij ('they'); R_J: de kleren ('the clothes'); R_K: zijn lijf ('his body'); R_L: zijn ('his'); T_I: rukten ('tore'); T_J: kleren ('clothes'), T_K: lijf ('body')

Crosslinguistically, Haspelmath (1999) has argued that EPCs are most frequent with first and second person possessor, which is not surprising considering the Speaker knows his or her own experiences best and, furthermore, that our earliest interactions involve an addressee, leading to an awareness of *you* very early in life (Harbour 2016). This is at the heart of a fundamental difference between EPCs and the relational inflection, as the relational refers *exclusively* to third persons. However, even though the Speaker does not typically have privileged knowledge of third persons state of minds, I argue that the relational inflection occurs when the Speaker *associates* with a Non-Participant. Although there is a fundamental distinction in how discourse participants (Speaker and Addressee) and Non-participants (third persons) are encoded in Algonquian languages (Wolvengrey 2011), I argue that it is also possible that Algonquian grammar also marks cases in which the Speaker associates to Non-participants, and the latter *enter* the realm of discourse participants. As such, if the EPC can be represented at the IL, so can the relational, with some modifications to account for the differences in their structure and contexts of use.

When the relational occurs in cases of possession, the relational form is actually resumptive, as there is both marking on the verb *and* possessive marking on the noun. In both relational and non-relational paradigms, the possessee is always marked with a possessive pronoun enclitic:

(85) a. iskwêw ana wapâht-am o-cîman.
  woman this.AN see-TI 3POSS-boat
  'That woman sees his canoe.'
  b. iskwêw ana kî-wapâht-am-w-ê-w o-cîmân.
  woman this.AN PST-see-TI-REL-3OBJ-3SG 3POSS-boat
  'That woman saw his canoe.'

Consequently, possessive relational constructions structurally resemble Dutch mixed constructions, where the possessor is expressed both internally *(zijn ogen)* and externally (*hem*):

(86) *De tranen sprongen hem in zijn ogen.*
the.PL tear;PL sprang 3M.OBJ in his eye;PL
'The tears came to his eyes.' (Van de Velde 2013: 165)

Although Van de Velde (2009; 2013) has not given an FDG analysis for mixed constructions, we could propose that the element *hem* in (86) would be analysed as a separate, non-embedded Subact, while the possessive is expressed internally. In Cree, the possessor is also expressed twice: if a separate Subact interpretation is possible for mixed Dutch constructions, it could also be the case for the relational (88). Although the possessive pronoun is resumptive in the relational construction, the relational possessor is still represented as a Subact (as opposed to a Subact within a Subact), and as it is completely motivated by pragmatic factors, such as perceived affectedness, it is also assigned the AFF operator like Dutch EPC representations:

(87) 'Relational' possession:
kitotinamwân ospiton.
kit-otin-am-*w*-*â*-n o-spiton
2-take-TI-REL-3OBJ-2SG 3POSS-arm
'You take his arm (in relation to him).' (Cenerini 2014: 135)

(88) …C_I : [(T_I) (+id R_I [–S, +A]) (**+id aff R_J [–S, –A]**) (+ id R_K : (T_J) (R_K))] (C_I)…
Clarification: R_I : *kit-V-n* 'you'; R_J : *-w-* 'him;her'; R_K: *ospiton* 'his body';
T_I: *otin-* 'to take something'; T_J: -spiton 'body'

Additionally to the *affected* operator, the relational participant Subact (R_J) can also be further specified with the abstract features [–S, –A], as it can never refer to a local participant, contrary to EPCs. Furthermore, the referent, although it doesn't license an overt NP, is always identifiable as it is a prominent participant in the discourse (+id).

The representation of non-relational possession constructions in Cree, however, are comparable to internal possession as presented by Hengeveld and Mackenzie (2008), and the possessor is encoded as a Subact within a Subact, supporting the realization of Referential Subact representing the possessee:

(89) Subact within a subact:
wâpahtam ocîmân.
wâpaht-am *o*-cîmân
see-TI 3POSS-hat
'She sees his boat.'

(90) … C_I: [(T_I) (+id R_I) (+id R_J:[(T_J) (**+id R_K**)] (R_J))] (C_I) …
Clarification: R_I: *-am* 'I'; R_J : *ocîmân* 'his boat'; R-$_K$: *o-*; T_I: *wâpaht-*; T_J: *cîmân* 'boat'

As a Subact within a Subact, the possessor doesn't receive any other features or operators either than + id (identifiable).

As we have seen, however, contrary to EPCs, the relational inflection is not constrained to contexts of possession. It occurs, for example, in complex sentences where there is established speaker empathy for one of the actors or undergoers, or when the Speaker relates to the relational participant's perspective (cf. Section 1). In these contexts, the relational inflection can occur both in a main clause or an embedded clause (cf. 12–13), often to refer to the actor of the opposite clause, but not necessarily. In fact, the identity of the relational inflection's referent often can not be accessed without contextual information. In these cases, I suggest that there are two Referential Subacts in the IL representation that refer to the 'relational' participant: in (92), (a representation of (91), (R_I) refers to *-stês* 'brother', while (R_K) is a representation of *-w*. Its structure is similar to deictic third person pronouns in Hengeveld & Mackenzie (2008: 139), containing both +id and participant specification [−S, −A]. Under this analysis, at the Representational Level, (R_I) would be represented as an argument or a modifier at the RL (x_i), but (R_k) would not have such an equivalent.

(91) *nistês kî-pê-takosin mêkwâc ê-nipâ*wak.
ni-stês kî-pê-takosin-Ø mêkwâc
1POSS-older.brother PST-hither-arrive-3SG while
ê-nipâ-*w*-*ak*
CONJ-sleep-*REL*-*1SG>3SG*
'My older brother arrived while I was sleeping (in relation to him).'
(Cenerini 2014: 94–95)

(92) …C_I: [(T_I) **(+id R_I)** (T_J) (+id R_J :[+S, −A] (R_J)) (+ id R_K: [−S, −A] (R_k))] (C_I)…
Clarification: R_I: *-stês* 'older brother'; R_J: V-*ak* 'I'; R_K:*-w* (3rd); T_I: *takosi-* 'to arrive'; T_J: *nipâ-* 'to sleep'.

In a non-relational construction, the participant is still present in the discourse and encoded in the Communicated Content, but only once (R_I). As such, (93) is represented at the IL as in (94), the third person referent marking restricted to the main verb:

(93) *(nistês)*[11] *kî-pê-takosin mêkwâc ê-nipâyân*.
ni-stês kî-pê-takosin-Ø mêkwâc ê-nipâ-yân
1POSS-older.brother PST-hither-arrive-3SG while CONJ-sleep-1SG
'My older brother arrived here while I was sleeping.' (Cenerini 2014: 105)

11. The non-relational phrase in (90) was attested both with and without the presence of the overt NP *nistês*.

(94) … C_I: [(T_I) (**+id R_I**) (T_J) (+id R_J :[+S, −A] (R_J))](C_I) …
Clarification: R_I: *-stês* 'older brother'; R_J: *ni*-V-*ak* 'I'; T_I: *takosi-* 'to arrive'; T_J: *nipâ-* 'to sleep'.

Finally, we have also described rare cases in which the relational inflection occurs when the participant is salient throughout the discourse, or Move. In this case, the configurational head of the Communicated Content is marked as related to the discourse content, more specifically, as containing information *inferred* from the Contextual Component without having to be directly invoked (i.e. the reference to the Old Woman Spirit), a necessary condition to Dik's 'Sub-Topic' function (Dik 1997), or Mackenzie & Keizer (1991)'s 'inferred Topics'. This is similar to cases such as *the party was tolerable, but the music was awful*, where the definiteness of *the music* is triggered by the function Sub-Topic.[12] (96) is a representation of (95):

(95) *êwakw ânima okisêwâtisiwin* k-âpihkâtamwat *awa*.
êwakw ânima okisêwâtisiwin k-âpihkât-am-*w*-*at* awa
there that.AN grace CONJ-braid-TI-REL-2SG this.AN
'That you braid that grace (in relation to the Old-Woman Spirit).'
(Kâ-Nîpitêhtêw 1998: 128)

(96) …C_i: [(+id R_I: (T_I) (R_I)) (T_J) (+id R_J)]$_{SubTop}$ (C_I)…
clarification: R_I: *ânima okisêwâtisiwin* 'that grace'; R_J: *-at* 'you';
C_I: *-w* 'Old-Woman Spirit'; T_I: *okisêwâtisiwin* 'grace'; T_J: *âpihkât-* 'braid'

Although the representation of the relational participant in the context of possession, presentative interpretation and complex clauses vary at the IL, the underlying phenomena, i.e. a non-correspondence between the IL and RL remains consistent. This clearly pinpoints its acute pragmatic similarity to EPCs and related constructions. In all cases, these 'special' or 'unlicensed' constructions are triggered by the *discoursal prominence* of the participants. As the IL is designed to record the presence of Subacts, the repercussions of the *importance* of said presence should also be recorded at the same level. Marking external possessors and relational participants at the IL and not the RL directly accounts for their status as "unlicensed" or intermediate constructions. The relational inflection and EPCs are thus a linguistic repercussion of the violation of one-to-one relationship between pragmatic participants and arguments licensed by the predicate. More specifically, they mark the fact that there are more participants in the discoursal space than semantic ones.

12. Thank you to Evelien Keizer for this suggestion.

8. Conclusions

Swampy Cree seems to have optional marking of the relational, and the cases where the relational occur are the result of pragmatic choices to indicate Speaker's feelings of empathy and their take on the unlicensed participant's level of affectedness and participant topicality, which can be formalized at the IL. This pattern is similar to the one motivating the use of External Possessor Constructions in European languages. As Van de Velde & Lamiroy (2016) have shown, the recession of EPCs in certain West Germanic and Romance languages is linked to the rise of configurationality. We have argued that the relational is more productive in Cree (not simply restricted to contexts of possession) as a result of its non-configurationality in the sense of Hale (1983). Both the relational and EPCs are best represented within Functional Discourse Grammar on the Interpersonal Level, in which the unlicensed possessor is assigned an AFF operator. In both cases, the one-to-one relationship between discourse participants (or within FDG, Referential Subacts) and arguments licensed by the predicate frame (i.e. Individuals) is violated: in effect, there are more discourse participants than arguments, and the valency of the verb is not increased, resulting in 'in-between' constructions expressing equal involvement of the possessor and possessee.

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On objective and subjective epistemic modality again

Evidence from Portuguese and Spanish modal auxiliaries

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This aim of this chapter is to prove the linguistic reality of the distinction between objective and subjective epistemic modality as made in FDG, according to which the former modifies the Episode and the latter the Propositional Content. The chapter studies the two basic Spanish modal auxiliaries *poder* 'can, may' and *deber* 'must' and its Portuguese cognates *dever* and *poder* in order to see (i) which of the criteria (proposed by Hengeveld (1988) for the lexical expression of this distinction) yield testable criteria for the grammatical expression of epistemic modality and (ii) if the objective-subjective dichotomy somehow relates to the degrees of possibility and necessity expressed by these modal auxiliaries. With respect to (i), it is argued that there are two testable criteria, i.e. non-locatability in time and space and the boundedness to the 'locutionary agent' of propositions, for the identification of subjective auxiliary expressions. As for (ii), it turns out that the expressions of auxiliaries of necessity are prone to express subjective epistemic modality, whereas those of probability and possibility generally express objective epistemic modality.

1. Introduction

This chapter deals with epistemic modality, discussing the old problem of how to establish the difference between objective and subjective modality, particularly with respect to modal auxiliaries. According to Hengeveld (2011) and later publications on Functional Discourse Grammar, objective epistemic modality operates on the Episode, which may consist of a series of thematically coherent States-of-Affairs or a single State-of-Affairs. Subjective modality specifies the truth value of a proposition, and is therefore considered to operate on the layer of the Propositional Content.

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The difference between objective and subjective modality is discussed in detail by Hengeveld (1988), who illustrates the difference between the two types of modality by comparing two kinds of lexical expressions of modality, i.e. (objective) impersonal adjectival complement clauses and (subjective) modal adverbs. Hengeveld's approach has met with some criticism, most notably from Nuyts (1992), who argues that the difference between objective and subjective epistemic modality is so subtle that it cannot be linguistically relevant at all. Nuyts follows Lyons (1977), who is generally invoked whenever the objective – subjective dimension of epistemic modality is being discussed. According to Lyons, "it is much more natural to use modal verbs for subjective, than for objective, epistemic modality" (Lyons 1977: 806).[1] Nuyts redefines the distinctions within epistemic modality as subjectivity versus intersubjectivity. The difference between the two is defined in terms of evidence: subjective epistemic modality is based on "poor or vague, intuitive evidence" and intersubjective epistemic modality is based on "evidence [that] is known to (or accessible by) a larger group of people who share the same conclusion based on it." (Nuyts 2001: 393). In this way, Nuyts introduces a direct relation between language and cognition, characteristic of cognitive linguistics, which may be intuitively attractive, but it is not helpful when trying to analyze the use of modals. After all, although Nuyts claims that the (inter)subjective approach to epistemic modality is typologically relevant (2001: 395–397), there is no immediate relation between the cognitively based concept of (inter)subjectivity and linguistic expression.

The aim of this chapter is twofold: first of all, we want to show that the distinction between objective and subjective epistemic modality is linguistically relevant and, secondly, we want to find out how this distinction is related to the possibility – necessity cline within epistemic modality.

In order to reach these aims, we compare epistemic modal auxiliaries in Spanish (*poder* and *deber*) and Brazilian Portuguese[2] (*poder* and *dever*) to clarify (i) which of the criteria proposed by Hengeveld (1988) are relevant for modals, and (ii) whether the matter of objectivity and subjectivity varies depending on the modal semantics (possibility, probability and certainty).

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1. One of the reasons for Lyons' view on the linguistic relevance of this difference may be the fact that in his example objective epistemic modality is basically equated with alethic modality. As we will show in this chapter, objective modality is more widely applicable.

2. For Spanish, we will make use of various corpora from the Peninsular and Hispanoamerican varieties. With respect to Portuguese, we will confine ourselves to the Brazilian variety, which differs considerably from the European variety.

However, before going into concrete details, we need to mention a further issue involved when it comes to the grammatical expression of subjective expressions of certainty, i.e. its relation with inferential evidentiality. It has been shown in various publications that, from a typological viewpoint, there is a considerable overlap in the expression of these two concepts (Van der Auwera & Plungian 1998: 85–86). In a similar vein, Hengeveld and Mackenzie (2008: 155) consider inferentiality a modal category on a par with subjective epistemic modality. In more recent publications in FDG (e.g. Hengeveld 2011, 2017), it has been acknowledged that despite the existing overlap there is reason to distinguish these two subcategories on semantic grounds: inferential evidentiality is related to the source of a proposition, whereas subjective epistemic modality is concerned with the commitment to the truth of a proposition, as nicely explained by Nuyts (2017: 72–73). Although we will be concerned with epistemic modality only, we will return to this issue in Section 5.

The chapter is structured as follows. In Section 2 we will introduce the objective – subjective dichotomy as presented by Hengeveld (1988). In Section 3, we discuss Hengeveld's (1988) criteria for the distinction between objective and subjective epistemic modality one by one, in order to see which of these criteria are applicable to Spanish and Brazilian Portuguese basic modals. The existence of such criteria is evidence of the fact that the distinction between objective and subjective epistemic modality is a linguistic reality. The application of the selected criteria in Section 4 will yield the answer to our second question, identifying the relation between the semantic distinctions on the possibility – necessity cline and the distinction between objectivity and subjectivity. Section 5 is dedicated to the discussion of the results of Sections 3 and 4 in relation to the expression of inferentiality mentioned above. Section 6 concludes.

As this chapter concerns Functional Discourse Grammar, it goes without saying that, while taking Hengeveld (1988) as a starting point, we will, wherever relevant, adapt the point made in this publication to more recent insights in Functional Discourse Grammar (Hengeveld & Mackenzie 2008; Hengeveld 2011, 2017).

2. Objective vs. subjective epistemic modality: Definition and preliminary criteria

We define modality as the marking of a (set of) State(s)-of-Affairs or a Propositional Content "for being underdetermined with respect to its factual status, i.e. neither positively or negatively factual" (Narrog 2005: 697). This definition is compatible with the FDG approach to modality as proposed by Hengeveld (2011: 583), as well

as with the ensuing views on this subject,[3] which separate the domain of modality from that of evidentiality.

A recent and very useful definition of epistemic modality is given by Narrog (2012: 8), according to whom "[e]pistemic modality refers to someone's world knowledge, typically that of the speaker. If the proposition is entailed by this person's knowledge, it is necessarily true; if it is compatible [with] his or her knowledge it is possibly true." This definition covers both subjective and objective epistemic modality, as it combines the concepts of 'knowledge' and 'truth', which are carefully distinguished in the FDG approach. This definition reflects the author's view, because while recognizing the difference between objective and subjective modality, he considers the objectivity – subjectivity distinction a matter of degree (Narrog 2012: 36–43). In fact, there are only few linguists who make the distinction between subjective and objective modality in the same way as has been done in F(D)G.[4]

In FDG, *subjective epistemic modality* is concerned with the beliefs of the primary human referent, generally the speaker, rather than with his or her knowledge. More specifically, subjective modality expresses the commitment of the primary or quoted speaker to the truth value of a Propositional Content (Dall'Aglio Hattnher & Hengeveld 2016: 4). Nevertheless, for the ease of reference, we will follow other FDG publications in simply using "the speaker" in this context (Hengeveld & Mackenzie 2008: 145–157; Dall'Aglio Hattnher & Hengeveld 2016).

As regards *objective epistemic modality*, Hengeveld (2017: 20) provides the following description: "In this type of modality a situation is objectively evaluated in terms of its likelihood of occurrence in terms of what is known about the world." In other words, it is not about truth-commitment but about the relative probability of the occurrence of events.

In order to clarify the differences between objective and subjective modality, Hengeveld (1988) proposes five criteria for the identification of subjective modality, most of which are based on Lyons (1977: 797–823):

(1) a. 'Subjectively modalized propositions cannot be questioned'
(Hengeveld 1988: 236)

b. 'Subjectively modalized propositions cannot be hypothesized'
(Hengeveld 1988: 236)

c. "Subjective modality can be formulated in positive terms only"
(Hengeveld 1988: 236)

3. For more details on the FDG approach on Modality, which is largely based on Hengeveld (2004), see the relevant sections of Hengeveld & Mackenzie (2008) as well as Dall'Aglio Hatthner (2008) and Dall'Aglio Hatthner & Hengeveld (2016) on Portuguese, Olbertz & Gasparini Bastos (2013) and Olbertz (2017) on Spanish.

4. One example is Wolf (2012), who reintroduces the objective – subjective distinction, explicitly rejected by e.g. Kratzer (1981), along the very same lines into formal semantics.

d. "Subjective modality is bound to the moment of speaking"
(Hengeveld 1988: 237)

e. 'The source of the subjective modalization is the speaker'
(Hengeveld 1988: 237)

Criterion (1a) is based on the assumption that a felicitous question presupposes the lack of knowledge. A Propositional Content of which an individual has no knowledge cannot be believed by that same individual. Criterion (1b) concerns a semantic incompatibility: hypothesizing a Propositional Content is the very contrary of being committed to the truth of this content, because it consists of presenting the Propositional Content as a theoretical possibility. Criterion (1c) is in keepingt with the fact that negation would considerably weaken the degree of truth-commitment, because "with negation, the speaker distances her/himself from the judgement" (Narrog 2012: 34). However the evidence provided is based on the assumed morphological impossibility of negating the adverb *probably*.[5] Criterion (1d), on the other hand is based on the generally accepted view that (subjective) epistemic evaluation is, in principle, based on the *hic et nunc*, i.e. it represents the speaker's view at the very moment of speaking. Criterion (1e) should not be taken too literally, because, as correctly observed in Narrog's definition quoted above, the source of the modal evaluation is "typically" but not necessarily the actual speaker, but may also be another human referent (cf. also Hengeveld & Mackenzie 2008: 144). In example (2) we apply the tests in exactly the same way as done in Hengeveld (1988). The example contains the subjective modal adverb *probably* and is therefore illustrative of the above mentioned restrictions.

(2) He probably thought I was a crazy-haired chatterbox
(www.theguardian.com/, 2016)

a. ??Did he probably think that I was a crazy-haired chatterbox?
b. ??If he probably thought that I was a crazy-haired chatterbox, what would he have thought of my sister?
c. ??He improbably thought I was a crazy-haired chatterbox
d. ??He had to have thought I was a crazy-haired chatterbox
e. Who says so?

The application of all of the original tests show the expected result, with the exception of (2e). This does not mean that the criterion is inappropriate; it merely shows that this is an infelicitous way of testing the criterion. We will come back to this point in Section 3.5.

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5. Albeit rarely, English *improbably* can be used as a sentence adverb, but then its meaning is counter-expectational rather than epistemic:

(i) *Thirty minutes later he locks up the bikes at the entrance to Freetown, a local anarchist community that has improbably become one of Copenhagen's most popular tourist destinations.*
(COCA, Magazine)

We are grateful to Evelien Keizer for drawing our attention to the existence of *improbably*.

Example (3) contains the non-verbal impersonal expression *it is probable that*, i.e. an expression of objective epistemic modality. The application of the tests in (1) yield fully grammatical and acceptable sentences:

(3) It is probable that the School will receive less money than last year.
   a. Is it probable that the School will receive less money than last year?
   b. If it is probable that the School will receive less money than last year, we must try to raise funds from elsewhere.
   c. It is improbable that the School will receive less money than last year.
   d. It was probable that the School would receive less money than in 2001. (www.lse.ac.uk)
   e. Who says so?

One of the aims of this chapter is to determine, on the basis of Spanish and Portuguese data, which of the five criteria for the distinction between objective and subjective epistemic modality work for auxiliary constructions.[6] We are aware of the fact that the behaviour of auxiliaries is highly language specific, and it will even become clear that there are considerable differences between Portuguese and Spanish in this field. Nevertheless, we hope to show by discussing the Iberoromance data that the objective – subjective dichotomy is linguistically relevant. In addition it will turn out that this dichotomy helps us to understand of some of the idiosyncrasies of the constructions with modal verbs in both languages.

Before applying the individual criteria, we would like to challenge the claims that "[m]odal adverbs give expression to subjective modality" (Hengeveld 1988: 236) and that the lowest degree of probability expressed by modal adverbs is that of possibility (Hengeveld 1988: 239). Counter-examples to the latter claim are Portuguese *dificilmente* 'difficultly' (and its Spanish cognate), which, in addition to their literal meanings, function as modal adverbs of improbability (see Wanders 1993 for Spanish), and Spanish *improbablemente* (and its Portuguese cognate):[7]

(4) a. Portuguese
"É preciso dizer que difícilmente frei Damião
COP.3SG necessary say.INF that difficultly monk Damião

6. We will not discuss the auxiliary nature of these verbs, for which we have provided the evidence elsewhere. For Portuguese epistemic *poder* and *dever* see Dall'Aglio Hattnher & Hengeveld (2016: 6–8) and for Spanish epistemic *poder* and *deber* see Olbertz (1998: 243–246).

7. Ramat and Ricca (1998: 226–228) claim that modal adverbs of low probability expressions are a typological rarity, but there turn out to be similar expressions in English (*hardly*) and Dutch (*moeilijk*). We are grateful to an anonymous reviewer for drawing our attention to this fact.

sairá *com vida", admitiu* *seu médico […]*
leave.FUT.3SG with life admit.PST.PFV.3SG his medical-doctor […]
' "It must be said that Father Damião will hardly come out of this alive", his medical doctor […] admitted.' (CdP, Press, Brazil, 1997)

b. Spanish
Decidí estirarlo [el diálogo] cuanto fuera posible, aunque tuviera que seguir allí de pie, bajo la despreciativa vigilancia de Eutimio y sosteniendo la torpe amenaza de una detención 'I decided to stretch it [the dialogue] as much as possible, even if I had to continue standing, under Eutimio's disparaging vigilance, and stick to the stupid menace of a detention,'
que muy improbablemente iba *a practicar.*
which very improbably go.PST.IPFV.1SG to practice.INF
'which I would almost certainly not put into practice.'
(CREA, fiction, Spain, 2000)

In both languages the epistemic use of *dificilmente* and *improbablemente* is less frequent than the positively oriented epistemic adverbs corresponding to 'possibly' and 'probably',[8] and the use of these adverbs seems to be restricted to the coding of objective epistemic modality. In (4) they express the unlikeliness of the occurrence of the future events specified.

The most obvious conclusion, that the objective nature of these adverbs would be due to their negative meaning is, however, not warranted, as we also found a number of non-marginal cases of *provavelmente* / *probablemente*, which cannot be read as expressions of truth-commitment due to the combination of future tense and first person singular reference: the plans expressed about the first person referent cannot be deemed to be true or false by that very same referent. Therefore, they can only concern the probability of the occurrence of (sets of) events:

(5) a. Portuguese
"*Eu tenho muitos, muitos elementos que eu acho funcionariam muito bem em outro filme, e se eu puder amarrá-los todos juntos,*
eu provavelmente ia *querer fazer isso",*
I probably go.PST.IPV.1SG want do.INF this
disse [Brad Pit], em maio.
say.PST.PFV.3SG in May
'"I have many, many elements that I think would work very well in another film, and if I can combine them, I would probably like to do this", he [Brad Pit] said in May.' (CdP, cinema.uol.com.br, 2013, Brazil)

8. We have not found any evidence for Ramat & Ricca's (1998: 226–227) claim that the negatively-oriented epistemic adverbs tend to occur in generic contexts.

b. Spanish
Probablemente estaré en Madrid en junio
probably COP.LOC.FUT.1SG in Madrid in June
'I will probably be in Madrid in June'
(CdE, principiamarsupia.com, 2013, Spain)

This means, firstly, that it is not the case that epistemic modal adverbs minimally express possibility, and, secondly, that it is not the case that epistemic modal adverbs necessarily express subjective epistemic modality.

3. Which criteria are applicable to Brazilian Portuguese and Spanish epistemic modals?

In this section we will take up the criteria presented in (1) and illustrated in (2) and (3) above to see which of them are applicable to the basic Spanish and Portguese modal auxiliaries that encode epistemic possibility, probability and necessity, Spanish and Portguese *poder* 'can, may', on the one hand and Spanish *deber* and Portuguese *dever* on the other. As will become clear from the examples, the matter is less simple than it appears to be, because the Portuguese epistemic modal *dever* expresses a weaker degree of probability than its Spanish cognate (Oliveira 2000). More concretely, while Spanish *deber* can easily be translated into English as 'must', we will use 'be likely to' for the English translation of *dever.* As will be shown in Section 4, this semantic difference affects the applicability of these modals for the expression of objective epistemic modality.

We will structure this section in accordance with the tests to be considered. Section 3.1 will be dedicated to the use of modals in questions and Section 3.2 to their occurrence in hypothetical clauses. Section 3.3 concerns the combination of modals with negation. In Section 3.4 we will discuss ways of testing the claim that subjective modality is bound to the moment of speaking. Section 3.5 considers the source of modal evaluation, and Section 3.6 will summarize our findings.

3.1 'Subjectively modalized propositions cannot be questioned'

As mentioned above, questioning generally presupposes the absence of truth-commitment, because one cannot believe what one does not know. However, Matthews (2003: 61–62) shows that modals such as *might, could* and *would* can occur in open questions, while the same is true for *must*, although it is more restricted:

(6) A. Tom must have arrived.
B. Must he? (Matthews 2003: 62)

Example (6) is a case of what Matthews calls 'modal challenge', i.e. echo questioning of the very same modal used by the interlocutor. However, he also claims that *must*, as well as *can, need, have to* and *be bound to*, can occur in what he calls 'modal dissent', "when an asserted proposition is questioned" (Matthews 2003: 61), which he illustrates as follows:

(7) A. John appears to have arrived.
B. Can he have? (Matthews 2003: 62)

Of course we could just conclude that the use of *can* illustrated in (7) cannot be subjective. But then (6) could, of course, be subjective, because as Matthews correctly observes, "any modal that can appear in a declarative clause with an epistemic interpretation can be challenged" (2003: 62).

In order to exclude such complications, we have adapted the questioning test. Rather than using polar questions like (6) and (7), we use content questions that are, by their very nature, related to Episodes or State-of-Affairs, i.e. questions asking for space and time. Although questions for space may not always be equally felicitous for expressions of objective modality, because not all (sets of) events can easily be located in space, Propositional Contents cannot be located in space or time at all (Vendler 1967: 144), and therefore, such questions cannot be grammatical and/or acceptable in the context of subjective modality. Put differently, whenever either of these questions is acceptable and/or grammatical, the epistemic modal contained in that question is bound to express objective modality. We will first present examples for questions asking for space with Portuguese *onde* and Spanish *dónde*, starting with *poder* 'can, may'.

(8) a. Portuguese
Barulho ao frear: onde pode estar
noise at-the brake.INF where can.3SG COP.TEMP.INF
o problema?
the problem
'Noise when braking: where can the problem be?'
(www.foxlux.com.br/blog/dicas/, Brazil, 2016)

b. Spanish
[I have followed each step exactly as indicated, and I'm in despair…]
¿Dónde puede estar el error?
where can.3SG COP.LOC.INF the error
'Where can the error be?' (CdE, ayudawordpress.com, Spain, 2015)

Example (9) asks for location with Portuguese *dever* 'be likely to'.

(9) Portuguese
[*As idéias geniais não costumam surgir diante da Vênus de Milo ou na baía de Nápoles, mas em lugares anódinos, garantia Salvador Dali. Brotam no meio da rua ou no banheiro.* 'Good ideas do not normally come up in front of the Venus of Milo or in the Bay of Naples, but in insignificant places, Salvador Dali claims. They come up in the middle of the street or in the bathroom.']
Onde deve ter emergido a concepção do
where be-likely.3SG AUX.INF emerged the concept of-the
Caesar Park Resort?
Caesar Park Resort
'Where is the concept for Caesar Park Resort likely to have emerged?'
(CdP, press, Brazil, 1997)

Spanish behaves differently in this respect. The Spanish cognate of *dever* rarely occurs in questions asking for location,[9] and when it does, it invariably expresses deontic modality:

(10) Spanish
¿Dónde debe aparecer el ISBN?
where must.3SG appear.INF the ISBN
'Where must the ISBN appear?'
(CdE, indautor.sep.gob.mx/isbn/, Mexico, 2016)

We now turn to questions asking for the time of the event, beginning again with *poder* 'can, may', exemplified in (11), and then dealing with Portuguese *dever* and Spanish *deber*.

(11) a. Portuguese
[about a public contest for potential employees at the House of Representatives]
Quando pode sair o edital?
when can.3SG come.out.INF the announcement?
'When is the announcement expected to be published?'
(blog.grancursosonline.com.br/, Brazil, 2016)

9. We found 89 examples of Spanish *dónde debe(n)* 'where must he/she/it/they' in CdE 2015–2016 (2 billion words), against 902 of the corresponding Portuguese expression *onde deve(m)* in in the Brazilian section of CdP 2015–2016 (ca. 558.4 million words).

b. Spanish
[research into the history of imprisoned critics of the Spanish Franco-Regime]
¿Tiene idea de cuándo pudo ingresar
have.2SG.FORM idea of when can.PST.PFV.3SG enter.INF
en prisión?
in prison
'Have you got any idea when he could have been imprisoned?'
(CREA, fiction, Spain, 2001)

Again, questioning with *dever / deber* yields different results for Portuguese and Spanish. In the former epistemic *dever* can be questioned for time:

(12) Portuguese
Quando deve sair a regulamentação?
when be-likely.3SG come-out.INF the regulation
'When is the regulation likely to become effective?'
(CdP, interviews, Brazil, 1997)

But in Spanish, content questions asking for time are only possible with deontic *deber*:

(13) Spanish
Hablando de edad, ¿cuándo debe un hijo tener
speaking of age when must.3SG a son/daughter have.INF
su primera tarjeta_de_crédito?
POSS.3 first credit-card
'Speaking about age, when should your son or daughter have his or her first credit card? (CdE, transunion.com.do, República Dominicana, 2015)

Summing up, our adapted questioning test serves a double function: on the one hand it tests the absence of truth-commitment and the other it tests the locatability in space and time, which is incompatible with Propositional Contents. It has turned out that on the basis of this test, the modals of possibility in Spanish and Portuguese can apparently express objective modality, and the same holds for Portuguese *dever* 'be likely to'. However, the test is not applicable to the Spanish *deber* 'must', which seems to indicate that *deber* cannot express objective epistemic modality.[10] We will come back to this point in Section 4.

10. The difference between the syntactic properties of modals of certainty from modals expressing lower degrees of commitment has already been observed by Palmer (1986: 58).

3.2 'Subjectively modalized propositions cannot be hypothesized'

Whereas interrogative illocution presupposes the absence of truth-commitment, hypothetical modality is a way of expressing the absence of truth-commitment, and is therefore equally incompatible with subjective epistemic modality. Objective epistemic modality can, however, occur in conditional clauses (Lyons 1977: 805–806; Hengeveld 1988: 236).

In (Brazilian) Portuguese and Spanish epistemic modals rarely occur in conditional clauses, but we did come across a few epistemic cases with *poder*:

(14) a. Portuguese
[about possible actions for peace]
Se pode acontecer na Bolívia, pode acontecer
if can.3SG happen.INF in-the Bolivia can.3SG happen.INF
na Índia.
in-the India.
'If it can happen in Bolivia, it can happen in India.'
(CdP, resistir.info, Brazil, 2004)

b. Spanish
[about possibly racist features of an American movie]
Si esto puede ser así para el ciudadano
if this can.3SG COP.INF like-this for the citizen
norteamericano promedio, ni hablemos de los
North-American common not-even speak.HORT.PL about the
espectadores de otros países
viewers from other countries
que no necesariamente conocen la evolución política de Estados Unidos.
'If this can be like that for the common North-American citizen, it will be much worse for the viewers from other countries, who do not necessarily know about the political evolution of the United States.'
(Fabio Nigra, "El mayordomo". *Imagofagia* 9, Argentina, 2014)

Given the semantic incompatibility of hypothetical and subjective epistemic modality, the fact that epistemic *poder* can occur in these contexts is sufficient proof of their objective character.

As regards the occurrences of *dever* and *deber* in conditional clauses in our corpora, they invariably have a non-epistemic meaning, i.e. they express either deontic modality or their lexical meaning 'owe'; in addition, we were unable to make up any convincing examples ourselves. The scarcity of epistemic modals in conditional clauses as well as the impossibility of testing both types of epistemic modals renders this test useless for our present purpose. We will therefore not pursue this issue any further.

3.3 "Subjective modality can be formulated in positive terms only"

The very definition of subjective epistemic modality in terms of the commitment to the truth of a proposition implies that there must be at least some degree of commitment to this truth, somewhere in between the logical extremes of possibility and certainty (or: necessity). Indeed, we have seen in our discussion of adverbs of improbability at the end of Section 2, that such adverbs express objective epistemic modality. In this section we would like to consider whether the combination of modal auxiliaries with negation yields a viable testing procedure for distinguishing between objective and subjective epistemic modality. We will start by considering the interaction of *poder* with negation.

In principle, *poder* allows both, pre-modal and post-modal negation.

(15) a. neg poss (ep/e/f[c]) – Sp. *no puede* / Pt. *não pode*
b. poss (neg p/ep) – Sp. *puede no* / Pt. *pode não*

With pre-modal negation, presented in (15a), *poder* can only express deontic and dynamic (or: facultative) meanings. As is obvious from the presentation, the place of the negation reflects its scope, the possibility operator 'poss' is within the scope of the negation, a situation which we will call "external negation".[11] Conversely, the case post-modal negation, in (15b), corresponds to "internal negation", i.e. the modal is outside the scope of the negation. However, as illustrated in (16), internal negation with *poder* holds for all kinds of epistemic possibility, potentially operating on Propositional Contents (subjective) or Episodes (objective) without allowing for a differentiation between them, in other words, we are unable to decide, on this basis, whether the examples in (16) express subjective or objective modality.[12]

(16) a. Portuguese
Meu julgamento pode estar errado e você pode
my judgement may.3SG COP.TEMP.INF wrong and you may.3SG
não ser a pessoa ideal para esse trabalho.
not COP.INF a person ideal for this job
'What has been stated above may be untrue, it is only an example to think about.' (CdP, fiction, Brazil, 1992)

11. Our use of the concepts of internal and external negation is restricted to the case of modality (Duffley 1997), including low-level modal distinctions, such as participant-oriented deontic and dynamic modality.

12. As will become clear in Section 5 below, epistemic *poder* expresses objective modality only.

b. Spanish
Lo expuesto puede no ser verdad, es sólo un
what stated may.3SG not COP.INF truth COP.3SG only a
ejemplo para pensar.
example for think.INF
'What has been stated above may be untrue, it is only an example to think about.' (CREA, philosophy, Argentina, 1997)

This means that in the case of *poder* the relation between the modal auxiliary and the negation offers no indication of the objective or subjective nature of the modalizations illustrated here.

As regards *dever / deber,* the situation is even less clear. Both in Portuguese and Spanish, pre-modal negation is the standard, both for epistemic and deontic uses. The lack of ordering variation is illustrated by the deontic examples (17), followed by an illustration of the modals in their epistemic function in (18).

(17) a. Portuguese
Não devemos perder a esperança. Não devemos parar
not must.1PL lose.INF the hope not must.1PL stop.INF
de lutar.
PRP fight.INF
'We must not lose hope. We must go on fighting.'
(CdP, press, Brazil, 1997)

b. Spanish
los principios morales, ésos no debían faltar
the principles moral those not must.PST.IPVF.3PL be-absent.INF
nunca, ni en la sociedad ni en la familia
never CORR.NEG in the society CORR.NEG in the family
'moral principles, they should never be absent, neither in society nor in families' (Alcalá, 16)

(18) a. Portuguese
[speaker describes his feelings when he was about to be assaulted]
e eu passando falei "ah… num deve ser
and I passing say.PST.PFV.1SG ah not be-likely.3SG COP.INF
nada ne? [em] Mirassol vai acontecer alguma coisa?
nothing TAG in Mirassol go.3SG happen.INF some thing
vai acontecer nada"
go.3SG happen.INF nothing
'and walking by I said [to myself] "ah… this is probably nothing, right? should there be something going on [in] Mirassol? there is nothing going on"' (Iboruna, 74)

b. Spanish
[About the education of a little boy]
En el suelo había restos de algo que
on the floor there-be.PST.IPV.3SG residues of something which
había escupido que imagino no le
AUX.PST.IPFV.3SG spit.PTCP which imagine.1SG not him.DAT
debió gustar
must.PST.IPFV.3SG please.INF
'On the floor there were residues of something he had spit, which I imagine he must not have liked' (diariodeunamadreingeniera.com, Spain, 2014)

This lack of ordering variation[13] indicates that in this case there is no iconic relation between the place of the negation and its scope as observed in the case of *poder*. Obviously, the pre-modal position of the negation in the deontic cases in (17) cannot correspond to external negation. As regards the examples in (18), the translations by means of *probably* in these two examples show that this is not a case of external negation either.

In sum, in Spanish and Portuguese, negation never scopes over the epistemic modal auxiliary; rather, the only possible way of negation with epistemic modals, be they subjective or objective, is internal negation, i.e. the negation of the content. Therefore, the incompatibility of the negation of the modal marker with subjectivity cannot be tested in the context of modal auxiliaries in these languages.

3.4 "Subjective modality is bound to the moment of speaking"

There is general agreement that subjective epistemic evaluation is bound to the moment of utterance,[14] even in approaches that do not distinguish between objective and subjective modality, such as Laca (2014: 78), who speaks of "zero tense" in this context.[15]

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13. Whereas in Spanish pre-modal negation is the only possibility, post-modal negation is marginally possible in Brazilian Portuguese. Obviouly, this does not affect the scopal relation between the negation and the auxiliary:

(i) *Essa dúvida na verdade deve não ser apenas minha*
this doubt in-the truth be-likely-to.3SG not COP.INF only mine
'This doubt indeed is likely to be not only mine.'
(capaciteredacao.forum-livre.com, Brazil, s.d.)

14. In the literature, particularly in cognitively oriented approaches, this property is often associated with performativity (cf. e.g. Verstraete 2001: 1517–1524); see Narrog (2012: 42–43) for an overview and further references. Interestingly, both Lyons (1977: 805) and Palmer (1986: 60) also loosely associated subjective epistemic modality with performativity.

15. See Laca (2014: Section 1) for further references to the generative approach to epistemic modality.

Being bound to the moment of speaking does not necessarily mean that a verbal modal expression needs to have present tense morphology. In the context of reported speech or in narrative contexts, the form of the modal verb can have past tense morphology as a consequence of (relative past) tense concord or *consecutio temporum* (Narrog 2012: 32; Laca 2014: 83). The examples in (19) and (20) illustrate the use of epistemic *poder* and *dever* / *deber*, respectively, in past tense narratives:

(19) a. Portuguese
– Entao o senhor num se arrependeu de ter casado tao novo?
– Não, graças a Deus nao… de jeito nenhum foi
no thanks to god no of way none COP.PST.PFV.3SG
a melhor coisa que podia ter acontecido
the best thing which can.PST.IPFV.3SG AUX.INF happen.PTCP
'– So you you have never been sorry for having married so young?
– No, thank God, no way, it was the best thing that could've happened to me.' (Iboruna, 111)

b. Spanish
me pusieron..… una navaja así… oxidada..… para que les diera el bolso, y yo inconsciente de mí me puse loca. Es que… me pareció horroroso. Y entonces empecé a pegarle con el bolso y salió corriendo o sea
me podían haber..… metido la- la navaja y…
me.DAT can.PST.IPFV.3PL AUX.INF put.PTCP the the knife and
'they held..… a knife… a rusty knife.… against me so that I should give them the bag, and I, unaware of what I was doing, I went nuts. It's that… I found it horrible. And then I began to hit him with the bag and he hit the road, so they could have cut me with knife and.…' (Alcalá, 30)

(20) a. Portuguese
[about a little girl's possessive behaviour in relation to her father]
Nessa hora.… é que eu percebi que o_que
in-this hour COP.3SG that I see.PST.PFV.1SG that what
tinha… era uma coisa assim de… uma
have.PST.IPFV.3SG COP.PST.IPFV.3SG a thing like of a
mistura de sentimento que devia ter uma
mixture of feeling which must.PST.IPFV.3SG have.INF a
ligação com ciúme…
connection with jealousy
'At that moment I realized that what she had was some sort of.… a mixture of feelings that must have some connection with jealousy' (Iboruna, 150)

b. Spanish
Era un hombre de paso enérgico y mandíbula de
COP.PST.IPFV.3SG a man of step energetic and jaw of
boxeador que debía haber alcanzado los temidos
boxer who must.PST.IVPV.3SG AUX.INF reached the feared

cincuenta años de edad.
fifty years of age
'He was a man walking with energetic steps and the jaw of the boxer, who must have reached the dreadful age of fifty.'
(CREA, fiction, Colombia, 1988)

These examples show that the use of past tense reference is unrelated to the objectivity or subjectivity of the modalization, because they are all the result of tense-copying, a fully morphosyntactic operation, which is not semantically motivated.

What makes things more complicated is the fact that, in Spanish, the combination of modals with past tense is preferably marked on the modal verb only, i.e. instead of resorting to a pluperfect construction, as in (19), the modal auxiliary is expressed in the perfective past:

(21) a. Spanish
Ahora creemos que Trinidad pudo ser
now believe.1PL that Trinidad could.PFV.3SG COP.INF
asesinado […] por algo que quizá tuvo que
murdered for something REL perhaps had.PFV.3SG REL
ver con esa otra actividad.
see.INF with that other activity
'Now we believe that Trinidad may have been murdered […] for something that perhaps had to do with that other activity.'
(CREA, fiction, Spain, 2000)

b. Spanish
Los años de Robespierre y Danton debieron de
the years of Robespierre and Danton must.PST.PFV.3PL PREP
ser terribles en Francia, ¿no es cierto?
COP.INF terrible in France not COP.3SG true
'The years of Robespierre and Danton must have been terrible in France, isn't it true?' (CREA, fiction, Spain, 1986)

This property of Spanish is independent of the objective or subjective character of the modalization, and it is even common in deontic modalization.[16] Such an option

16. Consider the following deontic example:

(i) [*Teresa sabía todo eso al acudir a la capilla de Malverde con la agenda* 'Teresa knew about this all when going the Malverde Chapel with the agenda']
que nunca debió leer y que había leído
REL never must.PST.PFV.3SG read.INF and REL AUX.PST.IPFV.3SG read
'with the agenda which she never had been allowed to read and which she had read'
(CREA, fiction, Spain, 2002)

Laca (2014: 84ff) explains this phenomenon as "tense-aspect" raising. In FDG the Morphosyntactic Level will have to account for this idiosyncrasy of Spanish modals.

is not available in Portuguese: the perfective past of *poder* cannot express epistemic modality,[17] and *dever* is a defective verb which lacks the perfective past form.

So far, we have shown that for the identification of subjective epistemic modality, present tense morphology of the modalizer is not a necessary criterion. On the other hand, neither Hengeveld (1988) nor any other specialist in the field has ever claimed that present tense morphology of the modal expression represents a sufficient criterion for subjectivity. Being neither a necessary nor a sufficient condition for subjectivity, the present tense expression of the modalization will not be discussed here. The result of this section is that subjective modality's being bound to the moment of speaking does not yield any testable correlate in linguistic expression.

3.5 'The source of the subjective modalization is the speaker'

There is no doubt that the source of the subjective modal evaluation is the (primary or quoted) speaker, (or, in more neutral terms, the "believer", or "thinker"), because this is inherent in the very concept of subjectivity (see e.g. Lyons 1977: 800; Lyons 1982: 102–105; Finegan 1995; Narrog 2012: 13–39). However, as already mentioned in Section 2, the corresponding test proposed by Hengeveld (1988: 237) for the identification of subjective epistemic modality, meant to indicate the irrelevance of asking for the source of the Propositional Contents, is not without problems. The question 'Who says so?' is insufficiently unequivocal to serve as a test, because even in objectively modalized expressions, the source, in a more general sense, can be the speaker. Consider the following two examples:

(22) Spanish
[*En cualquier caso yo creo que todos los políticos debemos estar preparados para dejar los cargos cuando democráticamente así lo decide el partido.* 'In any case I believe that everyone of us politicians must be prepared to leave their post whenever the party democratically decides so.']
A mí me puede pasar dentro_de unos
PREP me.EMPH me.DAT can.3SG happen.INF within some
cuantos años.
several years
'This could happen to me in a couple of years' time.'
(*Cambio 16*, press, Spain, 1990)

17. The perfective past of *poder* generally expresses dynamic modality:

(i) *Não pôde adormecer pensando nisso.*
not can.PST.PFV.3SG fall-asleep.INF thinking in-that
'He could not fall asleep while thinking of that.' (CdP, fiction, Brazil, 1993).

a. ??– *¿Quién dice esto? – Lo digo yo!*
who say.3SG this it say.1SG me
'– Who says so? – I say so!'

(23) Portuguese
ESTADO DE SÃO PAULO – Ele [seu pai] voltou alguma vez? ARRABAL – Desde que foi preso, quando eu tinha 3 anos, não. Mas sei que escapou da prisão e poderia estar vivo com 93 anos. Isso me angustia.
'ESTADO DE SÃO PAULO – Has he [your father] ever come back? ARRABAL – Not after he was arrested when I was 3 years old. But I know that he escaped from prison and, being 93 years old, he could be alive. This distresses me.'
Ele pode aparecer um dia.
he may.3SG appear.INF one day
'He may turn up one day.' (CdP, interviews, Brazil, 1997)
a. ??– *Quem diz isso? – Sou eu quem diz isso!*
who say.3SG this COP.1SG I who say.3SG this
'– Who says so? – It's me who says so!'

In both examples, the question 'Who says so?' is equally infelicitous, because the speaker provides a description of the possible occurrence of events based on his or her experience or knowledge of the world. Moreover, the expression 'who says so' does not necessarily ask for a source, but it may also indicate disagreement or disbelief on the part of the interlocutor. The pragmatic deviance of the question for the source of the modal evaluation is therefore unrelated to the subjective or objective nature of the epistemic modalization. In fact, as we will show below, both of the above examples contain expressions of objective modality.

We therefore propose an alternative way of testing the source of the modalization. This test will consist in paraphrasing the verbal epistemic expressions in terms of complementation: objective expressions correspond to the impersonal type (*It is possible/probable*) and subjective expressions correspond to personal lexical expressions of truth-commitment (*X thinks/believes*), where *X* may be the actual or the quoted speaker. Whereas in the former type the speaker is not involved, in the latter type the speaker makes his or her commitment fully explicit. Let us apply this revised test to the above examples:

(22) Spanish
b. *Es posible que me pase dentro_de unos cuantos años.*
COP.3SG possible that me.DAT happen.SBJV.3SG within some several years
'It is possible that it happens to me in a couple of years' time.'

c. ≠ *Pienso que me va a pasar dentro_de unos*
think.1SG that me.DAT go.3SG to happen.INF within some
cuantos años
several years
'I think that this is going to happen to me within a couple of years' time.'

(23) Portuguese
b. *É possível que ele apareça um dia.*
COP.3SG possible that he appear.SBJV.3SG one day
'It is possible that he turns up one day.'
c. ≠ *Penso que ele aparecerá um dia.*
think.1SG that he appear.FUT.3SG one day
'I think that he will turn up one day.'

The reformulations in terms of an impersonal adjectival constructions in (22b) and (23b) correspond exactly to what the speakers of (22) and (23), respectively, mean to say, i.e. they do not personally vouch for the event becoming a possible fact. In other words, although the variants (22c) and (23c) are grammatical, they do not correspond to what has been originally said.

Conversely, in the case of subjective epistemic modality, the impersonal construction fails to reflect the meaning of the modalization, while the construction expressing personal commitment is an appropriate paraphrase. This is exactly what happens in (24) and (25), both of which illustrate clear cases of personal convictions or beliefs:

(24) Portuguese
Eu não estava olhando quando eu me esbarrei
I not COP.TEMP.INF looking when I REFL.1SG collide.PST.PFV.1SG
em você… deve ter sido o destino.
in you must.3SG AUX.INF COP.PTCP the destiny
'I didn't look when I collided with you… it must have been destiny'
(Poema de confiança, pensador.com, Brazil, 2005)
a. ??*É provável que foi o destino.*
COP.3SG probable that AUX.PST.PFV.3SG the destiny
'It is probable that it was destiny.'
b. *Tenho certeza de que foi o destino.*
have.1SG certainty of that AUX.PST.PFV.3SG the destiny
'I'm convinced it was destiny.'

In example (24) it is the irrationality of the concept of 'destiny' that makes the paraphrase in objective terms in (24a) odd.

(25) Spanish

El secuestro removió los recuerdos de tu madre, por primera vez con un atisbo de mala conciencia, según me confesó. No obstante, ni siquiera entonces se planteó revelarte la existencia de Michel, sus intentos por acercarse a ti.

Laura debió de ser una mujer muy dura,
Laura must.PST.PFV.3SG PREP COP.INF a woman very hard
¿me equivoco?
REFL.1SG be-wrong.1SG

'The kidnapping mixed up the remembrances of your mother, for the first time with a slight notion of bad conscience, as she confessed to me. Nonetheless, she did not consider even then to unveil the existence of Michel to you; his efforts to get near you. Laura must have been a very hard woman, or am I mistaken?'

(CREA, fiction, Spain, 2004)

a. ??*Es probable que Laura sea una mujer muy dura,*
COP.3SG probable that Laura COP.SBJV.3SG a woman very hard
¿me equivoco?
REFL.1SG be-wrong.1SG
'It is probable that Laura is a very hard woman, or am I mistaken?'

b. *Creo que Laura es una mujer muy dura,*
believe.1SG that Laura COP.3SG a woman very hard
¿me equivoco?
REFL.1SG be-wrong.1SG
'I believe that Laura is a very hard woman, or am I wrong?'

In (25) the final question *¿me equivoco?* implies that what precedes is a personal judgement. Therefore, the objective paraphrasis in (25a) not only inappropriate but even incoherent.

We hope to have illustrated by means of these examples that reformulating an expression of epistemic modality in fully objective or fully subjective terms yields more convincing results than the test proposed by Hengeveld (1988: 237).

3.6 Summary

We have shown in this section that subjective epistemic modality's being bound to the moment of speaking has no clear linguistic correlate and is thus a property that cannot be tested. The incompatibility of truth-commitment with hypothetical modality cannot be tested for Portuguese and Spanish, because in these languages epistemic modals hardly ever occur in conditional clauses. Two properties of subjective epistemic modality have clear correlates in linguistic expression in the two Iberoromance languages: (i) the incompatibility of truth-commitment with interrogative illocution because questioning presupposes the lack of truth-

commitment, and (ii) the source of subjective modality being the "locutionary agent" (Lyons 1982: 102), i.e. the original or quoted speaker. For these two properties we have adapted the relevant tests in such a way as to avoid possible ambiguities. In the next section we will apply our tests to a number of examples, which will help us to reveal the nature of the relation between objectivity and subjectivity and the semantics of the Portuguese and Spanish modals.

4. Objective and subjective modals in Brazilian Portuguese and Spanish

In this section we will apply our tests to *poder* (4.1) and then to *dever* and *deber* (4.2). The aim of the application is to find out how objectivity and subjectivity are related to possibility, probability and necessity as expressed by the Portuguese and Spanish modal auxiliaries. The conclusions with respect to this point will be presented in Section 4.3.

4.1 *Poder*

We will begin by applying our test to examples with past tense morphology, because we have not been able to disambiguate such cases on the basis of the association of subjective modality with the moment of speaking. Consider (26) and (27), from Portuguese and Spanish, respectively.

(26) Portuguese
[*Achei que não tinha entendido direito, mas também não quis perguntar. Todos estavam já bastante tensos;* 'I thought I hadn't really understood, but didn't want to ask either. Everyone was very nervous']
podia ter ouvido errado
can.PST.IPFV.1SG AUX.INF heard.PTCP wrong.
'I could have misheard.'
a. *Onde você podia ter ouvido errado?*
where you can.PST.IPFV.2SG AUX.INF heard.PTCP wrong
'Where could you have misheard?'
b. *Quando você podia ter ouvido errado?*
when you can.PST.IPFV.2SG AUX.INF heard.PTCP wrong
'When could you have misheard?'
c. *É possível que eu tivesse ouvido errado.*
COP.3SG possible that I AUX.PST.SBJV.1SG heard.PTCP wrong
'It is possible that I misheard.'
d. ≠ *Penso que eu ouvi errado.*
think.1SG that I hear.PST.PFV.1SG wrong
'I think that I misheard.'

In this example, asking where and when the event of acoustic misunderstanding took place is fine,[18] and so is the reformulation as an impersonal expression of possibility. But the reformulation in terms of speaker commitment is not appropriate, because the speaker does not vouch in any way for the truth of the fact of having misheard.

(27) Spanish
[la muchacha] era la única persona que
the girl COP.PST.IPFV.3SG the only person who
había leído el texto que podía haber
AUX.PST.IPFV.3SG read the text who can.PST.IPFV.3SG AUX.INF
descubierto la falsedad de la fecha
discovered the falsity of the date
'[the girl] was the only person who had read the text and could have discovered the falsity of the date' (CREA, fiction, Spain, 1978)

a. *¿Dónde podía haber descubierto la falsedad de*
where may.PST.IPFV.3SG AUX.INF discovered the falsity of
la fecha?
the date
'Where may she have discovered the falsity of the date?'

b. *¿Cuándo podía haber descubierto la falsedad de*
where may.PST.IPFV.3SG AUX.INF discovered the falsity of
la fecha?
the date
'Where may she have discovered the falsity of the date?'

c. *Es posible que haya descubierto la falsedad de*
COP.3SG possible that AUX.SBJV.3SG discovered the falsity of
la fecha.
the date
'It is possible that she has discovered the falsity of the date.'

d. ≠ *Pienso que ha descubierto la falsedad de*
think.1SG that AUX.3SG discovered the falsity of
la fecha.
the date
'I think that she has discovered the falsity of the date.'

The example in (27) represents an objective possibility of a past event, which can, as such, be questioned for its location in place and time. As expected, the paraphrase in terms of an impersonal expression of possibility is appropriate. But, as (27d) illustrates, there is no commitment to the truth of the discovery by the girl.

18. In the interest of pragmatic acceptability we adapted the deictics in the questions from the first to the second person, which does not affect the validity of the test.

So far, we have only seen objective epistemic uses of *poder* in both languages, i.e. in addition to the examples above, we have now proven that the examples in (8), (11) and (14) illustrate objective uses of *poder.* Does *poder* also express subjective epistemic modality? At first sight, the examples in (28) are potential candidates:

(28) a. Portuguese
Posso ter minhas idiossincrasias, mas verme eu
can.1SG have.INF my idiosyncrasies but vicious I
não sou!
not COP.1SG
'I may have my idiosyncrasies, but vicious I'm certainly not!'
(CdP-web, fiction, Brazil, s.d.)

b. Spanish
Yo puedo tener mis defectos, y hasta mis rarezas, pero
I can.1SG have.INF my defects and even my curiosities but
soy un hombre cabal.
COP.1SG a man honorable
'I may have my shortcomings, and even my peculiarities, but I am an honorable man.' (CREA, fiction, Spain, 2000)

However, on closer examination, the examples in (28) turn out not to be expressions of weak truth-commitment, but rather scalar concessive conditional expressions (Haspelmath & König: 584–593), i.e. they are semantically equivalent to concessive conditionals that are formally marked as such:[19]

(28) c. Portuguese
Ainda_que tenha minhas idiossincrasias, verme eu
even-if have.SBJV.1SG my idiosyncrasies vicious I
não sou!
not COP.1SG
'Even if I have my idiosyncrasies, vicious I'm certainly not!'

d. Spanish
Aunque tenga mis defectos, y hasta mis rarezas,
even-if have.SBJV.1SG my defects and even my curiosities
soy un hombre cabal.
COP.1SG a man honorable
'Even if I have my shortcomings, and even my peculiarities, I am an honorable man.'

19. We are grateful to Lachlan Mackenzie for drawing our attention to this point.

The use of an epistemic modal expression of possibility in a concessive function seems to occur in quite a few languages. Elaborating on Bybee et al. (1994: 225–228), Van der Auwera & Plungian (1998: 90–91) regard concession as one of the potential post-modal developments of epistemic possibility (which the authors consider to be inherently subjective).

However, for the characterization of epistemic modality presented in this chapter, the concessive conditional interpretation of *poder* in (28) suggests that there is no such thing as an auxiliary expression of subjective epistemic possibility in Portuguese and Spanish.

4.2 *Dever* and *deber*

The first modal to be discussed in this section is Portuguese *dever.* Again, we will first discuss a past tense example. Consider (29) below:

(29) Portuguese
Devia ter sido um homem bonito […], desses
must.PST.IPFV.3SG. AUX.INF COP.PTCP a man handsome of-those
que recitam poemas depois_do terceiro uísque.
who recite.3PL poems after-the third whisky.
'He must have been a handsome man […], one of those who recite poems after the third whisky.' (CdP, fiction, Brazil, 1990)

a. ??*Onde devia ter sido um homem bonito?*
where must.PST.IMPF.3SG AUX.INF COP.PTCP a man handsome
'Where must he have been a handsome man?'

b. ??*Quando devia ter sido um*
when must.PST.IMPF.3SG AUX.INF COP.PTCP a
homem bonito?
man handsome
'When must he have been a handsome man?'

b′. *Quando foi um homem bonito?*
when COP.PST.PFV.3SG a man handsome
'When was he a handsome man?'

c. ≠ *É provável que fosse um homem bonito,*
COP.3SG probable that COP.PST.SBJV.3SG a man handsome
'It is probable that he had been a handsome man,'

d. *Acredito que foi um homem bonito,*
believe.3SG that COP.PST.PFV.3SG a man handsome
'I believe that he had been a handsome man,'

The tests show that (29) represents a subjective use of epistemic *dever*. Given the stative nature of the State-of-Affairs, the question in (29a) asking for place is unacceptable and even difficult to understand. The question asking for time (29b) is inappropriate too, whereas (29b′), which places the State-of-Affairs of the 'man being handsome' in time, is fine. This difference is additional evidence of the fact that the modalization in (29) does not concern an event but a Propositional Content. In keeping with the result of the questioning test, the objective reformulation does not correspond to the original, whereas the subjective one does. Note, finally, that in the subjective use *dever* expresses certainty ('must'), thus differing from the objective meaning of (weak) probability, as exemplified in the following example:

(30) Portuguese
eu num me recordo mas eu tenho a impressão de
I NEG REFL.1SG remember.1SG more I have.1SG the impression of
que ele deve ter ganho da mãe dele…
that he be-likely-to.3SG AUX.INF given.PTCP from-the mother of-his
eu num tenho bem certeza não… (Iboruna, 134)
I NEG have.1SG well certainly not
'I don't remember, but I have the impression that he's likely to have received it from his mother… I'm not sure'

a. *Onde ele deve ter ganho da*
where he be-likely-to.3SG AUX.INF received.PTCP from-the
mãe dele?
mother of-his
'Where is he likely to have received it from his mother?'

b. *Quando ele deve ter ganho da*
when he be-likely-to.3SG AUX.INF received.PTCP from-the
mãe dele?
mother of-his
'When is he likely to have received it from his mother?'

c. *É provável que ele tenha ganho da*
COP.3SG probable that he AUX.SBJV.3SG received.PTCP from-the
mãe dele
mother of-his
'It is probable that he received it from his mother'

d. ≠ *Eu acredito que ele ganhou da*
I believe.1SG that he receive.PST.PFV.3SG from-the
mãe dele
mother of-his
'I believe that he received it from his mother'

It is clear from the tests that *dever* as used in this example is not an expression of truth-commitment, but rather one of objective epistemic modality. Moreover, the context indicates that the modal does in fact not express much more than a conjecture of what may have happened.

Let us now turn to Spanish *deber*. Consider example (31) below, which is equal to example (21b) from Section 3.4:

(31) Spanish
siempre he pensado que debió de ser
always AUX.1SG thought that must.PST.PFV.3SG PREP COP.INF
algo así como asesor artístico de Batista
something so like consultant artistic of Batista
'I have always believed that he must have been something like an artistic consultant of Batista' (=21b)

a. ??*¿Dónde debió de ser algo así como*
where must.PST.PFV.3SG PREP COP.INF something so like
asesor artístico de Batista?
consultant artistic of Batista
'Where must he have been something like an artistic consultant of Batista?'

b. ??*¿Cuándo debió de ser algo así como*
where must.PST.PFV.3SG PREP COP.INF something so like
asesor artístico de Batista?[20]
consultant artistic of Batista
'When must he have been something like an artistic consultant of Batista?'

c. ≠ *Siempre he pensado que era muy probable*
always AUX.1SG thought that COP.PST.IPV.3SG very probable
que fuera algo así como asesor artístico
that COP.PST.SBJV.3SG something so like consultant artistic
de Batista
of Batista
'I have always believed that it was very probable that he was something like an artistic consultant of Batista'

---

20. Note that, in analogy with the Portuguese example (29b′), something like (i) would be fully grammatical and acceptable, but it would be inappropriate within the the context of (29).

(i) *¿Cuándo fue algo así como asesor artístico de Batista?*
when COP.PST.PFV.3SG something so like consultant artistic of Batista
'When was he something like an artistic consultant of Batista?'

d. *Siempre he pensado…, o_sea_que, he estado*
always AUX.1SG thought or_rather, AUX.1SG COP.LOC.PTPC
convencido de que fuera algo así como
convinced PREP that COP.PST.SBJV.3SG something so like
asesor artístico de Batista
consultant artistic of Batista
'I have always believed,… or rather, I was convinced that he was something like an artistic consultant of Batista'

As we already saw in Section 3.1, asking for time and place in the context of epistemic *deber* in (31a) and (31b) is very odd. Although the objective epistemic reformulation in (31c) is, in principle, grammatical, it does not correctly reflect the meaning of (31), whereas the subjective epistemic variant (31d) does. Example (31) is in fact a case of redundant marking of subjective modality, i.e. the subjective truth-commitment is marked lexically by means of *siempre he pensado* and grammatically by means of the epistemic auxiliary *deber*. Note that this is entirely independent of the fact that the SoA *ser algo así como asesor artístico de Batista* does probably not reflect reality.

4.3 Intermediate conclusion

The Spanish and Portuguese modal of possibility, *poder*, although highly frequent in all kinds of modal meanings, has not yielded any instance of subjective epistemic modality. From this fact we conclude that, with respect to epistemic modality, *poder* expresses objective modality only.

Portuguese *dever* can express both objective and subjective epistemic modality. When expressing probability, it functions as an expression of objective epistemic modality. When expressing certainty, it has a subjective epistemic function.

Objective epistemic modality can be expressed independently of the location of the event in time: the event may lie in the future, as in (12), (22) and (23), or in the past, as in e. g. (9), (21), (24) and (30) above. This fact supports the FDG analysis presented in Hengeveld (2011, 2017), according to which objective epistemic modality operates on the layer of the Episode, which can be freely located in time.

Our conclusion with respect to Spanish *deber* is that it is much less flexible than *dever*, because it can express subjective epistemic modality only: it never allows for questioning for time and space and never allows for paraphrases by means of impersonal constructions. This difference is probably related to the fact that *deber* only expresses certainty, because it seems that in natural language use epistemic

modals of necessity generally fail to express anything but a subjective meaning (cf. Olbertz & Honselaar 2017: 280 on Dutch).[21]

The results we have reached so far are summarized in Table 1.

Table 1. Scope relations of modal auxiliaries in Brazilian Portuguese and Spanish

Subjective epistemic modality (p_1)	Objective epistemic modality (ep_1)
necessity (*dever*, *deber*)	possibility (*poder*) probability (*dever*)

5. Subjective epistemic modality and inferential evidentiality

The modal auxiliaries of subjective epistemic necessity (or, simply, subjective certainty), *dever* in Portuguese and *deber* in Spanish, are also used as expressions of inferential evidentiality. Dall'Aglio Hattnher and Hengeveld (2016: 8) even claim that the subjective use of *dever* is not modal but evidential, i.e. it "qualifies the Propositional Content as a result of an inference processed by the speaker". Similarly, Olbertz (1998: 410–412) claims that subjective epistemic necessity equals inferentiality. As we mentioned in the introduction to this chapter, there is indeed a certain overlap between epistemic modality and inferential evidentiality, but the two are basically different in the sense that inferentiality is based on a reasoning process and as such is essentially neutral with regard to truth-commitment (De Haan 1999).[22]

Inferentials typically contain a motivation of the correctness of the inference, which helps to recognize inferentials at first sight. A reliable way of distinguishing between expressions of epistemic subjective modality and inferential evidentiality

21. An apparent exception are alethic modal expressions, which are objective expressions of necessity:

(i) It is August, so the sun must set at about 20:20 h in the Netherlands.

However, the meanings of alethic modal necessity expressions can be rendered in natural language use without resorting to modality at all. In other words, outside the context of formal logic, (i) is equal to (ii):

(ii) It is August, so the sun sets at about 20:20 h in the Netherlands.

22. The discussion whether modals of necessity express epistemic modality or inferential evidentiality is not new (see e.g. Dendale 1994). More recently, Boye (2012) deals with epistemic modality and its relation to evidentiality from a typological perspective.

is to substitute the modal with a lexical expression of evidentiality, such as the (Portuguese and Spanish) evidential adverb *aparentemente* 'apparently'. If this paraphrase has no effect on the meaning of the proposition, we can conclude that the modal serves to express an inference.

This is the case in many of the Portuguese and Spanish examples we have found. Consider the following examples from Brazilian Portuguese:

(32) Portuguese
"O cara é coerente, a história tem lógica, e ele deu respostas seguras e ricas em detalhes.
Não deve estar mentindo", pensava.
not must.3SG COP.TEMP.INF lie.GER think.PST.IPFV.1SG
' "The guy is consistent, the story makes sense, and he has given reliable and very detailed answers. Apparently he is not lying", I thought.'
(CdP, fiction, Brazil, 1993)

a. *Aparentemente não está mentindo", pensava.*
apparently not COP.TEMP.INF lie.GER think.PST.IPFV.1SG
'Apparently he's not lying", I thought.'

(33) Portuguese
eu gostaria até de ver, porque eu leio O
I like.POST.FUT.1SG even PREP see.INF because I read.1SG *o*
Globo *todo dia, mas isso eu não vi, deve ter*
globo each day but this I not see.PST.PFV.1SG must.3SG AUX.INF
sido algum dia que eu não vi
COP.PTCP some day that I not see.PST.PFV.1SG
'I would even like to see it, because I read *O Globo* every day, but I haven't seen this one, there must have been some day that I didn't see it'
(PEUL, E28, Brazil, 1980)

a. *aparentemente teve algum dia que eu não*
apparently there-was.PFV.3SG some day that I not
vi
see.PST.PFV.1SG
'apparently there was some day that I didn't see it'

(34) Portuguese
A professora devia ter percebido o_que se
the teacher must.PST.IPV.3SG AUX.INF perceived what REFL.3
passava, pois se calou de_repente
happen.PST.IPV.3SG since REFL.3 stop-talking.PST.PFV.3SG suddenly
'The teacher must have perceived what was happening, since she suddenly stopped talking' (CdP, fiction, Brazil, 1943)

a. *Aparentemente a professora tinha percebido o_que*
apparently the teacher AUX.PST.IPV.3SG perceived what
se passava, pois se calou
REFL.3 happen.PST.IPV.3SG since REFL.3 stop-talking.PST.PFV.3SG
de_repente
suddenly
'Apparently the teacher had perceived what was happening, since she suddenly stopped talking'

The situation in Spanish is very similar. The following examples are representative of the inferential use of *deber*:

(35) Spanish
Algo debió de notar en mis ojos, porque me
something must.PST.PFV.3SG PREP notice.INF in my eyes because me
preguntó qué era lo_que me ocurría.
ask.PST.PFV.3SG what COP.PST.IPV.3SG what to-me happen.PST.IPV.3SG
He must have noticed something in my eyes, because he asked me what was happening to me.' (CREA, fiction, Cuba, 2000)

a. *Aparentemente notó algo en mis ojos, porque me*
apparently notice.PST.PFV.3SG something in my eyes because me
preguntó qué era lo_que me ocurría.
ask.PST.PFV.3SG what COP.PST.IPV.3SG what to-me happen.PST.IPV.3SG
'Apparently he noticed something in my eyes, because he asked me what was happening to me.'

(36) Spanish
se me debieron juntar todas las causas que
REFL.3 to-me must.PST.PFV.3PL unite.INF all the causes which
pueden producir el infarto, había tomado muchos
can.3PL produce.INF the attack AUX.PST.PFV.3SG taken many
años anticonceptivos, soy muy fumadora […]
years anti-conceptives COP.1SG very smoker
'in me all the causes that can produce a heart attack must have come together, I had taken anti-conceptives for many years, I'm a heavy smoker […]
(adapted from Alcalá, 46)

a. *aparentemente se me juntaron todas las causas*
apparently REFL.3 to-me unite.PST.PFV.3PL all the causes
que pueden producir el infarto
which can.3PL produce.INF the attack
'Apparently in me all the causes that can produce a heart attack have come together'

(37) Spanish
Fue, probablemente, un encargo de la Sociedad Filarmónica de Barcelona,
y Granados no debió tener mucho tiempo para
and Granados not must.PST.PFV.3SG have.INF much time for
componer=la, a juzgar por el apresuramiento de
compose.INF=it to judge.INF by the haste of
la escritura,
the handwriting
'It probably was an assignment from the Philharmonic Society of Barcelona and Granados apparently did not have much time for composing it, judging from the haste of the handwriting,' (CREA, press, Spain, 1996)
a. *y aparentemente Granados no tuvo mucho tiempo*
and apparently Granados not have.PST.PFV.3SG much time
para componer=la, a juzgar por el apresuramiento de
for compose.INF=it to judge.INF by the haste of
la escritura,
the handwriting
'and apparently Granados did not have much time for composing it, judging from the haste of the handwriting,'

When *dever* and *deber* express truth-commitment, i.e. subjective epistemic modality, as in the cases discussed in Sections 3 and 4 of this chapter, the paraphrases with *aparentemente* is infelicitous. Consider (40), which is a repetition of (24) from Section 3.5:

(40) Portuguese
Eu não estava olhando quando eu me esbarrei
I not COP.TEMP.INF looking when I REFL.1SG collide.PST.PFV.1SG
em você… deve ter sido o destino.
in you must.3SG AUX.INF COP.PTCP the destiny
'I didn't look when I collided with you… it must have been destiny' (= 24)
a. ??*aparentemente foi o destino.*
apparently COP.PST.PFV.3SG the destiny
'apparently it was destiny.'

The paraphrasis with *aparentemente* is inappropriate here due to the fact that 'destiny' is something one can believe in, but for which there cannot exist any kind of evidence.

An even clearer case is example (41), which is uttered in a semi-formal situation of a linguistic interview. The speaker seems to know what is expected from her and she is also aware of the fact that she is one of many interviewees.

(41) Portuguese
[The informant has been asked to tell about something that happened to someone else]
eu tenho um tio…[…] e ele teve uma amante..
I have.1SG a uncle and he have.PST.PFV.3SG a lover
sabe… apesar_que acho que vocês já deve [sic]
know.2SG although think.1SG that you.PL already must.2SG
ter ouvido muita história de amante…
AUX.INF heard many history of lover
'I have an uncle… […] and he had a lover… you know?… although I think you must have heard already lots of stories of lovers' (Iboruna, 100)
a. ??*apesar_que acho que vocês aparentemente já têm*
although think.1SG that you.PL apparently already AUX.2PL
ouvido muita história de amante…
heard many history of lover
'although apparently you have already heard lots of stories of lovers'

In this example, the speaker just assumes that in these interviews many stories of secret love affairs are being told. As the interviewee does not know any of the other interviews, she cannot have any evidence at all. This is why the paraphrase with *aparentemente* is odd.

In Sections 3.4 and 3.5, respectively, there are two Spanish examples (21b) and (25), respectively, containing tag-question asking for the confirmation of the truth of the preceding Propositional Content. (42) is a repetition of (21b) from Section 3.4, with some context added.

(42) Spanish
Los años de Robespierre y Danton debieron de
the years of Robespierre and Danton must.PST.PFV.3PL PREP
ser terribles en Francia, ¿no es cierto? Usted
COP.INF terrible in France not COP.3SG true you.FORM
pudo comprobar=lo.
can.PST.PFV.2SG.FORM verify.INF=it
'The years of Robespierre and Danton must have been terrible in France, isn't it true? You were able to verify this.'
a. ??*Aparentemente los años de Robespierre y Danton*
apparently the years of Robespierre and Danton
fueron terribles en Francia, ¿no es cierto?
COP.PST.PFV.3PL terrible in France not COP.3SG true
'Apparently, the years of Robespierre and Danton fueron terrible in France, isn't it true?'

The fact that the speaker adds the tag question *¿no es cierto?* 'isn't it true?' implies that she or he asks for confirmation of the truth of what she/he just has claimed to be true. What makes the case even clearer is the fact that the speaker continues to say that the addressee is in the possession of evidence. Therefore, the evidential paraphrase (42a) is clearly out of place.

What we can conclude from all these examples is that *dever* and *deber* can express both inferential evidentiality and subjective epistemic modality. This is not surprising, since the two notions are in fact closely related. Although inferentiality is unrelated to truth-commitment, the (primary or secondary) speaker will probably be committed to the reliability of the information of a proposition which he or she inferred. Therefore, in practice, the distance to truth-commitment is not so big (Nuyts 2017: 73).[23]

It may well be that *dever* and *deber* are on their way to develop into fully evidential auxiliaries. Such a development would be plausible particularly in the case of Spanish *deber*, because there is a competing expression within the domain of epistemic modality, *tener que* 'have to'. This is not (yet) the case in Portuguese, where the cognate periphrases with *ter que* and *ter de* express dynamic and deontic modality only.

In our view, the double status of *dever* and *deber* as expressions of inferential evidentiality and of subjective epistemic modality need not be a problem for FDG. As both subjective epistemic modality and inferentiality operate on the Propositional Content, we can simply say that the two modals can express both functions, as indicated in Table 2.

Table 2. The functions of modal auxiliaries in Brazilian Portuguese and Spanish

	Propositional Content (p_1)	**Episode (ep_1)**
evidentiality	inference (*dever*, *deber*)	deduction
modality	necessity (*dever*, *deber*)	possibility (*poder*) probability (*dever*)

23. "If a speaker, for instance, indicates high reliability of an inference from facts to a possible state of affairs it is very hard not to understand that s/he is also quite sure that the state of affairs applies" (Nuyts 2017: 73). Nuyts uses the concept of 'state of affairs' instead of 'proposition', because he rejects the distinction between SoAs and propositions adopted in FDG and its predecessor Functional Grammar (cf. Nuyts 1992).

6. Conclusions

We have shown in this chapter that it is possible, on the basis of independent operationalized criteria, to distinguish between the use of modal auxiliaries as expressions of objective and subjective epistemic modality, thus confirming the linguistic relevance of this distinction. In FDG objective epistemic modality operates on the Episode and subjective epistemic modality on the Propositional Content.

Furthermore, the objective – subjective dichotomy turned out to be relevant for the semantic subcategories possibility, probability and necessity as expressed by these modal auxiliaries, in the sense that the auxiliary expressions of possibility and probability turn out to encode objective modal distinctions, whereas the auxiliary constructions of certainty (i.e. epistemic necessity) express a subjective meaning.

More concretely, this very distinction helps to disentangle the similarities and differences in the functions of the modals in the two major Iberoromance languages. The modal expression of possibility is *poder* in both languages, and in both languages it behaves in very much the same way. There is, however, a considerable difference between Portuguese *dever* and its Spanish cognate *deber,* the latter being restricted to performing subjective functions, whereas the former can fulfil both objective and subjective functions, depending on whether it expresses probability (objective) or certainty (subjective).

With respect to the subjective functions, we have shown that *dever* and *deber* can express both epistemic modality and inferential evidentiality. It seems as though both are on their way to evolve into grammatical expressions of inferential evidentiality only.

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Premodification in evaluative *of*-binominal noun phrases

An FDG vs a zone-based account

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Premodification patterns play a central role in the analysis of the evaluative binominal noun phrase (EBNP; *a beast of a man*). This is, on the one hand, because the EBNP sometimes demonstrates non-canonical premodification: modifiers in front of the first noun can be selected by the second noun (e.g. *a bitchy iceberg of a woman*), and, on the other hand, because some of the EBNPs have evolved into evaluative modifiers (EMs; *a beastuva day*), with [N_1 of a] integrating itself into the pre-existing premodification patterns. In the context of the premodification distinctions relevant to the evaluative *of*-binominal family, this study will juxtapose a hierarchical, Functional Discourse Grammar (FDG; Hengeveld & Mackenzie 2008; Keizer 2015) analysis of the premodification patterns against those of a linear zone-based, Construction Grammar (Ghesquière 2014) approach to premodification. In particular, this chapter, using corpus data from the Corpus of Contemporary American English and the Corpus of Historical American English, compares the categories proposed by each theory and discusses to what extent each model is able to account for the shifting premodification patterns found in the evaluative *of*-binominal family. This chapter concludes that although a zone-based account can, to a great extent, model these differences, this form of model does not provide an explanation as to why these changes have taken place. On the other hand, FDG can model and provide an explanation for the irregular premodification patterns, and captures the critical distinction between pragmatic and semantic modifiers, which also plays a role in this explanation. This study also provides evidence that the [N_1 of a] chunk has integrated into pre-existing premodification patterns, and that, therefore, an integration of these two approaches to modeling premodification may be possible.

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1. Introduction

The classification of premodifiers in English has always been problematic. Part of the problem is the different functions that premodifiers can fulfill which leads to potential ambiguity in many utterances. One example is *green* in (1). *Green* in this example can either be a classifier indicating the bird's species, *Picus viridi*, or a descriptive modifier describing the bird's color (Matthews 2014: 114). Another example is *old* in (2a), where the speaker might mean that the *friend is getting on in years* or *a long-time friend*. To some extent, syntactic placement helps to disambiguate the semantic confusion (the descriptive modifier *ugly* in (2b) makes it more likely that *old* also is a descriptive modifier indicating age), and there seems to be little dispute over the fact that there is a link between the adjectival meaning or function and the premodifier ordering (e.g. Dixon 1982, 2010; Quirk et al. 1985: 437; Sproat & Shih 1987, 1991; Scott 1998; Adamson 2000; Feist 2012; Ghesquière 2009, 2014).

(1) a juvenile green woodpecker

(2) a. an old friend
    b. an old ugly friend

Some general principles for English premodification placement that are usually agreed upon are that attributive modifiers are ordered (starting with the noun head) from objective to subjective modifiers, and that those closest to the head are those modifiers denoting the most inherent properties (Quirk et al. (1985: 1341); for a more detailed discussion of this distinction from a functional-cognitive perspective see Breban (2010: 40–56); for subjective-objective distinction see also Hetzron (1978); Seiler (1978); Cinque (1994); Scott (1998, 2002); Adamson (2000); Trueswell (2009); Scontras et al. (2017)). There are two distinctively different theoretical models of premodification in English: a hierarchical approach (used in both in Functional Discourse Grammar and Generative Grammar),[1] and (more or less) linear zone-based ones (used in Systemic Functional Grammar and Construction Grammar).[2] This

1. It should be emphasized that generative models exhibit 'hierarchicalness', but generative approaches are based on syntax and are hierarchical in their scope relations (for discussions on premodification in generative theories see Sproat and Shih 1988, 1991; e.g. Cinque 1994, 2010, 2014; Scott 2002; Laenzlinger 2005). Generative theories model along a syntactic hierarchy, and unlike FDG, they do not include a pragmatic level, and semantics does not influence syntactic form.

2. A zone-based approach is a flat syntactic approach that posits that in the NP structure there are set zones. The placement of a premodifier in a particular zone largely determines a premodifier's semantic content and/or function. Linear is used above as a very general term, since not

chapter discusses these two approaches to classifying and categorizing premodification when applied to the grammaticalization of a branch of *of*-binominal constructions related to the evaluative binominal noun phrase (EBNP).[3] Based on a qualitative analysis of data from the *Corpus of Contemporary American English* (COCA) and *the Corpus of Historical American English* (COHA), this chapter argues that although both approaches can model the changes, FDG provides an explanation as to why these changes have taken place and makes a critical distinction between modifiers at the pragmatic and semantic level.

This chapter first, in Section 2, introduces the two theoretical approaches used in this analysis: Ghesquière's functional-cognitive zone-based model and Functional Discourse Grammar (FDG). In Section 3, the different *of*-binominals examined in this study are presented and discussed along with their irregular premodification patterns, and finishes with a brief discussion as to why their development constitutes a case of grammaticalization. It then, in Section 4, juxtaposes a zone-based analysis to a Functional Discourse Grammar explanation of the findings, emphasizing the strengths and weaknesses of the two accounts, and concludes, in Section 5, with a discussion of the differences between the two accounts.

2. Theoretical models

2.1 The zone-based approach to premodification

Numerous zone-based models have been suggested in the last few decades, including Bache's (2000) functional zone model and Feist's (2009, 2012) semantic zone-based model. I selected Ghesquière's (2009, 2014) model because, as a functional-cognitive based model, it shares similar functional-cognitive ontological premises about language with FDG. Furthermore, it is a function-based model, not form-based one (based on grammatical class), which is an important feature when it comes to the analysis of non-canonical NPs such as *of*-binominals (this is important since the

all approaches have the same definition of linearity. On one end of the extreme, there is Dixon, whose work focuses on attributive premodifiers and primarily looks at ordering principles, and at the other there is Ghesquière, who posits premodifier zones, but these have depth in terms of different ranges of scope.

3. The term 'evaluative binominal noun phrase' has been adopted from Trousdale (2012); however, this construction has been called 'binominal noun phrase' (Aarts 1998; Keizer 2007a; Kim & Sells 2015), 'expressive binominal noun phrase' (Foolen 2004), 'qualitative binominal noun phrase' (Den Dikken 2006: 162), 'NoN' (Alexiadou, Haegeman & Stavrou 2007), 'N of a N' (Corver 1998), and 'adjectival nouns' (McCawley 1987).

internal changes that take place in the grammaticalization process do not conform with prototypical premodifier categories, e.g. adjectives, adverbs, and participles).[4] Finally, this model is more detailed and dynamic than purely semantic based models.

To denote Ghesquière's (2009, 2014) model as purely linear is a bit of a misnomer because, unlike other zone-based models (Quirk et al. 1985; Feist 2009, 2012), it does attempt to take into account scope relationships between the different functional categories. In terms of theoretical orientation, Ghesquière (2014: 13) adopts a constructional approach (defining constructions as per Croft 2001; Fried 2010),[5] while at the same time her model builds on Halliday's (1985; see also Halliday and Matthiessen [2014]) Systemic Functional Grammar model of the NP, Bache's (2000) functional zone model of the English NP, and Langacker's (1991, 2002, 2008) work in Cognitive Grammar. Essentially this model assumes a function-based rather than a grammatical category-based/semantic category approach to premodification (see also Breban 2010), i.e. there is no one-to-one correlation between a word's grammatical category and a word's premodifier function. Ghesquière's model of the NP is illustrated with three examples (i.e. *all those really pretty little garden flowers, utter madness,* and *those lovely long legs*) in Figure 1.

Instantiation of a type of entity									
determination			modification					categorization	
			degree modification			descriptive modification			
secondary	primary	secondary	noun-intensifier	adjective-intensifier		subjective	objective	classifier	head
				bleached	non-bleached				
all	*those*			*really*		*pretty*	*little*	*garden*	*flowers*
			utter						*madness*
	those				*lovely*		*long*		*legs*

Figure 1. Ghesquière's (2014: 24) functional-cognitive NP model

4. It should be noted that the Ghesquière model and most other zone-based models were not constructed to capture postmodification, and the Ghesquière model in particular was designed as a synchronic model of the NP (see Feist 2012 for an alternative).

5. Ghesquière (2014: 14) takes constructions to be the basic units of grammatical analysis, and they are "functional structures in which grammar and lexis are integrated with each other, i.e. as distinct form-meaning pairings". Constructions can then be anything from a morpheme to longer syntactic structures.

Ghesquière (2009, 2014) breaks up the NP into three zones, each with its own central function: categorization, modification, and determination. In the categorization zone, Ghesquière (2014: 26) explains, the head can be realized by a noun or a compound noun, whereby the main evidence for compounding is that the component parts of compounds cannot be separated by coordination and modification, e.g. *ice-cream* but not **ice-Italian cream* or **ice-and custard-creams*. Ghesquière (2014: 27) defines her classifiers as premodifiers that "further specify the type or class of the thing denoted by the head" and are organized into "mutually exclusive and exhaustive sets", e.g. *electric trains/steam trains*. Classifiers usually cannot be used in the predicative position,[6] and normally do not allow degree modification (except by modifiers that modify class membership, e.g. *almost, exclusively*) (Quirk et al. 1985: 1324; Ghesquière 2014: 27).

Descriptive modifiers are the prototypical premodifiers and "attribute a certain quality or property to the instances referred to by the NP" (Ghesquière 2014: 29). They can occur in the attributive and predicative positions, tend to be gradable, and allow for degree modification (Ghesquière 2014: 29). Ghesquière, furthermore, makes the distinction between objective and subjective descriptive modifiers: where objective modifiers "indicate objectively recognizable, purely descriptive and potentially defining qualities", subjective ones "express the speaker's attitude towards the instance referred to by the NP" (Ghesquière 2014: 30; similar to Adamson's (2000) affective adjective, Feist's (2012) Epithet, or Scott's (2002) subjective comment). The two categories are not discrete but represent two ends on a continuum (Ghesquière 2014: 29).[7]

As with the descriptive modifiers, Ghesquière (2014: 34–44) distinguishes between two different kinds of degree modifiers. The first, adjective-intensifiers, "modify or indicate the extent of a quality or property denoted by a descriptive modifier they precede" (Ghesquière 2014: 35), e.g. *a very nice book* or *a really fast car*. For this category, she then makes the distinction between more or less bleached adjective-intensifiers; the more bleached are adverbs such as *very* or *fairly,* and the less bleached are those such as *lovely* in *lovely long legs* (Ghesquière 2014: 35–36). The second kind of degree modifiers, noun-intensifiers (similar to emphasizers

6. This is very similar to the Quirk et al. (1985: 432) classifier-like category called denominal adjectives or adjectives related to noun; denominal adjectives are usually non-gradable and attributive, i.e. cannot take intensifiers (cf. Halliday's classifier category (Halliday & Matthiessen 2014: 377) and see Halliday & Matthiessen (2014: 377) for a discussion of the differences between classifiers and what he calls epithets or Ghesquière calls subjective descriptive modifiers).

7. For a more in-depth discussion on the classifier-descriptive modifier distinction see Kamp (1975: 153); Quirk et al. (1985: 1239–1242/1322–1323); Alexiadou, Haegeman & Stavrou (2007: 334–335).

(Quirk et al. 1985) or reinforcers (Paradis 2001, Feist 2012)), "have scope over and modify the degree of all gradable qualities in the whole NP", e.g. *a complete idiot, utter darkness* (Ghesquière 2014: 36–37).

In later work (Davidse & Ghesquière 2016; Ghesquière 2017), a distinction is made between intensification and focusing, and focus markers are included in the left end of the zones. Intensification is scalar (Ghesquière 2017: 43); focus markers single out the element they have scope over and place it in relation to other values, and typically "all focus markers have a textual, discourse-organisational function, highlighting information the speaker/writer expects to facilitate the hearer/reader's understanding of the text" (Ghesquière 2017: 34). Therefore, while intensification is semantically scalar, focusing is pragmatically scalar, with the scales being context dependent (Ghesquière 2017: 36), as seen in examples such as *true* in *a true Aussi*.

The left-outer zone is the determination one, and the linguistic elements in this zone provide identifying and quantifying information (Ghesquière 2014: 25). Since this study focuses on the modification and the categorization zones, the determination zone will not be discussed any further.

2.2 The FDG model of premodification

The hierarchy in the FDG model manifests itself in two ways. On the one hand, the pragmatic and semantic levels influence the Morphosyntactic and Phonological Levels; on the other hand, each level itself is layered, predominantly modeling scope relations (see Hengeveld 2017). The first type of hierarchical relation is the one that plays the most central role in this study (English premodification consists of both modifiers and/or operators at the Interpersonal and Representational Levels); however, scope relations play a role in distinguishing the difference between modification of the referent, the entity being evoked (either modification at the layer the Referent (R) on the Interpersonal Level or the Individual (x) on the Representational Level), and the reference, the property being designated (either modification of the Subact of Ascription (T) on the Interpersonal Level or the Property (f) on the Representational Level).

On the Interpersonal Level, operators of the Ascriptive Subact might be grammaticalized forms of approximation such as *-ish* or *sort-of,* exemplified in (3). Modification at this Level is strictly interpersonal, i.e. expressing the speaker's attitude toward the referent or reference; an example would be *proper* in (4), which expresses the speaker's evaluation of the referent's conformity to a prototypical *beast* (Keizer 2015: 88). FDG also has modifiers of the Referential Subact (R) at the Interpersonal Level. In (5), *poor* does not ascribe a property to an entity but expresses speaker sympathy for the referent (Hengeveld & Mackenzie 2008: 121; Keizer 2015: 94–95).

(3) sort-of blue (Hengeveld & Mackenzie 2008: 112)
(approx T_1)

(4) a proper beast
IL: (–id R_I: [(T_I: [ ] (T_I): proper (T_I))] (R_I))

(5) Why do they have to be out there pestering *a poor innocent dinosaur*?
(Keizer 2015: 220)
IL: (–id R_I: [(T_I) (T_J)]: poor (R_I))

On the Representational Level, we find the more prototypical premodifiers. Like the classifier and descriptive zones in the Ghesquière model, FDG makes a distinction between specifying/naming, i.e. modification of the reference, as shown in (6a), and descriptive modification, i.e. modifying the referent, as shown in (6b). For example, in (7a), the Property "student" is restricted or specified by the Property "medical", and these two Properties designate the Individual (Hengeveld & Mackenzie 2008: 230; for more discussion see Van de Velde (2007: 206) Portero Muñoz (2013)). In (7b) the Properties *handsome* and *old* are both ascribed to the Individual (x). Furthermore, with descriptive modifiers, FDG stipulates that if there is more than one descriptive modifier, as in (7b), the more objective modifiers, such as *old,* are closer to the head, and the subjective ones, such as *handsome*, are further away (Hengeveld & Mackenzie 2008: 241–242).

(6) a. (x_1: [(f_1: Noun (f_1)) (x_1)]: [(f_1: Adjective (f_1)) (x_1)]) Descriptive
b. (x_1: [(f_1: Noun (f_1): [(f_2: Adjective (f_2)) (f_1)]) (x_1)]) Classifying
(Portero Muñoz 2013: 125)[8]

(7) a. a medical student
RL: (1 x_i: (f_i: student (f_i)): (f_j: medical (f_j)) (x_i))
b. the handsome old man
RL: (1 x_i: (f_i: man (f_i)) (x_i): (f_j: old (f_j)) (x_i): (f_k: handsome (f_k)) (x_i))

Degree modifiers in FDG fulfill a variety of roles and can be more or less subjective, meaning that in the FDG framework they can be rendered as operators or modifiers of the Ascriptive Subact or Referential Subact on the Interpersonal Level or as an operator of a Property on the Representational Level (van de Velde 2007: 216; see García Velasco (2013) for an overview). For example, a degree modifier such as *very* functions as an operator on the Representational Level (García Velasco 2013: 87–89;

8. The examples have been simplified from the original in that the ascriptive and associative functions have been deleted. The issue is with the ascriptive function on the Representational Level since it is usually employed at the Interpersonal Level. This does not affect the analysis since the underlying representation is the important element in these examples.

example (8)), while the more subjective *-ly* degree adverbs such as *dreadfully* appear on the Interpersonal Level (García Velasco 2013: 93–94; example (9)). Examples (8) and (9) would be what Ghesquière designates as bleached (8) and non-bleached (9) adjective-intensifiers, respectively.

(8) very tall
RL: (**intens** f_i: $tall_A$ (f_i))
ML:(Ap_i: (**Gw_i: very (Gw_i)**) (Aw_i: tall (Aw_i)) (Ap_i)) (García Velasco 2013: 89)

(9) dreadfully sorry
IL: (T_I: [ ] (T_I): dreadfully (T_I))
RL: (f_i: $sorry_A$ (f_i)) (García Velasco 2013: 94)

This modifier (lexical) and operator (grammatical) distinction is not usually a clear cut one. For this reason, Keizer (2007b) proposes a stage-like process of grammaticalization, leading to a distinction between primary and secondary grammatical and lexical items. Although in recent FDG literature (e.g. Hengeveld 2017), this four-way distinction has primarily been reduced to a tripartite distinction between lexeme, lexical operator and operator, the four categories have been retained here.[9]

Secondary lexemes are defined as an intermediary position between lexeme and operator and are realized as linguistic forms such as idioms and lexicalized phrases like *sort-of* in examples, such as *a sort of holiday,* meaning 'something like a holiday' (Keizer 2007b: 45–46, 47). In these forms, *sort* no longer evokes an entity, is semantically bleached, no longer takes the plural form or a NP complement, and can be phonologically reduced to *sorta*. The element *of* no longer has a relational function. However, *sort-of* can co-occur with other modifiers and it does not have a fixed position in the clause. It can take the Focus function, is optional, and does not fuse with other linguistic elements (Keizer 2007b: 45–46). Therefore, it is more grammatical than a prototypical lexical item, but it is not an operator; hence it can be categorized as a secondary lexeme.

Secondary operators or lexical operators can be defined in terms of their function in that they are non-descriptive and may help the addressee pick out the designated entity (Keizer 2007b: 50; see García Velasco 2013, Olbertz 2016); in terms of their formal behavior, however, they have more in common with lexical items. The classic example is that of the demonstrative *that*. In an example such as *that man*, the demonstrative does not modify or restrict the head, cannot be modified, is part

9. In a recent publication (Hengeveld 2017), Hengeveld adopts this lexeme, lexical operator, and operator trichotomy. He also reduces the classifying criteria to two elements: modification and focalization.

of a fixed set, has a relatively fixed position, and does not have a predicate formation. However, *that* can be focalized, cannot be fused with other linguistic elements or phonetically reduced, and is not completely void of semantic information (cf. Keizer 2007b: 44; Hengeveld 2017). Therefore, it is considered to be a lexical operator.

FDG, thus, models the distinction between modifiers and operators on the pragmatic and semantic levels, as well as between modifiers/operators of the referent and the reference. Section 3 introduces the EBNP *of*-binominal family before both approaches are applied to the data.

3. The evaluative *of*-binominal family

The evaluative *of*-binominal consists of five central constructions: the N+PP in (10), the head-qualifier in (11), the evaluative binominal noun phrase (EBNP) in (12), the evaluative modifier (EM) in (13), and the binominal intensifier (BI) in (14). These five constructions appear to be formally very similar, but the reader feels that, semantically, the relationship between the two nouns differs. In example (10), the prepositional phrase denotes the location of the *living hell*. In example (11), on the other hand, this phrase defines or classifies the first noun, i.e. it indicates what the *suburban hell* consists of. In example (12), the EBNP, the speaker-writer uses *hell* to ascribe some Property onto the second noun, i.e. it was a hellish hotel, and in example (13), the EM, the speaker expresses approval for the movie, i.e. it was a great move. Finally, in (14), *hell* emphasizes or intensifies the Property *flamboyant*, i.e. the *gal* in question is not just *flamboyant,* but *very flamboyant*.

(10) What a contrast between his quarters here and *the living hell of Dachau Concentration Camp* only 10 miles from here. (COCA)

(11) The Ice Storm wallowed in *a suburban hell of passionless swinging* – the grown-ups tried to act hip while their kids just snickered… (COCA)

(12) It's a charming town with *a hell of a hotel*…it's the worst hotel in Australia. (Trousdale 2012: 182)

(13) We are going to show you a scene from this movie, which is by the way *a hell of a movie*, with a tremendous performance by Ms. Stone and everybody involved. (COCA)

(14) And if that's flamboyant, well then, yeah, then I'm *a hell of a flamboyant gal*. (COCA)

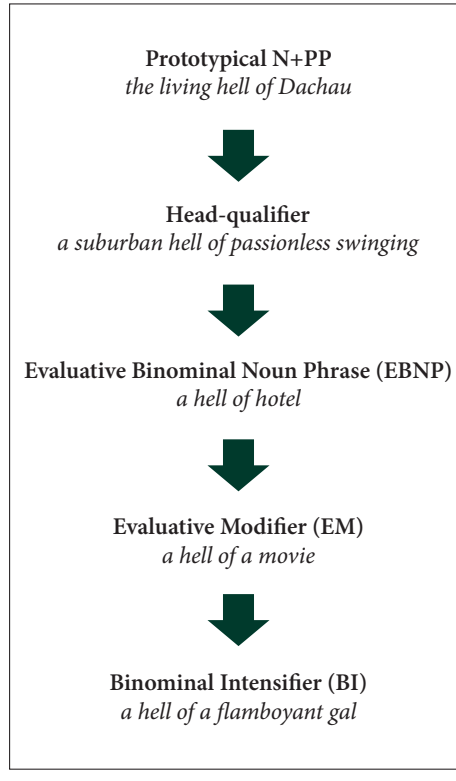

Figure 2. Grammaticalization path of the EBNP

All five constructions are historically related (see Figure 2; see Ten Wolde & Keizer 2016; Ten Wolde in press).[10] Sections 3.1–3.5 below will discuss the semantic and syntactic differences between the different categories before briefly discussing why their development is considered to be an example of grammaticalization.

The link between premodification and *of*-binominals in general, and this family of constructions in particular, is three-fold. First, premodification restrictions have been used in previous research on *of*-binominals as support for distinctions between binominal categories. For example, in her analysis of pseudo-partitives, Keizer (2007a: 142) uses differences in premodification patterns to support her distinction between five pseudo-partitive subgroups; in addition, she regards the presence or absence of constraints on premodification as a strong indicator for the referential status of the first noun. Brems (2011), in her study on size and type *of*-binominals,

10. Figure 2 is a simplified version of this network. For the extended network see Ten Wolde (2018).

uses changes in premodification to substantiate her arguments for new *of*-binominal categories, and argues for "the importance of systematically studying premodification patterns" when analyzing the grammaticalization of *of*-binominals (Brems 2011: 191; see also Alexiadou, Haegeman, & Stavrou 2007: 418). Therefore, premodification patterns play an important role when it comes to distinguishing different subtypes of *of*-binominals. Second, previous studies (e.g. Aarts 1998: 132–133; Kim & Sells 2015: 47–48) have noted that the EBNP exhibits irregular premodification patterns in that modifiers clearly selected by the second noun can appear before the first noun. This study looks for a systematic explanation for this development. Finally, the EBNP constructions have developed into evaluative modifiers (EMs; *a beastuva day*) and binominal intensifiers (BIs; *a helluva good day*), with [N_1 of a] integrating itself into the pre-existing premodification patterns (Ten Wolde & Keizer 2016; Ten Wolde (in press)). Therefore, premodification and the restructuring of premodification patterns play an important role in the grammaticalization of this family of constructions. The aim of this chapter is to find out to what extent the two models can account for these developments. First, however, the sections below will describe each construction in more detail and briefly outline each construction's premodification patterns.

3.1 N+PP

This category represents a mixture of *of*-binominals all of which share syntactic features that could be regarded as prototypical or canonical features of *of*-binominals in English. The first noun is the head (it is the obligatory element of the construction and distributionally equivalent for the whole construction, as demonstrated in (15)), and the verb semantically selects the first noun, as shown in (15a). Furthermore, it is the morphosyntactic locus and agrees in number with the verb (see example (16a)), and the first and second determiner exhibit concord with their respective nouns, e.g. example (16b). The *one* test, in example (17), shows that both nouns act as the head of their individual noun phrases; definite pronouns can take either noun phrase as their antecedents, as shown in (18).[11]

(15) a. When the dogcatchers *caught* the stray *dog* of a white citizen, they called the citizen up. (COCA)
b. When the dogcatchers caught *the stray dog*, they called the citizen up.
c. #When the dogcatchers caught *a white citizen*, they called the citizen up.

11. For further discussion of the criteria to distinguish the head in *of*-binominals, see Keizer (2007a).

(16) a. A *boat* of 153 Sri Lankan asylum seekers *remains* stranded at sea today. (COCA)
b. *The sweet breezes of this happy clime* came refreshingly to our nostrils. (COHA)

(17) a. *The sweet breezes of this happy clime* came refreshingly to our nostrils. (COHA)
b. The sweet *breezes* of this happy clime came refreshingly to our nostrils. Only the *ones* of the alps are better.
c. The sweet breezes of this happy *clime* came refreshingly to our nostrils. Only the sweet views of *this one* can top it.

(18) a. Phobos and Deimos carry the names of *the chariot horses of the Roman war god Mars* – Fear and Terror. (COCA)
b. Phobos and Deimos carry the names of *the chariot horses* of the Roman war god Mars – Fear and Terror. *They* were known for their prodigious strength.
c. Phobos and Deimos carry the names of the chariot horses of *the Roman war god Mars* – Fear and Terror. *He* was known for his prodigious skill with horses.

The constituency tests yield equivocal results. When the PP functions as a complement, with *of* designating intrinsic possession (part-whole relationship), as in (19), extraction (preposing/postposing) of the PPs and the embedded NP is possible. In the locative and temporal examples, however, the PP or embedded NP can no longer be extracted; the results are questionable at best and absurd at worst. With the proper context, all three examples allow for coordination (exemplified in (19e)).

(19) a. *The globe of the wine glass* dropped to the table. (COCA)
b. [Of the wine glass]$_i$, it was [the globe t_i] that broke.
c. [The wine glass]$_i$, they broke the globe of t_i.
d. [The globe t_i] was broken [of the wine glass]$_i$.
e. They broke the globes [of his wine glass] and [of his champagne glass].

The second noun is part of an NP embedded in a prepositional phrase, with the preposition denoting a range of relationships between the head and the second noun phrase (see Quirk et al. 1985: 703). Both NPs are referential (evoke a referent) and both nouns function as prototypical nouns, i.e. take singular and plural form, and can be premodified. In this particular family of *of*-binominals, the PP tends to function as a modifier specifying possession, source/location or time, or to simply ascribe a property onto the first noun.

As the prototypical N-*of*-N, these constructions can be assumed to allow for unrestricted premodification in front of both nouns. As exemplified by (20), both

classifiers (*HIV-AIDS* in (20a) and *parrot* in (20b)) and descriptive modifiers (*unimaginable* in (20a), *gentle* and *forgotten* in (20c)). Intensifiers (such as *very* in (20d–e)) can also appear in front of both nouns. Any restrictions are those imposed by the semantics of the nouns themselves.

(20) a. In June, the United Nations issued a report warning China that *a potential HIV-AIDS disaster of unimaginable proportions* now lies in wait to rattle the country. (COCA)
b. IaVivi had fallen ill with a swelling of the Adam's apple, a complaint which the Tolai call kalangar Baining, after *a bird of the parrot family* which is associated with Baining country. (COCA)
c. If truth be told, the spiders' webs, like our rooms, like the Union Jack flapping in *the gentle breeze of a forgotten summer* are shackled to emptiness, forged from emptiness… (COCA)
d. "This is the *very old guard dog of Italy,* the maremma," says Tedesco, "but these shepherds come from Sardinia, where there are no wolves, and they don't know how to train the Maremma…" (COCA)
e. It was as if *a bird of a very rare and delicate sort* had flown within his grasp (COCA)

3.2 Head-qualifier

In the head-qualifier constructions, the prepositional phrase does not anchor or identify the first noun but qualifies it (Keizer 2007a: 71); the *monster* in (21a) is *international terrorism,* and the type of angel in (21b) is *comfort* and *good living*.

(21) a. Israel declared that "before us stands accused *this rotten, corrupt, brutal, cynical, bloodthirsty monster of international terrorism*." (COHA)
b. By a singular revulsion, Tom himself, whom I well remember to have looked upon as the impersonation of all that is wild and backwoodsman-like, now appeared before me as *the ministering angel of comfort and good living*. (COHA)

The first noun is the head, and the second noun phrase has lost its referential status (i.e. does not evoke a discourse referent) and instead answers the question: *What kind of N?* (Keizer 2007a: 71–72; cf. Ten Wolde & Keizer 2016). Consequently, unlike the N+PP, only the construction as a whole evokes a referent; the second noun is non-referential and generic (cf. Givón 1993: 232–246), and therefore, can only be either a mass noun or a count noun in plural form.

In this construction, the first noun is the unambiguous head. It designates the referent: *an angel of death* is a type of angel and *a beast of burden*, a type of beast;

the verb semantically selects the first noun, as demonstrated in (22a). The morphosyntactic locus is difficult to determine, since the second noun is a mass noun or a bare plural; however, the plural marking is always on the first noun and the verb agrees in number with the first noun (see example (22b)). The proform *one* can only replace the first noun (23); personal pronoun antecedents agree with the first noun (24).

(22) a. She allowed the *beast* of burden to *eat* the leaf. (COCA)
b. The *angels* of inmost heaven *are* all unclothed. (COCA)

(23) a. The picture was from a helicopter and showed the dark mountains and *a glowing orange snake of flames*. (COCA)
b. The picture was from a helicopter and showed the dark mountains and a glowing orange *snake* of flames and a grey *one* of water.
c. *The picture was from a helicopter and showed the dark mountains and a glowing orange snake of *flames* and sporadically a globe of *ones*.

(24) a. I bought *two whales of stone* at the shop yesterday.
b. I bought *two whales* of stone, but *they* broke on the way home.
c. *I bought a whale of *stone*, yesterday. I also wanted to get a mouse of *it*, but they didn't have one.

The constituency tests clearly show that the PP is no longer a separate constituent. Neither the PP nor NP_2 can be shifted either left or right, nor can the PP be coordinated, as exemplified by *bird of prey* in (25). These syntagms, therefore, no longer consist of a noun with a prepositional phrase as modifier (this is true for all the constructions that follow; see Ten Wolde (2018) for a more detailed analysis).

(25) a. She was *a bird of prey* and my girlfriend was a willing mouse. (COCA)
b. *[Of prey]$_i$ she was [a bird t$_i$].
c. *[Prey]$_i$ she was a bird of t$_i$.
d. *[a bird t$_i$] was bought [of prey]$_i$.
e. *She bought him a bird [of prey] and [of paradise].

Not much research has been done on this particular category of *of*-binominals (cf. Keizer 2007a: 71–73) and even less on their premodification. A variety of premodifiers can be found in front of the first noun as demonstrated by (26). Premodification in front of the first and second noun tends to take the form of classifiers such as *international* in (21a) *nuclear* in (26b), descriptive modifiers either ascribing physical properties, such as *incinerated* in (26a), or expressing subjective evaluation, such as *rotten, corrupt, brutal, cynical,* and *bloodthirsty* in (21a) and *good* in (21b) (see Ten Wolde (in press) for a more detailed analysis). An interesting feature of this construction is that premodifiers in front of N_1 can modify the exogenous referent,

as evidenced in (27): *poor ignorant* cannot modify either *ball* or *dirt* but modifies the referent that the whole construction, *ball of dirt,* metaphorically represents, i.e. the earth. However, there appears to be some limitations on the intensifiers in front on the second noun, as shown in (28). Here *good old* (expressing speaker affection) can be used in front of the first noun, as shown in (28a), it can modify *burden,* as shown in (28b), but it cannot modify *burden* as the second noun in the head-qualifier, as shown in (28c). Thus the use of intensifying modifiers is somewhat restricted (the nature of this restriction is discussed in more detail in Section 4.2.2).

(26) a. The son's heritage is *a lifelong nightmare of incinerated birds* in his Los Alamos backyard. (COHA)
b. She says that the n-word is the' trump card, *the nuclear bomb of racial epithets*. (COCA)

(27) He did it so that you could have a life beyond *this poor ignorant ball of dirt*! (COCA)

(28) a. a good old beast of burden
b. "Farewell a *good old* burden." Now my life is only beginning. (Google)
c. *a beast of good-old burden

3.3 Evaluative binominal noun phrase

In the EBNP, the N-*of*-N form changes drastically. The first noun is either compared to or in a predicative relation with the second, as can be seen in examples (29a–b). In (29a), abstract 'beastlike' properties are ascribed to *thing,* i.e. the thing is a beast, and in (29b), the *house* (i.e. *thing*) is being compared to *a wedding cake*, a house that resembles a wedding cake. In this construction the second noun is the most plausible head (see Kim & Sells (2015) and Den Dikken (2006) for further discussion). Although obligatoriness and omissibility tests are often ambiguous (see example (30)), there are cases where this first noun cannot replace the second without a change in meaning (see example (31); see Keizer (2007a: 95–96) for a discussion of relevant data). The morphosyntactic tests are equally ambiguous (see Keizer (2007a: 96–97) for more discussion); however, pronominalization tests shows that one can only accept the second noun as an anaphoric referent (32) and personal pronouns are determined by the second noun (33).

(29) a. … was thrown out of one slum and only found shelter in another with *a drunken beast of a thing* who would sit tearing at a steak with his bare hands. (COCA)
b. The Tate family's 1760 house is *a wedding cake of a thing*. (ujnews.com, internet)

(30) a. We should have fired *that plonker of a plumber*.
b. We should have fired *that plonker* / *that plumber*. (Keizer 2007a: 95)

(31) a. To wake up the other sorry fools dozing in their upright coffins at the entrance to *some rich man's Christmas cake of a house*. (COCA)
b. To wake up the other sorry fools dozing in their upright coffins at the entrance to *#some rich man's Christmas cake* / *some rich man's house*.

(32) A. He had a [hell]$_i$ of a time getting from one part of the country to the other.
B. *I had (a) [one]$_i$ of a row because I refused to even try.
(Keizer 2007a: 100)

(33) a. An old rascal had managed to capture that flower of *a girl*, and made her believe that to save *her* dead father's good name *she* must marry him. (COHA)
b. *An old rascal had managed to capture *that flower* of a girl, and made it believe that to save *its* dead father's good name *it* must marry him.

In the EBNP, the first noun can often function as a modifier in a simple NP, e.g. *a beastly husband*, and Aarts (1998) and Keizer (2007a: 85–108) argue that the first noun has been reanalyzed as a part of a [N_1 of a] modifier phrase, with the first determiner specifying the second noun; hence, the acceptability of (34a) and (34b) and the awkwardness of (34c) (see also Quirk et al. 1985: 1285; Napoli 1989: 212).

(34) a. her nitwit of a husband
b. her husband is a nitwit
c. *her nitwit of a husband of hers (Keizer 2007a: 101)

(35) a jewel of glass (Keizer 2007a: 92)

The first noun can take the plural form, but has to agree in number with the second noun (Napoli 1989: 121; Keizer 2007a: 90). The second noun cannot be a mass noun; a mass noun would trigger a head-qualifier reading, as in the case of *glass* in (35) (Keizer 2007a: 91–92; see Section 3.2).

The EBNP premodification pattern is irregular. Both the first and second noun can be modified, although Ten Wolde (in press) shows that the tendency is for premodification to appear in front of N_1. A particular feature of premodification in the EBNP is that modifiers placed in front of the first noun can be semantically selected by N_1 or N_2 (Aarts 1998: 132; Kim & Sells 2015: 47). For example, *towering,* in (36a), is most likely selected by N_1, and in (36b), *anecdotal* is clearly selected by N_2. In (37b), *hungry-looking* is clearly selected by *fellow* and *mere* by *wisp*. However, classifiers (such as *mother* in (36c) and *sailing* (36a)) can still appear in front of the first and second noun, and descriptive modifiers can still come in front of the

second noun, as shown by *high-tech* in (36a). Intensifiers can appear in front of the first noun, as seen in (37), but, as in the head-qualifier, intensifiers are restricted in front of the second, as demonstrated in (38).

(36) a. They call it "Dogzilla" *a towering beast of a high-tech sailing machine* whose mast soars into the clouds. (COCA)
b. In every way, The Sorrow of Belgium is *a magnificent anecdotal monster of a novel* that now may be destined to become a cult-book in the English speaking word. (COCA)
c. At the scene, *the fierce mother bear of a woman* was flanked by consoling family members… The mystery of her son's death – the shards of rumors – has consumed her in the weeks since. (COCA)

(37) a. George W. Bush was speaking, but the voice echoing inside my skull – a high-pitched voice, an odd voice, coming from such *a great big hairy bear of a man* – was that of the president who dusted off Monroe's idea and dragged it into the 20th century. (COCA)
b. Maybe the cook, *a hungry-looking mere wisp of a fellow* needed it for a family get-together or hadn't felt like baking the day before or was selling it on the side (COCA)

(38) a. a veritable bull of a man
b. ?a bull of a veritable man

3.4 Evaluative modifier

The evaluative modifier (EM) is a new *of*-binominal category that I have proposed and one that divides what has, in previous studies, been regarded as a single category (the EBNP; cf. Ten Wolde & Keizer 2016; Ten Wolde 2018). In the EM, the ascription of descriptive properties found in some EBNPs is lost, and the subjective evaluation characteristic of the EBNP, often a hyperbole, is foregrounded. The construction construes [N_1 of a] as expressing a bounded (negative or positive) extreme on a profiled scale, i.e. an extreme modifier (see further Paradis 2001; Morzycki 2009, 2012, 2016).[12] What scale is implied and what feature of N_2 the

12. Paradis (2001: 48) argues that boundedness in adjectives, similarly to boundedness in nouns and verbs, is a basic property of adjectives, associated with gradability. She explains that boundedness has to do with the presupposed mental scale encoded by adjectives. For example, *long* and *short*, both unbounded adjectives, imply a range of values on a scale. However, an extreme adjective such as *brilliant* or *terrible*, bounded adjectives, represent the end values on a scale (Paradis 2001: 51–52).

speaker wishes to enforce, very often depends on the second noun and requires context and/or social/cultural knowledge to determine. In (39), the speaker uses *beast* to express his or her enthusiasm about the movie; in (40), the same is true for *whale* and *time*: the speaker is expressing his or her enthusiasm about the event, i.e. they are having a wonderful time.

(39) The Social Network is *a, hard-charging beast of a movie* with a full tank of creative gas (COCA)

(40) The national Committeemen and women are having *a red-carpeted whale of a time*. (COHA)

Semantic and morphosyntactic tests show that the second noun is clearly the head. It determines the overall denotation of the construction and semantically agrees with the verb (e.g. (41)); the first determiner would appear to be selected by the second noun (e.g. (42)). Furthermore, the proform *one* can substitute the second noun not the first, as shown in (43), and the second noun is the antecedent of a personal pronoun, as demonstrated in (44).

(41) It was two years ago at Bethpage Black, a beast of a *golf course* anyone *could play* for $31, *where* raucous New Yorkers cheered (COCA)

(42) China, with *its* 1.3 billion people and beast of *an economy*, is shopping the world for oil. (COCA)

(43) a. That was *a funny line*, a hell of *a one*, Peter. (COHA)
b. *that was a funny line, a *hell* of a line and a *one* of a joke,

(44) A hell of a *warrior*. Too bad *she* is paying such a cost. (COCA)

Unlike the EBNP, the second determiner no longer encodes number and in some cases is even dropped, as demonstrated in (45). In the EM, the first noun only appears in singular form and plural forms sound awkward, as demonstrated by example (46). Unlike in the case of the EBNP, the second noun position can be filled with mass nouns (as demonstrated by example (47), although in these cases the mass nouns appear to be construed as countable events). The data provided no examples of proper nouns filling this position. As is the case in the previous constructions, it cannot be extracted or coordinated.

(45) a. Together we all learned to ride and had *a hell of time* doing it. Over the years, nothing's really changed. Snowboarding remains something that I really enjoy because of the friends I get to ride with. (Google Books)
b. A little wild blood would breed a good horse. And *a hell of man* too, it might be. (COCA)

(46) a. A hell of a *warrior*. Too bad *she* is paying such a cost. (COCA)
b. *They are *hells* of warriors. Too bad they are paying such a cost.

(47) Wow! I can see that we had *one hell of a rain* last night. (COCA)

In the EM, there is very little modification that appears in front of the first noun (Ten Wolde in press). The descriptive modifiers that are placed in front of the first noun are usually ambiguous as to which noun selected them, N_1 or N_2; in other cases, they are selected by N_2; thus, in example (39), *hard-charging* could have been selected by either N_1 or N_2, and in example (40), *red-carpeted* is clearly selected by *time* not *whale.* Premodifiers in front of the first noun tend to be subjective modifiers (as in (39) and (40)) and interpersonal modifiers, as demonstrated by (48a). As demonstrated in example (48b), maximizers can also appear in front of the first noun. Premodification in front of the second noun tends to take the form of classifiers (e.g. *political* in (48c)). More objective modifiers in front of the second noun may lead to ambiguity between the EM and the BI (the final construction; see below). Thus in (48d), [hell of a] could be intensifying *strong* (*a very strong grip*), in which case we are dealing with a binominal intensifier, or modifying the adj+N combination, [a hell of a [strong grip]], in which case the construction is an EM.

(48) a. Here it stood, *poor devil of a contrivance* that it was! with only the thinnest vesture of human similitude about it, through which was evident the stiff, rickety, incongruous, faded, tattered, good-for-nothing patchwork of its substance, ready to sink in a heap upon the floor, as conscious of its own unworthiness to be erect. (COHA)
b. It is going to be *an absolute whale of an evening*. (Google Books)
c. George Bush has cultivated his Texas roots and grown himself *one whale of a political career*. (COHA)
d. "One of those kids," he said sadly, "has *a hell of a strong grip*. (COHA)

3.5 Binominal intensifier

In the final construction, the gradability inherent in the EM shifts to the foreground, and [N_1 of a] shifts from having both propositional content and indicating degree to indicating pure degree, modifying the quality denoted by the adjective that follows, e.g. *good* in (49), *long* in (50), and *fine* in (51). This means that in (49), the price is not just good but very good; the tunnel in (50) is not just long but extremely long; and the lunch in (51) was not just good but extremely fine. In the binominal intensifier (BI), [N_1 of a] functions as an intensifier or booster and usually with gradable

adjectives, such as *good, long, better, lucky,* and *worthwhile* (cf. Bolinger 1972: 17; see also Lorenz (2002) for similar analysis with *really*).

(49) You know that is *a hell of a good price*. (COCA)

(50) Then there's animals who dig a burrow, *one hell of a long tunnel* in the ground. (COCA)

(51) They'll make *a hell of a fine lunch* for the rats and ruggers. (COCA)

Only a few first nouns reach this final stage, i.e. *hell, whale, devil,* and it would appear that these first nouns can be predominantly used interchangeably: *a hell of a long day*, *a whale of a long day* or *a devil of a long day*. Each might denote different shades of the same meaning or exhibit subtle semantic nuances (this might be because all these first nouns continue to function as productive lexical items in English and evoking different concepts), but the use of one first noun instead of the other does not seem at change the overall message, i.e. 'it was a very long day'. Therefore, in this construction, the first noun is construed to have little or no semantic content.

As is the case with the previous two forms, the second noun is the head: it is obligatory and determines the NPs denotation (see example (52)), and the verb selects and agrees with the second noun (see examples (53) and (54)). The second noun takes the plural marker (see example (54)). *One* can only substitute the second noun (55) and the form of personal pronoun is determined by the second noun (56).

(52) a. It's Crazy 88 MIKI's turn at the mike and he's having *a whale of a good time* singing Dionne Warwick's "Walk On By," (COCA)
b. he's having a good time singing (COCA)
c. #he's having a whale (COCA)

(53) a. He'd do *a hell of a better job* than anyone else in the United States. (COCA)
b. He'd *do* a better *job* than anyone else.
c. *He'd *do a hell* than anyone else.

(54) a. Some hell of big *trees were* felled in that storm.
b. *Some *hell* of big trees *was* felled in that storm.

(55) a. This is some hell of a big *tree* "The biggest *one* I could find," (COCA)
b. *This is some *hell* of a big tree and this, *one* of a small tree.

(56) Chase could paint *a hell of a good nude* when sufficiently moved – *they* are the best examples of his work. (COCA)

Like all the *of*-binominals discussed here, except the N+PP, the PP cannot be extracted or coordinated. However, evidence for the reanalysis of [N of (Det) Adj] as a constituent can be seen in the greater syntactic freedom found in the more

frequent, i.e. entrenched, forms, as demonstrated by example (57) and also in the fact that it can function as an adverb modifying a quantifier (see example (58)).

(57) I was *hell of good* to that boy. (1956, Google Books)

(58) a. I got asked for *a whale of a lot of autographs*. (COCA)
b. But what *a devil of a lot of knives* we use in everyday life, he thought. (COCA)

The first noun in this construction has completely delexicalized[13] in that it no longer has any individual lexical content, can only appear in singular form, and simply intensifies a quality in the following adjective as demonstrated by substitution, e.g. (59). It cannot be modified (e.g. example (60)). The first determiner agrees with or specifies the second noun, as demonstrated by example (61), and in some cases the second determiner does not agree with the second noun (e.g. 61a) or has been dropped, e.g. (61b).

(59) a. It's Crazy 88 MIKI's turn at the mike and he's having *a whale of a good time* singing Dionne Warwick's "Walk On By," (COCA)
b. It's Crazy 88 MIKI's turn at the mike and he's having a *very* good time singing Dionne Warwick's "Walk On By," (COCA)

(60) a. Finally, three "arms" that looked more human than robotic gave me *one hell of a stimulating sponge bath* with something that smelled like perfumed alcohol. By the time they were done, my clothes – all fresh and dry – were back on the floor. (COCA)
b. *one stimulating hell of a sponge bath
c. *one very hell of a stimulating sponge bath

(61) a. But I'm going to have to have *some hell of a good years* to catch Connie Mack. (COHA)
b. once a nervous PROBIE, now a seasoned vet. And *one hell of proud father*. (COCA)

In previous work on intensifiers, e.g. Adamson's (2000) analysis of grammaticalization of adjectives from descriptive modifiers to intensifiers, premodifier placement is used as evidence of loss of semantic content through grammaticalization, premodifiers tend to move from descriptive modifier positions at the right of the noun phrase (i.e. close to the noun head), leftward to the intensifier positions, further

13. Delexicalization, as defined by Partington (1993: 183), is "the reduction of the independent lexical content of a word, or group of words, so that it comes to fulfil a particular function but has no meaning apart from this to contribute to the phrase in which it occurs."

from the head (cf. Partington 1993). This is supported by a range of premodification studies and explains why premodifiers in front of the first noun are ungrammatical, as shown in (60).The [N of a] modifies scalar descriptive modifiers and, therefore, precedes subjective and objective descriptive modifiers in front of the second noun, such as *good* in (49) and (59), *long* in (50), *fine* in (51), and *big* in (54).The second noun can also accept classifiers such as *football* in (62a) or *sponge* in (60a). A limited number of intensifiers are allowed in front of the first noun, as shown in (62b).

(62) a. He was also *one hell of a great football player*. But he's still a murderer. (COCA)

b. *"A whole hell of a bunch of German prisoners* got away," is the report my father brings. (COCA)

The following section briefly discusses why these changes are considered grammaticalization and the link between these constructions and premodification before applying a zone-based approach and the FDG model to explain the changes in premodification patterns found in this family of constructions.

3.6 Historical development

The process depicted in Figure 2 has been classified as one of grammaticalization; however, this assumption requires further elaboration. Grammaticalization in general is defined as a gradual process in which a linguistic element becomes grammatical or more grammatical (Lehmann 2002: 11), and the definition adopted in this study is "[t]he process whereby lexical material in highly constrained pragmatic and morphosyntactic contexts is assigned grammatical function, and once grammatical, is assigned increasingly grammatical, operator-like functions" (Traugott 2003: 645). In this case, the progression along this grammaticalization path results in the change and the internal reorganization of the linguistic elements in the *N-of-N*: the change of linguistic units from lexical to grammatical (in the case of the first noun), or grammatical to more grammatical (in the case of the preposition and the second determiner). However, before turning to the premodifcation study, I briefly address why these changes are not considered lexicalization.[14]

14. The changes found here are not pragmaticalization (cf. Aijmer 1997; Günthner 1999; Diewald 2006, 2011). There are various definitions of pragmaticalization; however, if it is defined as the "type of change which leads to discourse and pragmatic markers, to elements which organize structure and contextualize discourse with respect to discourse-pragmatic concerns" (Günthner & Mutz 2004: 98; cf. Aijmer 1997; Günthner 1999; Diewald 2006, 2011), then the changes described here cannot be pragmaticalization. [N of a] becomes more pragmatic-subjective in meaning, but it does not become a discourse marker.

As other researchers (cf. Anttila 1989 [1972]; Giacalone Ramat 1998; Van der Auwera 2002; Lehmann 2002; Hopper & Traugott 2003; Himmelmann 2004; Lightfoot 2005) have pointed out, the distinction between grammaticalization and lexicalization is still controversial. Part of the issue is that a clear distinction between lexical and grammatical categories is problematic, which, in turn, complicates the distinction between the grammaticalization and lexicalization processes. This means, as Brinton and Traugott (2005: 89–110) argue, that both processes share similar features and changes and, therefore, are easily conflated (see also Haas 2007; Traugott 2008; Fischer 2008; Heine & Narrog 2010). However, the heart of this issue is whether lexicalization is defined as the creation of new lexical entries in a dictionary (e.g. *helluva, hella*, and *whaleuva*)[15] or the "the process by which new items that are considered 'lexical' […] come into being" (Brinton & Traugott 2005: 32). The first scenario can be found with some first nouns in this study, but the second is not applicable here. As Brems and Davidse (2010: 190) point out in their study of grammaticalization of the *sort-of*, *kind-of,* and *type-of* constructions:

> [l]exicalisation effects are involved in the sense that specific collocational patterns become fixed within grammaticalised functions. Lexicalisation is not involved in the sense of an increase of lexical meaning.

In the case of the *sort-of*, *kind-of,* and *type-of* constructions and the *of*-binominals discussed above, lexical items (i.e. the first noun) are used in specific constructions and parts of these constructions may fuse creating a new lexical item (e.g. *kinda, sorta*, or *hella*); however, these new lexical items have developed grammatical functions. There is no increase of lexical meaning; therefore, the changes depicted in Figure 2 cannot be categorized as lexicalization. Although the transition from an N+PP to a Binominal Intensifier may result in some of the more frequent forms becoming fused together, many of the less frequent forms do not, i.e. *a beast of a good time* or *a bitch of a day.* Furthermore, the central phenomenon is the reanalysis of the internal units of the *of*-binominal from [Det (Mod) N of Det (Mod) N] to [N of a], with [N of a] becoming more grammatical.

15. *Whaleuva* can actually be found as a separate entry into *the Oxford English Dictionary*.

4. The analysis

4.1 A zone-based explanation

A zone-based approach would assume that the N+PP, with an NP within an NP, would have all five zones available for both NPs (see Figure 3), and as demonstrated above, that all of these zones can be filled. Figure 3 is the basic template that is changed in each of the following constructions. In the head-qualifier, both nouns still function as prototypical nouns and therefore, theoretically would have access to all five premodification zones. However, the fact that some modifiers/intensifiers cannot be used in the noun-intensifier zone in front of the second noun indicates that this zone is restricted in this construction,[16] as shown in Figure 4. Why this zone is no longer open is unclear, particularly since the second noun still functions like a noun. In addition, there is no way in which to model exogenous forms such as (27) above.

N-Int	Adj-Int	Sub-Des	Obj-Des	Class	Noun 1	N-Int	Adj-Int	Sub-Des	Obj-Des	Class	Noun 2

Figure 3. A representation of the N+PP construction using Ghesquière's zone-based NP model

N-Int	Adj-Int	Sub-Des	Obj-Des	Class	Noun 1	N-Int	Adj-Int	Sub-Des	Obj-Des	Class	Noun 2

Figure 4. A representation of the head-qualifier construction using Ghesquière's zone-based NP model (black indicates closed zones)

Even more problematic is the EBNP. In this construction, the first noun has already begun to lose some of the prototypical features of nounhood, and this would be expected to affect the premodification patterns, particularly those in front of the first noun. As discussed above, however, in this construction premodification is predominantly found in front of the first noun. In this construction, the noun-intensifier zone in front of N_2 is no longer available; moreover, the EBNP has a preference for descriptive premodifiers in front of N_1. This form is modeled in Figure 5 below. Finally, the zone-based approach cannot explain or model those modifiers which are selected by the second noun but appear in front of the first.

N-Int	Adj-Int	Sub-Des	Obj-Des	Class	Noun 1	N-Int	Adj-Int	Sub-Des	Obj-Des	Class	Noun 2

Figure 5. A representation of the EBNP construction using Ghesquière's zone-based NP model (black indicates closed zones and dark grey restricted zones)

16. For example, *good old* in **a whale of good old grey stone* is ungrammatical, but examples such as *a sigh of under desperation* are still possible.

In the final two constructions, the first noun has lost all features of nounhood, and thus these two separate premodifier zones are conflated into a simple NP. Therefore, in the EM and the BI, the two separate NPs (NP_1 of NP_2), with their two separate premodifier zones, are integrated into one set of zones in a simple NP. In the EM, there are instances of descriptive modification in front of the first noun, but they may be selected by the second noun, as demonstrated in *the nine-hole jewel of a golf course* (COCA), although they can also be selected either by the first or second noun as in *a hard-charging beast of a movie*. These premodifiers are more subjective and evaluative than objective; thus ?*a short whale of speech* sounds awkward, while *a whale of a short speech* is perfectly acceptable. The [N of a] chunk appears to be integrated into the premodifier zone between the subjective descriptive modifiers and objective descriptive modifiers (see Figure 6). In the BI, descriptive modifiers are no longer allowed in front of the first noun and the [N of a] chunk has shifted into the intensifier section of the premodifiers zones. The descriptive and classifier zones in front of the second noun are still open, as shown in Figure 7.

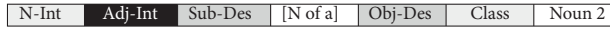

Figure 6. A representation of the EM construction using Ghesquière's zone-based NP model (black indicates closed zones and dark grey restricted zones)

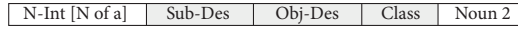

Figure 7. A representation of the BI construction using Ghesquière's zone-based NP model (grey indicates restricted zones)

A possible scenario that presents itself is that in the EBNP, there is a shift of the descriptive premodifier zone from the second to first premodifier zones. The first noun may function as a modifier, but it has not lost all its features of 'nounhood': it still encodes number and accepts premodification. The ambiguity of the first noun's grammatical status might have led to the irregularities in premodification. This ambiguity is gone in the EM and the BI. The reanalyzed [N of a] has shifted left in the premodifier zone and premodification predominantly appears in front of the second noun. The premodification distribution offers evidence supporting the scenario that the EM came to be integrated into the premodification pattern in descriptive modifier zones, while the BI represents a leftward shift into the degree modifier zones.

A zone-based account can model the changes that take place and can explain how, in this grammaticalization process, the *of*-binominal has been reduced to a simple NP. However, it does not explain why the noun-intensifier zones in front of the second nouns are lost in the head-qualifier and all the constructions that historically follow, or why, in the EBNP, the descriptive premodification shifts from being

placed in front of the second noun to placement in front of the first one. Furthermore, it cannot explain examples such as *a hungry-looking mere wisp of a fellow*, where a descriptive modifier selected by the second noun (*hungry-looking*) appears in the first noun premodifier zones, and why it is placed before a noun-intensifier selected by the first noun. Finally, this model does not capture the distinction between modification at the pragmatic level and the semantic level, a critical distinction in premodification in general, and particularly important in the present study since the EM gains pragmatic functions and for this reason may not fit into either the subjective descriptive or the objective descriptive modifier zones. These issues will be returned to in the conclusion. In the following section, I present an FDG explanation of these phenomena using examples with the first noun *hell*.

4.2 An FDG explanation

The FDG analysis of the previous findings is presented in Sections 4.2.1–4.2.6 below. Sections 4.2.1–4.2.5 each presents an FDG analysis of one of the constructions (i.e. the N+PP, head-qualifier, EBNP, EM and BI). The final section, 4.2.6, will then draw on the information from the previous sections to present a coherent analysis.

4.2.1 *N+PP constructions*

In the N+PP construction the first noun is the head, both nouns can take the singular and plural form, the two nouns do not have to agree in number, and both nouns can be preceded by a determiner indicating their identifiability and number. The model would, therefore, predict that both nouns can canonically take all forms of premodification. Example (63) shows a simplified FDG representation of the noun phrase *the hell of the outcast*.[17]

(63) "You can't play," a kid will say, and consign another to *the hell of the outcast*, and himself to the role of bully. (COCA)

IL: (+id R_I: [(T_I) (+id R_J: (T_J) (R_J))] (R_I))

RL: ($1x_i$: (f_i: hell (f_i)): (f_j: [(f_k: of_{Adp} (f_k)) (x_j: (f_l: outcast (f_l))(x_j))$_{Ref}$] (f_j)) (x_i))

ML: (Np_i: [(Gw_i: the (Gw_i)) (Nw_i: hell (Nw_i)) ($Adpp_i$: [($Adpw_i$: of ($Adpw_i$)) (Np_j: (Gw_j: the (Gw_j)) (Nw_j: outcast (Nw_j)) (Np_j))] ($Adpp_i$))] (Np_i))

At the Interpersonal Level, there are two Referential Subacts (R_I and R_J). Both Referential Subacts are marked as identifiable (+id) and contain an Ascriptive Subact

17. The Phonological Level has been omitted in all the FDG underlining representations since it does not play a significant role in this analysis.

(represented by the variables T_I and T_J), evoking the properties "hell" and "outcast", respectively. At the Representational Level, there are two Individuals. The first Individual (x_i), headed by the Lexical Property "hell", represents the referent of the expression as a whole; the second Individual (x_j), corresponds to the referent described as "outcast", and the preposition *of* is a lexical item indicating possession (*the outcast's hell*). Because there is a high degree of transparency between the Interpersonal and Representational Levels, with Referential Subacts (R) at the Interpersonal Level correlating with Individuals (x) at the Representational Level, there is relatively straightforward encoding at the Morphosyntactic Level: the two Individuals are encoded as Noun Phrases (Np_i and Np_j). The Nominal Word (Nw_i) *hell* functions as the head of the overall expression, followed by an Adpositional Phrase ($Adpp_i$) consisting of the adposition *of* and the second Noun Phrase *the outcast*. The relative transparency between the different levels, the fact that two Referents correlate with two Individuals, which are both encoded as Noun Phrases, would then predict relatively prototypical premodification on both the Interpersonal and the Representational Levels (see Figure 3).

4.2.2 *Head-qualifiers*

In the head-qualifier, the second noun has lost its referential status (it does not introduce a discourse referent); instead, it tells the listener what the *hell* referred to by the expression as a whole consists of, e.g. *a hell of factories.* The second noun no longer introduces a discourse referent and cannot be referred back to (i.e. **I live in a hell of factories, but you think you live in a heaven of them*). Because the second noun phrase is no longer referential, in the FDG analysis, the second referent is lost at the Interpersonal Level (64). Instead, it is evoked as an Ascriptive Subact T_J. However, although the second noun does not evoke a referent, it still designates a referent (set) in extra-linguistic reality and is therefore still analyzed as an Individual on the Representational Level (64). This in turn would account for the fact that it can still accept premodification and be realized in plural form as shown in (65); consequently, T_J is realized as a separate Individual (x_j). This results in a mismatch between the Interpersonal and Representational Levels, because an Ascriptive Subact (T) at the Interpersonal Level is usually realized by a Property (f) at the Representational Level. The relation between the Representational Level and the Morphosyntactic Level is still transparent, with the Individual (x) being encoded as a Noun phrase. The preposition *of* appears on the Morphosyntactic Level. It would appear to no longer have semantic content, i.e. simply links the two nouns, and thus does not appear on the Representational Level), but functions as a dummy element, required by the syntax of the language (in a noun-noun sequence) and not triggered by interpersonal and representational information.

(64) Yes, of course, but he too must suffer through *this hell of fish*. (COCA)
IL: (+id R_I: [(T_I) (T_J)] (R_I))
RL: ($1x_i$: [(f_i: hell (f_i): (x_j: (f_j: fish (f_j) (x_j)) (f_i))] (x_i))
ML: (Np_i: [(Gw_i: this (Gw_i)) (Nw_i: hell (Nw_i)) (Gw_j: of (Gw_j))
(Np_j: (Nw_j: fish (Nw_j)) (Np_j))] (Np_i))

(65) Like *a beast of lower pleasures*, like *a beast of lower pains*. Mated to a squalid savage, what to me were sun or clime? (COHA)

The mismatch between the Interpersonal and the Representational Levels has an effect on the premodification patterns. Because the second noun no longer evokes an entity, i.e. an (R) at the Interpersonal Level, it can no longer take Referent modification, as shown in (66a) (see also Figure 4). However, since the second NP corresponds to an Ascriptive Subact (T_J), reference modification is still possible, as shown in (66b). This restriction on Referent modification is thus predicted by the FDG analysis.

(66) a. *an extinct species of *poor/good old* birds
b. A moment of *true* friendship
IL: (–id R_I: [(T_I) (T_J: [ ] (T_J): true (T_J))])

As demonstrated in (67), FDG can also model expressions like those in (27) above, where the modifier has scope over the whole construction, rather than over the individual properties, a particular feature of head-qualifier construction. In this construction, *intelligent* cannot modify either *fluff* or *ball* but modifies the referent that the *ball of fluff* refers to. Thus on the Representational Level *intelligent* modifies the Referent (x_i) that consists of the Property *ball* modified by the Individual *fluff*.

(67) an *intelligent* ball of fluff
($1x_i$: [(f_i: ball (f_i): (x_j: (f_j: fluff (f_j) (x_j)) (f_i))] (x_i)): (f_k: intelligent (f_k)) (x_i))

The loss of the second Referential Subact at the Interpersonal Level is shared by all the constructions that follow and explains the premodification restrictions in front of the second noun in all but the N+PP constructions. Furthermore, the preposition's loss of semantic content would indicate the first stages of grammaticalization. As this construction grammaticalizes further, the repercussions of this change permeate into the lower levels.

4.2.3 *Evaluative binominal noun phrases*

A FDG analysis of the EBNP would look like example (68):

(68) It was *a hell of a night* for a meeting – with the storm going and the river about to blow. (COCA)

IL: $(-\text{id } R_I\text{: } [(T_I)\ (T_J)]\ (R_I))$

RL: $(1x_i\text{: } (f_i\text{: night } (f_i))\ (x_i)\text{: } (f_j\text{: hell } (f_j))\ (x_i))$

ML: $(Np_i\text{: } [(Gw_i\text{: a } (Gw_i))\ (Nw_i\text{: hell } (Nw_i))\ (Gw_j\text{: of } (Gw_j))\ (Np_j\text{: } (Gw_k\text{: a } (Gw_k))\ (Nw_j\text{: night } (Nw_j))\ (Np_j))]\ (Np_i))$

In this example, the entity *night* is being metaphorically evaluated, i.e. "hellish" properties are being ascribed onto the *night*. In this construction, it is the first noun that no longer has referential value and is therefore represented as an Ascriptive Subact (T_J) on the Interpersonal Level. Therefore, as in the head-qualifier construction, there is only one Referential Subact (R_I) which consists of two Ascriptive Subacts (T_I and T_J). On the Representational Level, (R_I) is realized as an Individual (x_i), headed by the Property *night* (f_i) and modified by the Property *hell* (f_j). The first noun *hell* must agree in number with the second noun and therefore will be encoded as a Property on this level. The choice of the EBNP template, however, creates a mismatch between the Representational and Morphosyntactic Levels, since *hell*, realized as a noun at the Morphosyntactic Level, fills a slot on the Representational Level that is usually realized by adjectival modifiers. The mismatch between the semantic function and syntactic Encoding of the first noun may explain the shift of premodification into the first noun premodification zones (see Figure 5). The first noun in the EBNP semantically functions either as an objective or subjective descriptive modifier (depending on the noun and the context, e.g. *a beast of a car* for a large car or *a beast of a child* for a child that acts in a beastly manner), and therefore, there might be some confusion concerning the placement of subjective and objective modifiers, with even those selected by the second noun being placed before the first noun. The preposition *of* is still present at the Morphosyntactic Level. Both the indefinite article and the preposition can be regarded as fixed, semantically empty elements in this construction.

4.2.4 *Evaluative modifier phrases*

With the EM, the modifier becomes more subjective and shifts to the Interpersonal Level. The first noun no longer has semantic content and, therefore, does not appear at the Representational Level. Although this change results in a loss of lexicality of the [N of a] chunk (i.e. N_1 no longer evokes an entity, has little semantic content, does not take plural form, and has fixed syntactic position), the first noun still has a pragmatic function, can be assigned Focus function and has not joined a closed class. Therefore, the EM cannot be considered a prototypical lexeme or

a prototypical operator, and is best analyzed as a secondary lexical element, with varying degrees of grammaticalization (see Ten Wolde 2018: 295–296; Keizer 2007b for more details). The most frequent and entrenched forms, primarily *hell*, are more operator-like (i.e. semantically bleached and do not take modification) than others, such as *beast*, which still retains some semantic variation depending on the context (e.g. *a beast of a golf course*, example (41), could mean *difficult* or *amazing*).

FDG would model the [N of a] of the EM as a secondary lexical element with a reinforcing function of an Ascriptive Subact (T), whose interpretation is determined by context. The appropriate morphosyntactic template would then be triggered by the modifier and Ascriptive Subact together. This Ascriptive Subact (T) does not denote semantic information, and as such does not correspond with a Property (f) on the Representational Level, but is determined by context outside the grammar. Example (69) represents a possible FDG analysis of the EM.

(69) "Y'ever hear what Kennedy said three hours before he was shot?" he asked, putting on his best Massachusetts accent. "You know, last night would've been *a hell of a night* to kill a President." (COCA)[18]

IL: (–id R_I: [(T_I) (**T_J: [...] (T_J): hell (T_J)**)] (R_i))

RL: ($1x_i$: (f_i: night (f_i)) (x_i)) → CONTEXT

ML: (Np_i: [(Gw_i: a (Gw_i)) (Nw_i: hell (Nw_i)) (Gw_j: of (Gw_j)) (Np_j: (Gw_k: a (Gw_k)) (Nw_j: night (Nw_j)) (Np_j))] (Np_i))

In example (69), the Property *hell* no longer has semantic content and, therefore, no longer appears on the Representational Level (the night is not *hellish*); it is only realized on the Morphosyntactic Level, and then only in singular form. The speaker is essentially reinforcing a positive evaluation of the referent, and the joke hinges on the fact that he means it was an opportune night to kill a president. Therefore, the Interpersonal Level is similar to that of the EBNP except that [hell of a] now acts as a modifier of an unspecified property (evoked by T_J), representing the contextually

18. Naturally a joke is a very specific context. However, this positive use of *hell* is relatively common in American English and can be found in examples such as:

(i) "I love Chris Christie. I think Jeb Bush is a wonderful person. But right now, my family and I are backing Governor Walker," said Hubbard, who also met the Wisconsin governor through the recall fight. "I think he would be *a hell of a president* because he has been there and done that in a very liberal state." Last week, Hubbard sent a check for $25,000 to Walker's new political committee, Our American Revival. (COCA)

determined property (in this case "good").[19] This change then has an effect on the premodification distribution patterns of the construction. As a modifier on the Interpersonal Level, it can no longer take premodification on the Representational Level, and this is reflected in the almost complete lack of premodification found in the first noun descriptive modifier zones. Also as a speaker-oriented evaluative modifier, "hell" appears towards the left of the premodifier zone; this would also explain the general absence of premodification in front of the first noun. Instead the construction is defined by the use of the classifier zones in front of the second noun. In the FDG model, this change into an operator at the Interpersonal Level would entail that the first noun is integrated into the premodification zone (see Figure 6).

4.2.5 *Binominal Intensifier*

In the BI, [N of (a)] functions as a sort of operator on the Interpersonal Level, an intensifier of the Ascriptive Subact (T_j). Although the first nouns found in these constructions appear to be almost interchangeable, nonetheless, the noun that fills this unit still exhibits some lexical features. It has not joined a closed class. It can take Focus and emphasis, and the phrase is optional. Therefore, it would appear that this linguistic unit may be regarded as a grammatical item, albeit not as prototypical as other operators (such as those expressing identifiability), hence, a lexical operator.[20] Thus in the transition between the EM and the BI, [N of a] has transitioned from lexical to grammatical.

Since it is being used as a lexical operator on the Interpersonal Level, the unit [N of a] will be placed at the left of the noun phrase (see Figure 7). This would explain why modifiers can only be selected by the second noun (the head), i.e. *girl* in example (70), and not *hell*; this is why example (71a) would be considered grammatical with *beautiful* modifying *country,* but not (71b), with *beautiful* before *helluva*.

(70) Yes, that was surely Doina. Bracing. The same as twenty years ago. Sarcastic, and feisty, and sincere, always helpful, and funny and conscientious. And what else? Yes, *one hell of a sweet girl*. (COCA)

IL: (−id R_I: [(T_J) (**hell** T_I)] (R_I))

RL: ($1x_i$: (f_i: girl (f_i)) (x_i)): (f_j: sweet (f_j)) (x_i))

ML: (Np_i: [(Gw_i: a (Gw_i)) (**Nw_i: hell (Nw_i)**) (**Gw_j: of (Gw_j)**) (**Np_j: (Gw_k: a (Gw_k)**) ($Ap_{i:}$ (Aw_i: sweet (Aw_i)) (Ap_i)) (Nw_j: girl (Nw_j)) (Np_j))] (Np_i))

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19. Context in this case is defined as the discourse and linguistic context, as well as relevant background knowledge. This information is what FDG would designate as being a part of the Contextual Component (see Hengeveld & Mackenzie 2008: 9–12; Keizer 2015: 25–28).

20. This analysis would also conform to Hengeveld's (2017) definition of lexical operator, i.e. takes Focus function but cannot be modified.

(71) a. It must be one *helluva beautiful* country.
b. *It must be one *beautiful helluva* country.

4.2.6 *Summary*

FDG provides a plausible, testable explanation for the patterns found in the empirical analysis. In the head-qualifier, the irregular premodification patterns result from the loss of the second Referent on the Interpersonal Level and the subsequent mismatch between the Interpersonal and Representational Levels. In the EBNP, the change of function in the first noun is reflected in the restricted premodification in front of the first and second nouns. Transparency between the Interpersonal and Representational Levels is reestablished but brings about a mismatch between the Representational Level and the Morphosyntactic Level, again resulting in a change in the premodification patterns. In particular, a noun is placed in a modifier slot in the Representational Level which results in the subsequent placement irregularity of premodification in the encoding in the syntax. In the EM, this mismatch between the Representational and Morphosyntactic Levels is then resolved with [N of a] becoming an evaluative extreme modifier only realized on the Interpersonal Level, and no longer on the Representational Level, which means that it can no longer be modified by descriptive modifiers. In BI, the [N of a] chunk functions as a lexical operator at the Interpersonal Level and, therefore, cannot be modified. Despite its irregular encoding, its function allows [N of a] to integrate into the premodifier patterns in front of the second noun as an adjective-intensifier. Furthermore, FDG can account for the irregular syntactical features on the Morphosyntactic Level.[21]

5. Conclusions

This chapter has presented a comparison between a linear, construction-based approach to premodification to that of a hierarchical-functional language model and has addressed the question of how and to what extent each model can explain the changes found in the EBNP *of*-binominal family. It has been shown that by positing

21. To include a discussion on Morphosyntactic Level placement in FDG would greatly exceed the space limitations of this chapter. However, FDG's top-down, hierarchical approach to linear ordering is more flexible than that offered by the zone-based approach, and can deal with the irregular premodifier placement found in particular in the EBNP (see Ten Wolde (2018) for the ordering for these particular constructions and Hengeveld & Mackenzie (2008: 376–399) and Keizer (2015: 218–231) for the general theory). Furthermore, the linear placement rules of FDG can distinguish between subjective and objective descriptive without having to assume two separate zones. FDG looks at the relative difference between subjectivity in the case of more than one descriptive modifier (very similar to Quirk et al.'s (1985) proposal); if there is only one descriptive modifier, then it does not classify it as objective or subjective.

a motivated link between meaning/function and form, and by distinguishing between modifiers and operators at the various layers within the different levels, FDG can capture, track and offer a testable hypothesis for the exact changes that take place. It is, furthermore, able to show how the changing functions of the nouns in the *of*-binominal constructions have an effect on these constructions' premodification patterns, and is thus able to explain non-canonical patterns, e.g. the loss of referential status of the second noun. Furthermore, this analysis demonstrates how FDG can account for system-internal and -external factors that contribute to the grammaticalization of these *of*-binominals.

A linear approach provides a tool which can to a great extent help to systematically describe the phenomena in the data, but which fails to offer an explanation for the changes in the patterns. In other words, this approach can describe the changes in the premodification patterns in each construction; however, this type of model is not predictive,[22] and fails to capture links between premodification and elements beyond a simple NP (this is a weakness of this type of model in general). For the complex NPs discussed here a linear model cannot offer an explanation as to why the head-qualifier lost its degree modifier zones, or why the EBNP premodifier zones developed so idiosyncratically. Furthermore, as shown in some head-qualifier constructions, the model cannot explain why modifiers in front of the first noun can modify the referent as a whole, and not either of the nouns. In all fairness, it needs to be emphasized that Ghesquière's model was designed only as a model for simple NPs and does not claim to model postmodification or diachronic changes; however, it should be able to capture idiosyncrasies from the EBNP onwards, when [N of a] develops a modifier function. These problems derive from the limitations of a zone-based approach as well as from the nature of the Construction Grammar approach itself: when every new form-meaning pairing is a new construction, the model does not require a language system internal explanation of the changes.

Another major draw-back of this particular zone-based model is that it fails to make a distinction between pragmatic and semantic descriptive modification. This means that in the zone-based model, *poor* as an expression of sympathy, as in *the poor ugly man,* would be placed in the subjective descriptive zones with *ugly.* However, functionally they are clearly different, and *poor* would have to be placed before *ugly* to trigger the intended reading. Otherwise, *poor* would most likely indicate the man's lack of worldly possessions, e.g. *the ugly poor man*. In the latter use, *poor* can occur in the predicative position, as in *the doctor is poor*; in the former it cannot. Therefore, the fact that the EM is a modifier on the pragmatic level might explain why as a whole it does not accept premodification in front of the first noun; however, it is clearly not a focus marker.

22. It also never claims to be.

Ultimately, however, these two models do not appear to be mutually exclusive, and a possible integration of these two approaches might be productive. This study also shows that there is some evidence to support a zone-based approach, in that [N of a] does appear to integrate itself into a pre-existing premodification pattern. Furthermore, the zone-based approach posits zones and adjectival movement across the zones to explain the change in lexical meaning from more objective to more subjective, and offers accessible categories that can be employed in larger empirical projects (see Ghesquière 2014; Breban & Davidse 2016; Ten Wolde [in press]). These categories, to a great extent, correspond with FDG premodifier distinctions. FDG's modelling, however, might be more difficult to employ in a large empirical project, but, on the other hand, offers language internal explanations for change, and captures the relationship between the modifiers and the nominal head. Therefore, a future large scale project might want to employ both.

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Subject expression in Brazilian Portuguese

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This chapter analyzes the expression of subjects with identifiable referents in Brazilian Portuguese, using the multi-level architecture of Functional Discourse Grammar (Hengeveld & Mackenzie 2008) and the notions of transparency and opacity as conceived of by this theory. The aim of the chapter is to show that in regard to subject expression, Brazilian Portuguese grammar may be developing into a more transparent system in comparison to its earlier stages and other Romance languages. It is shown that in many cases there is no verbal morphology to cross-reference the argument on the predicate with subjects being expressed by means of a single morphosyntactic unit; since this morphological unit corresponds to single units at higher levels of representation, subject expression involves a one-to-one relation between levels, resulting in a transparent system.

1. Introduction

This chapter offers an analysis of subjects with identifiable referents in Brazilian Portuguese, i.e. subjects that refer to an entity already introduced in discourse or that is contextually given. It is well known that Portuguese exhibits a double system to code this type of subjects, which can be realized by referential person morphology alone, or by person morphology accompanied by an optional pronoun, as seen in (1a) and (1b) respectively:

(1) a. *não com-o carne*
NEG eat-1SG meat
'I don't eat meat'
b. *eu não com-o carne*
I NEG eat-1SG meat
'I don't eat meat'

In (1a) the affix attached to the finite verb is referential by itself; therefore, in a sentence like (1b) the first person singular pronoun seems to be redundant, since it has the same referent as the verbal affix.

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Present-day Brazilian Portuguese prefers the use of overt subject pronouns – as in (1b). Unlike in most other Romance languages (including European Portuguese), which employ verbal morphology only as the unmarked strategy for subject expression, in Brazilian Portuguese the frequency of subject pronouns has increased over the last decades (Duarte 1995; Duarte 2000; Barbosa et al. 2005; Duarte & Varejão 2013; Kato & Duarte 2014). This is regarded mainly as a consequence of the general impoverishment of the verbal agreement system: as person/number morphology is reduced in Brazilian Portuguese, overt pronominal subjects have become almost obligatory. This development has been extensively studied by formalists, who account for it by assuming a syntactic change in the Null Subject Parameter and claim that Brazilian Portuguese is becoming a partial rather than a full pro-drop language (Duarte 1993, 2000; Barbosa et al. 2005; Duarte & Varejão 2013; Kato & Duarte 2014).

The aim of this chapter is to show that an alternative explanation is possible within the framework of Functional Discourse Grammar (Hengeveld & Mackenzie 2008). Instead of a formal change, we show here that differences between (1a) and (1b) can be captured in terms of changes in the interfaces between different linguistic levels, resulting in different degrees of transparency (Hengeveld 2011a, 2011b). The main hypothesis put forward is that Brazilian Portuguese is developing a more transparent system with respect to the realization of subjects with identifiable referents.

The chapter is organized as follows. In Section 2, I present an overview of the topic and discuss some aspects of subject expression in Portuguese; special attention will be paid to the differences between Brazilian Portuguese and European Portuguese. In Section 3, I present the theoretical notions underlying my analysis, especially the notions of transparency and opacity as defined in Functional Discourse Grammar (Hengeveld & Mackenzie 2008). In Section 4, I present the data used for this study and my analysis. Finally, in Section 5 I draw some general conclusions about the expression of subjects in Brazilian Portuguese.

2. Subject expression in Romance languages

In this section I will take a closer look at the expression of subjects with identifiable referents. As the aim of this chapter is to offer a functional alternative to the claim that Brazilian Portuguese is becoming a partial pro-drop language (Duarte 2000, 2008), a brief explanation of the formal account of morphological expression of the subject is needed. I will start by offering some general observations about subject expression in Romance languages (2.1) and will then proceed to present some evidence for changes in the realization of subjects with identifiable referents in Brazilian Portuguese (2.2).

2.1 Subject in Romance

It is well known that most Romance languages are characterized as null-subject languages, i.e. reference to the subject can be made by means of verbal morphology expressing person and number agreement alone. This is illustrated by the following set of sentences:

(2) Spanish
Ellos hablan inglés en la casa, pero en la nuestra
they speak.3PL English at the home but in the ours
*habla**mos** español.*
speak.1PL Spanish
'They speak English at home, but at ours we speak Spanish.'
(Amaral & Schwenter 2005: 119)

(3) Brazilian Portuguese
*Aí, jog**am** pedra, quebr**a** telha.*
then throw.3PL rock break.3SG tile
'Then, they throw a rock, break the tile' (Duarte & Varejão 2013: 114)

(4) Italian
*So**no** belle.*
COP.3PL beautiful.F.PL
'They are beautiful. (D'Alessandro 2014: 1)

Note that in these examples there is no lexically expressed subject in the first person plural (in (2)), and third person plural (in (3) and (4)). The verbal arguments in question are realized by means of verbal morphology only (given in bold).

In prototypical pro-drop[1] languages, the choice between a pronominal with verbal marking or a morphologically marked subject is independent of clause type, i.e. not only declaratives, but also interrogatives and exclamatives, as well as embedded clauses, can contain a morphologically marked subject only. In these languages, the possibility of a verbal marking of the subject is associated with a set of semantic and formal properties:

i. subjects can be marked by an affix for any person and number;
ii. impersonal reference requires the use of a reflexive clitic
iii. subjects can be postponed;
iv. there are no expletive subjects.

1. I use the terms pro-drop and null-subject languages for labelling the phenomena only. This does not mean I assume notions as empty categories or any kind of transformation.

Usually, canonical pro-drop languages, such as Italian and Spanish, exhibit a fully functional verbal morphology, as we can see in Table 1.

Table 1. Present tense inflection in Romance languages of 'sing'

	Italian	**Portuguese**	**Spanish**	**Catalan**
1SG	*cant-o*	*cant-o*	*cant-o*	*cant-o*
2SG	*cant-i*	*canta-s*	*canta-s*	*cant-es*
3SG	*canta*	*canta*	*canta*	*canta*
1PL	*cant-iamo*	*canta-mos*	*canta-mos*	*cant-em*
2PL	*canta-te*	*canta-is*	*cantá-is*	*cant-eu*
3PL	*canta-no*	*canta-m*	*canta-n*	*cant-en*

Interestingly, there is no direct relation between rich morphology and the possibility of a morphologically realized subject. German, for example, has a rich verbal paradigm, but does not allow for null subjects. However, in languages with null subjects, like those given in Table 1, the inflectional verbal system is referential and therefore the verbal affixes can by themselves indicate the subject of a clause. Some examples are given in (5) to (8):

(5) Italian
state *leggendo* *un* *libro*
stand.2PL reading a book
'You are reading a book' (D'Alessandro 2014: 1)

(6) Spanish
hemos *trabajado* *todo* *el* *día*
AUX.1PL worked all the day
'We have been working all day.' (D'Alessandro 2014: 6)

(7) Italian
Vai *al* *mare?*
go.2SG to-the see
'Are you going to the seaside?' (D'Alessandro 2014: 1)

(8) Italian
Non *mangiamo* *carne*
NEG eat.1PL meat
'We don't eat meat.' (D'Alessandro 2014: 1)

As mentioned above, in null-subject languages, subjects specified only by an affix can occur in declarative sentences (as in (5)–(6)), as well as in interrogative (as in (7)) and negative sentences (as in (8)). In these cases, person and number specification of the subject is retrievable from the verbal morphology, and there is no

need for any other specification. Of course, in these languages, the subject of the clause can also be overtly expressed, but this over-specification (coding subject by means of a pronoun and verbal morphology) is more likely to be found in special contexts; I will return to this later.

An interesting feature shared by the pro-drop languages mentioned in Table 1 is that third person singular null subjects only allow a specific interpretation; non-specific subjects of finite clauses have to be expressed separately, usually by a reflexive clitic, as illustrated in (9) to (11):

(9) Italian
*Qui non **si** può fumare*
here NEG REFL.3 may.3SG smoke.INF
'No smoking here' (Veríssimo 2017: 85)

(10) Portuguese
*Aqui não **se** pode fumar*
here NEG REFL.3 may.3SG smoke.INF
'No smoking here' (Veríssimo 2017: 85)

(11) Catalan
*Aqui no **es** pot fumar*
here NEG REFL.3 may.3SG smoke.INF
'No smoking here' (Veríssimo 2017: 85)

Another common feature of pro-drop languages is the possibility of subject post-positioning. As argued by D'Alessandro (2014), post-positioned subjects function to switch the focus of attention, which is not possible in languages with obligatory subjects, such as French, as shown in (13):

(12) Italian
*È arrivato **Gianni**.*
AUX.3SG arrived Gianni
'Gianni has arrived.' (D'Alessandro 2014: 6)

(13) French
Est arrivé **Jean.*
AUX.3SG arrived Jean
'Jean has arrived.' (D'Alessandro 2014: 6)

In addition, prototypical null-subject languages, like those listed in Table 1, do not allow for expletive subjects, as English or French do; see example (14). In Italian there are a few exceptions, since here the use of the locative *ci* is required as an expletive for existential sentences with the verb *essere* 'to be', as shown in (15a). In these cases, the locative functions as a dummy to allow for the existential meaning of the verb.

In all other respects, however, Italian behaves as a prototypical null-subject language when it comes to impersonal constructions as in (15b) and (15c).

(14) French, English, Spanish, Portuguese (invented examples)
  a. ***Il** pleut / **It** rains / Llueve / Chove.*
  b. ***Il** y a beaucoup des gens ici / **There** are a lot of people here / Há muitas pessoas aqui. / Hay mucha gente aquí.*

(15) Italian (invented examples)
  a. *Ci sono diverse macchine in città.*
  there COP.3PL various cars in town
  'There are various cars in town.'
  b. *È piovuto stanotte.*
  AUX.3SG rained this-night
  'It rained yesterday evening.'
  c. *È chiaro che […]*
  AUX.3SG clear that
  'It is clear that […]'

Formalists and functionalists have put forward a large number of different explanations to account for the possibility of morphologically marked subjects. Despite the obvious theoretical differences, there is general agreement that (i) the possibility of a null subject pronoun is language specific, and (ii) whether or not the subject is pronominally expressed is not random, but is regulated by a set of well-defined formal and functional constraints.

The presence or absence of explicit pronominal subjects in Romance null-subject languages is always motivated. Various constraints, such as the accessibility / recoverability of the referent and its semantic or pragmatic features (topic / non-topic, human / non-human, specific / non-specific), as well as the semantic type of the predicate can influence the use of an optional pronominal subject. Nevertheless, the general assumption is that in these languages subject pronouns are used mainly for certain pragmatic purposes. For instance, in his analysis of "referential subjects" in Italian, Rizzi (1986: 516) explains that "the use of pronounced material is legitimate only when necessary to convey the intended meaning (…) This implies that, given the existence of a zero pronominal option, in languages like Italian, the overt form will be limited to the cases in which it is necessary, i.e., when the pronominal subject, being focal or contrastive must bear stress (evidently, the zero element cannot bear stress)".

A similar explanation can be found in Duarte & Varejão (2013: 103), who state that the realization of an overt pronoun is seen as "a marked option in terms of frequency, because it is related to contexts of emphasis or contrast, i.e., to avoid ambiguity in the interpretation of a null subject". The same type of explanation is presented in numerous studies on Catalan, Spanish and Portuguese subject expression (Rizzi 1986; Kato 2000; Barbosa et al 2005; Amaral & Schwenter 2005; Mayol 2010).

We thus see that it is generally accepted that the realization of an overt pronominal subject in these languages is related to contexts of focus/contrast and switch reference (Silva-Corvalán 2003; Mithun 1990; Cameron 1992; Amaral & Schwenter 2005; Mayol 2010).[2] Consider the following examples:

(16) Italian
Io *resto sulla barca e* ***tu*** *cadi in acqua*
I stay.1SG on-the boat and you fall.2SG in water
'I stay on the boat and you fall into the water.' (Mayol 2010: 2500)

(17) Spanish
Ellos *fueron pero* ***yo*** *no fui.*
they went.3PL but I NEG went.1SG
'They went but I did not go.' (Mayol 2010: 2500)

In these examples there are two different subject referents, participating in two different – and in the context, even mutually exclusive – events. Cases like this would be infelicitous without the presence of a pronominal subject, due to the contrasting predications and switch-reference subjects. In such cases the subject pronoun can only be omitted if the sentence includes some other indication of the referent, such as the adverbial phrases in (18) and (19):

(18) Spanish
Cindy toma café con leche, ***pero por mi parte*** *(yo/Ø)*
Cindy take.3SG coffee with milk but for my part I
prefiero café negro.
prefer.1SG coffee black
'Cindy drinks coffee with milk but as for me, I prefer black coffee.'
(Amaral & Schwenter 2005: 120)

(19) European Portuguese
O João não quer dar aulas de manhã cedo. Por mim,
the João NEG want.1SG give.INF classes in morning early for me
/ Eu/ ø dou aulas a qualquer hora.
I give.1SG classes at any hour
'João doesn't want to teach early in the morning. As for me, I teach at any time.'
(Amaral & Schwenter 2005: 121)

2. FDG uses the terms Topic, Focus, Contrast and emphasis in a very specific way. As the discussion presented in this section is based on studies representing theoretically different perspectives, the notions of contrast and emphasis are employed here in a broader sense, not in the more specific sense in which they are used in FDG.

The use of an overt subject can also be motivated by the semantic nature of the clause. Posio (2013) states that different semantic verb classes exhibit different subject expression rates. For example, verbs indicating the speaker's opinion or judgement are more likely to occur with an expressed subject. Consider in this respect example (20):

(20) Spanish
Por_supuesto. ***Yo*** ***creo*** *que la felicidad viene de dentro.*
of-course I believe.1SG that the happiness comes from inside
'Of course. **I think** that happiness comes from inside.' (Posio 2013: 276)

Cases like *yo creo* 'I think' are to be regarded as grammaticalized expressions. In this sense, Posio argues that in *yo creo que*, the overt expression of the pronoun may indicate a stronger commitment of the speaker to the proposition (as in (20)), whereas morphological subjects may be associated with contexts where the speaker does not want to commit him/herself to the truth value of the proposition (as in (21)).

(21) Spanish
creo *que a Elena van a intentar dormir=la.*
believe.1SG that ACC-HUM Elena go.3PL to try.INF sleep.INF=her
I **think** they are trying to put Elena to sleep. (Posio 2013: 275)

Another factor relevant for subject expression is the semantics of the subject referent. In most Romance languages, inanimate referents cannot be pronominally expressed. An exception is Portuguese, which makes no such distinction and uses pronominal subjects for any type of recoverable subject. This is shown in (22) with an example from Brazilian Portuguese, where the entity *coisas* 'things' is referred to twice by the third person pronoun:

(22) *E o tempo é capaz de dar nomes a todas as coisas, enquanto a mim,*
me encarrego de ter essas ***coisas,***
REFL.1SG take-responsibility.1SG of have.INF these things(F)
enquanto [1] ***elas*** *quiserem ser minhas.*
as-long-as they.F wish.FUT.SBJV.3PL COP.INF mine
E enquanto assim for, eu vou cuidar muito
and as-long-as so COP.FUT.SBJV.3SG I go.1SG care.INF very
bem, para que assim [2] ***elas*** *sejam minhas,*
well in order that so they.F COP.SBJV.3PL mine.F.PL
mesmo_que não sendo…
even-if NEG COP.GER (Davies & Ferreira 2006, Brazil, Blog)
'And time is capable of naming all things, as for me, I am busy having this things, as long as [1] they want to be mine. And as long as this is the case, I will care of them very well, so [2] they be mine, even if they are not …'

2.2 Subjects in Brazilian Portuguese

It is well known that Brazilian Portuguese (henceforth BP) prefers pronominal subjects to verbal marking. Whereas European Portuguese (henceforth EP) seems to behave more canonically as a pro-drop language, BP uses pronominally expressed subjects in a variety of contexts. Compare the following two examples:

(23) *[Minha esposa] trabalha na Embratel.*
[1] ***Ela*** *ganha bem, mas eu acho que [2]* ***ela*** *devia*
she earn.3SG well but I think.1SG that she should.3SG
ganhar mais porque [3] ***ela*** *merece.*
earn.INF more because she deserve.3SG
'My wife works for Embratel. She is well paid, but I think that she should earn more because she deserves it'. (Kato & Duarte 2014: 2)

(24) ***Ele*** *quer pescar tudo; [1] quer sempre arranjar*
he want.**3SG** fish.INF everything want.**3SG** always win.INF
umas taças. E [2] tem tido sorte com isso, porque [3]
some cups and AUX.**3SG** had luck with this because
já teve três [taças] e eu inda só tive uma.
already had.**3SG** three cups and I as-yet only had.1SG one
'He wants to fish everything, he always wants to win some cup. And he's been lucky, because he had three (cups) and I had only one.'
(Kato & Duarte 2014: 2)

The example in (23) is about the entity *minha esposa* 'my wife', which is referred to pronominally in clauses [1]–[3]. On the other hand, in (24), within a similar context, the entity introduced by the third person pronoun *ele* is referred to by means of person agreement morphology.

This difference has been studied in great detail over the last decades, especially within formal approaches (Duarte 1995; Barbosa et al 2005; Kaiser 2009; Duarte & Varejão 2013; Kato & Duarte 2014; Kato & Negrão 2000). More important for the purpose of this chapter is the evolution of overtly expressed subjects in BP and how it affects its grammatical system. The development of the use of overt subjects has been explored extensively in the literature, where BP is shown to start out as a canonical null-subject language, which gradually develops into a language that shows preference for morphologically expressed subjects. Barbosa et al. (2005) analyzed the realization of subjects in Brazilian plays and observed an increasing number of overt subjects over time.

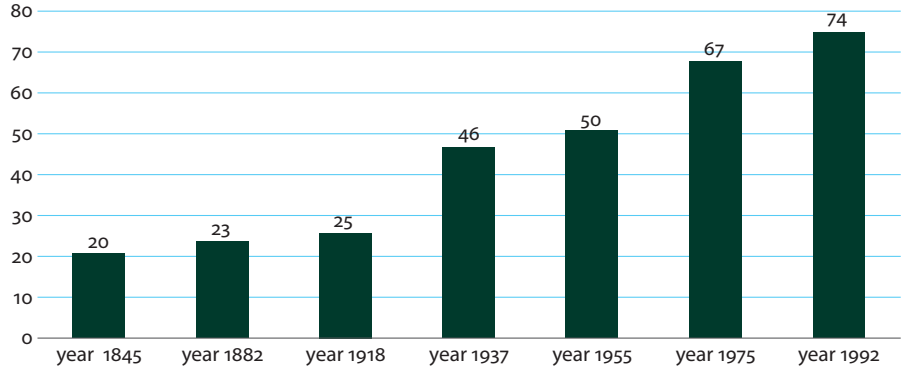

Figure 1. Development of pronominal subjects in BP (Barbosa et al. 2005: 16)

Figure 1 shows that until the first half of the nineteenth century BP behaves as a prototypical pro-drop language, with limited use of overt pronominal subjects. This situation changes drastically by the end of the twentieth century, when overt subject pronouns outnumber null subjects and become the preferred strategy. Support for this analysis has been found in several other studies on the history of Brazilian Portuguese (Duarte 1995; Duarte & Varejão 2013; Kato & Duarte 2014; Kato & Negrão 2000).

The general consensus seems to be that in BP the use of overt subjects is preferred in a variety of contexts and not just in those cases where there is some pragmatic highlightening. Consider the following invented examples:

i. Co-referential subjects of finite complement clauses:

(25) *O* ***João*** *disse* *que* ***ele*** *comprou* *um* *computador.*
the João said.3SG that he bought.3SG a computer
'João said he bought a computer'

ii. Co-referential subjects of adverbial non-finite clauses

(26) ***João*** *saiu* *para* ***ele*** *ver* *um* *carro.*
João left.3SG for he see.INF a car
'João left to see a car'.

iii. Co-referential subjects of adverbial finite clauses

(27) ***Marina*** *sempre* *fica* *doente* *quando* ***ela*** *viaja.*
Marina always get.3SG ill when she travel.3SG
'Marina always get sick when she travels.'

In all these contexts, the antecedent of the pronominal subject is co-referential with the overt subject of the preceding clause and as such highly accessible; therefore, in pro-drop languages like EP the subject would normally have been expressed by inflectional verbal morphology only. In EP the presence of an overt pronoun in (i)–(iii) would be taken to mark some kind of contrast and to refer to a different referent than the given subject. In BP, on the other hand, it is more likely that the pronoun refers to the main clause subject itself, since there is no contextual information to indicate otherwise. For instance, in (i) the most natural interpretation for the third referent is the subject *João*, unless there is a clear sign that it is to be interpreted as referring to any other individual. The same holds for the kind of clauses given in (ii) and (iii), where in BP the subjects of the main and subordinate clauses are co-referential and yet both fully specified.

In (iii), the expected reading is also one in which the two explicitly expressed subjects are co-referential, unless it is clear from the context that the pronoun *she* refers to another person, as in the following example:

(28) *A mãe está sempre fora. Marina sempre fica doente*
the mother COP.TEMP.3SG always away Marina always get.3SG ill
quando ***ela*** *viaja.*
when she travel.3SG
'Her mother is always away. Marina always gets sick when she travels.

Evidence for this difference is presented by Costa & Matos (2012), who compared BP and EP anaphoric subjects and conclude that unlike EP, BP has a preference for pronominal subjects in contexts of anaphoric subjects, such as those in (i)–(iii).

To sum up, the pragmatic or grammatical conditions determining whether subjects can be expressed by verbal morphology only or by a pronoun combined with verbal morphology in BP differ considerably from EP, and double marking is becoming the unmarked strategy. In other words, even though BP started out as a prototypical pro-drop language, it is now developing a different system to express subjects with identifiable referents. This preference for pronominally specified subject combined with verbal marking is an effect of two recent developments of BP: (i) an overall reduction in verbal morphology and (ii) the consequent loss of person agreement caused by changes in its pronominal system.

In particular, the inflectional verbal morphology of BP has been drastically reduced, as mentioned in various studies (Duarte 1993, 1995, 2000; Scherre & Naro 2006; Rubio 2008; Lucchesi 2014). This is a result of the grammaticalization of the subject pronouns *você* and *a gente* (see below) and the consequent reorganization of the person paradigm in present-day BP:

Table 2. Person paradigm evolution

Pronouns	Paradigm 1	Paradigm 2	Translation
eu	*cant-o*	*cant-o*	I sing
tu	*canta-s*	*canta-s*	you sing
você	–	*canta*	you sing
ele/ela	*canta*	*canta*	he/she sings
a gente	–	*canta*	we sing
nós	*canta-mos*	*canta-mos*	we sing
vós	*canta-is*	–	you (pl) sing
vocês	–	*canta-m*	you (pl) sing
eles/elas	*canta-m*	*canta-m*	they sing

The change in the BP person paradigm (Paradigm 1) started in the middle of the 18th century (Lopes & Duarte 2003; Lopes & Machado 2005), when *você* (originally the formal address *vossa mercê*) was used to indicate second person in variation with the second person pronoun *tu* (Paradigm 2). Its use gradually expanded in the 19th century as it lost its formal interpretation and specializes as a second person pronoun, replacing the pronoun *tu* in most of BP dialects in the 20th and 21st centuries (Menon, 2000; Scherre et al 2015). Parallel to this, *a gente* became grammaticalized as a marker of first person plural (Machado 1997; Lopes, 1993 1999 2003; Zilles, 2002). This change started around the 16th century, when *a gente* (originally a noun phrase meaning 'the people') was used with a collective interpretation. The first person meaning became fixed in the 19th century, when *a gente* lost its generic interpretation (indicating people or a collective) and started to indicate the speaker and other participants in the discourse (Machado 1997; Lopes, 1993, 1999, 2003).

Together these changes had a significant impact on BP verbal morphology. First of all, because both *você* and *a gente* take third person singular verbal morphology.[3] In addition to these changes, in spoken BP the form for second person plural is no longer used, being present only in traditional grammars. This leads to a partial neutralization of verbal person morphology distinctions.

The subject pronouns *você* and *a gente* express second person singular and first person plural, respectively. However, syntactically they behave as third person singular pronouns, triggering the zero verb ending. Consider the following sets of sentences:

(29) *Você* ***canta*** *uma espécie de reggae* (Davies & Ferreira 2006, Brazil, Fiction)
you sing.3SG a sort of reggae
'You sing a kind of reggae'

3. It has also to be mentioned that the use of third person verbal morphology has affected the pronoun *tu* for some BP spoken dialects (see Menon, 2000).

a. *A gente* ***canta*** *uma espécie de reggae*
the people sing.3SG a sort of reggae
'We sing a kind of reggae'
b. *Ele* ***canta*** *uma espécie de reggae*
he sing.3SG a sort of reggae
'He sings a kind of reggae'

(30) *Você* ***comeu*** *um chocolate hoje*
you ate.3SG one chocolate today
'You ate one chocolate today.' (Davies & Ferreira 2006, Brazil, Fiction)
a. *A gente* ***comeu*** *um chocolate hoje*
the people ate.3SG one chocolate today
'We ate one chocolate today.'
b. *Ele* ***comeu*** *um chocolate hoje*
he ate.3SG one chocolate today
'He ate one chocolate today.'

Here we observe a lack of systematic correlation between the grammatical person of the subject (2SG, 1PL, 3SG) and the inflectional morphology of the verb (zero form, normally used for third person singular). The loss of second person singular verbal morphology has led to a rearrangement of the verbal paradigm, and has resulted in the partial neutralization of verbal person distinctions (Duarte 1995, Duarte & Varejão 2013). This syncretism is illustrated in the Table 3a.

Table 3a. Person reduction

Subject pronoun	Verbal morphology		Translation
eu	1SG	*cant-o*	I sing
você	3SG	*canta*	you (sg) sing
ele/ela	3SG	*canta*	he/she sings
a gente	3SG	*canta*	we sing
nós	1PL	*canta-mos*	we sing
vocês	3PL	*canta-m*	you (pl) sing
eles/elas	3PL	*canta-m*	they sing

If we consider that in present day spoken BP the pronoun *a gente* is more frequently used for reference to the first person plural than the original form *nós*,[4] we end up with a minimally functional person inflection that distinguishes first and third persons only. This leads to the paradigm in Table 3b.

4. Support for this claim can be found in Lopes 1993, 1999, 2003; Machado 1997; Zilles 2005, 2007. This is also confirmed by my data, as is shown in Table 5.

Table 3b. Further person reduction

Subject pronoun	Verbal morphology		Translation
eu	1SG	*cant-o*	I sing
você	3SG	*canta*	you (sg) sing
ele/ela	3SG	*canta*	he/she sings
a gente	3SG	*canta*	we sing
vocês	3PL	*canta-m*	you (pl) sing
eles/elas	3PL	*canta-m*	they sing

It is clear then that person/number morphology is not distinctive as in Italian, Spanish or EP. As BP employs third person singular for several person/number combinations of the subject, these distinctions can no longer be coded by verbal morphology; in other words, the third person singular form can no longer be regarded as referential.

From a semantic point of view, such a reduction may lead to a loss of information about the referential potential of person markers. This reduction poses a problem since it is not always possible to establish the identity of the subject on the basis of information available in the context. Consider example (31):

(31) *aí passou pro gerente o gerente me chamou e*
then passed.3SG to-the manager the manager me called.3SG and
falou "ah… vai ter que pagar"
said.3SG ah go.3SG have.INF to pay.INF
'and then it came to the manager. the manager called me and said "we/you/someone will have to pay" (adapted from Gonçalves 2003, Brazil)

This sentence has been adapted for the sake of the current discussion. In (31), there are three possible interpretations in BP. The morphological person marking can be interpreted as second person singular, in which case the subject refers to the addressee (*(vo)cê*), or it can be first person plural (*a gente*), with the subject referring to both speaker and addressee. However, the most likely interpretation is that in which the subject has non-specific reference, similar to the use of clitic *se* as in (31d). Therefore, to avoid this reading, the pronoun needs to be used. The three possible readings are given in (31a) and (31b):

(31) a. *aí passou pro gerente o gerente me chamou e*
then passed.3SG to-the manager the manager me called.3SG and
falou –"ah… cê vai ter que pagar"
said.3SG ah you go.3SG have.INF to pay.INF
'and then it got to the manager, the manager called me and said "ah you will have to pay" (Gonçalves 2003, Brazil) [original transcription]

b. *aí passou pro gerente o gerente me chamou e*
then passed.3SG to-the manager the manager me called.3SG and
falou –"ah… a gente vai ter que pagar"
said.3SG ah the people go.3SG have.INF to pay.INF
'and then it got to the manager, the manager called me and said "ah we will have to pay" [first person plural]

c. *aí passou pro gerente o gerente me chamou e*
then passed.3SG to-the manager the manager me called.3SG and
falou –"ah… vai ter que pagar"
said.3SG ah go.3SG have.INF to pay.INF
'and then it got to the manager, the manager called me and said "ah someone will have to pay" [non-specific reference]

d. *aí passou pro gerente o gerente me chamou e*
then passed.3SG to-the manager the manager me called.3SG and
falou –"ah… vai se ter que pagar"
said.3SG ah go.3SG REFL.3 have.INF to pay.INF
'and then it got the manager the manager called was and said "ah it will have to be paid" [non-specific reference]

As the inflectional person morphology loses part of its functionality, subject pronouns start to be used in contexts where they were once not allowed, as in the non-contrastive and non-switch-reference constructions. Accordingly, the pragmatic and structural conditions for referent recoverability also change and an overtly expressed subject becomes necessary. In the cursory history of BP given here this tendency generalizes and spreads to other grammatical persons as well. We can thus say that grammar finds a way to compensate for the loss of morphologically expressed information and the overt subject pronoun starts to become obligatory.

These changes in the person paradigm support the generative claim that BP is becoming a partially pro-drop language. Nevertheless, I believe that Functional Discourse Grammar (Hengeveld & Mackenzie 2008) offers a more attractive way of explaining and analyzing the changes described. My claim here is that these changes can be dealt with in terms of degrees of transparency and opacity. This we show in detail in Section 4; first, however, we will introduce the relevant properties of the FDG model, and in particular the notions of transparency and opacity.

3. Transparency and opacity

In Functional Discourse Grammar (henceforth FDG; Hengeveld & Mackenzie 2008), transparency is defined in terms of the interfaces between the four levels of linguistic organization.[5] Thus, transparency holds when there are no mismatches between corresponding units at the different linguistic levels distinguished. It is relevant to point out that transparency not only applies to the relationship between form and meaning (i.e. between Formulation and Encoding), but also to meaning-to-meaning relations (between the Interpersonal and the Representational Level) and form-to-form relations (between the Morphosyntactic and Phonological Level), which means that it can be systematically defined using all the levels and layers distinguished in the model.

Transparency can thus be characterized as "[…] a variable property of languages or subsystems of languages. Complete transparency is present when, in an FDG analysis, there are one-to-one (or biunique) relations between the component parts of each of the four levels" (García Velasco et al. 2012: 494). The opposite notion is that of opacity, which is defined as any kind of violation of one-to-one relations at any of these interfaces.

Transparency can be violated in five different ways: instead of one-to-one correspondences, there can be null-to-one, one-to-null, many-to-one, one-to-many relations and the violation of domain integrity (see Hengeveld 2011a; Leufkens 2015). Examples of such non-transparent relations are, for example, understood arguments (as a one-to-null relation), fusion (as a many-to-one relation), redundancy (as a one-to-many relation), the use of empty categories (as a null-to-one relation), and discontinuity (as a violation of domain integrity).

Person reference as discussed in this chapter can violate the alignment between the levels of analysis in two ways: as a many-to-one relation, when realized as cross-reference, or as a one-to-many relations, when realized as person agreement. In cross-reference, one of the markers may be omitted, as in the case where reduplication of person markers is used in pragmatically marked contexts. This is the situation found in most Romance languages, as shown in examples (32a) and (32b) for Portuguese:

(32) a. *chore-**i***
cry-PST.1SG
"I cried."

5. For a more details on the architecture of Functional Discourse Grammar, see Keizer & Olbertz, this volume.

b. *Eu* *chore-**i***
I cry-PST.1SG
"I cried"

In (32a), reference to the subject is made by a person affix *-i* only, whereas in (32b), it is expressed twice, by the affix and the person pronoun. Hengeveld and Mackenzie (2008) argue that in cases like (32a), the person verbal marker is referential by itself, corresponding to a Referential Subact at the Interpersonal Level. In (32b), where the two forms express the same value, the pronoun is considered optional.

Cross-reference, as illustrated in (32b), violates the one-to-one interface between the Interpersonal and Representational Levels since there are two Referential Subacts at the Interpersonal level, corresponding to a single participant at the Representational Level:

(33) IL: (R_I) (R_J)
RL: (x_i)

This situation is crucially different from agreement, a copying operation, whereby one property of an element is copied onto another within the same domain. In predicate-argument agreement, a property of an argument is copied to another unit within the clause. Hengeveld and Mackenzie (2008: 350–352) argue that such copying pertains strictly to the Morphosyntactic Level, since it is not semantically motivated. This is the case of non-pro-drop languages, such as German, exemplified in (34).

(34) ***Sie*** *sing-**en***
they sing-3PL
'They sing'

In these languages, person markers must co-occur with a lexical or pronominal argument, since the morphological ending is not referential and the language requires the realization of a subject. The copied element does not have a semantic value and is analyzed as a morphosyntactic unit without a higher level counterpart. This violation can be formalized as follows:

(35) RL: (x_i)
ML: (Np_i) (Aff_j)

At this point, the difference between person agreement and cross-reference can be represented as in Figure 2.

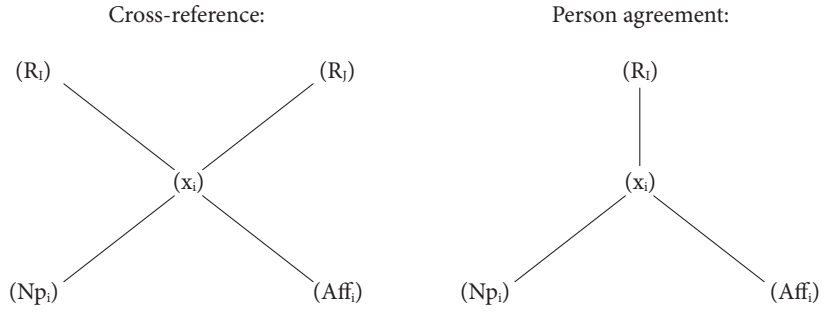

Figure 2. Cross-reference vs. person agreement

As Hengeveld (2012) and Leufkens (2015) argue, transparency is not a binary concept; instead the overall degree of transparency of a language is determined by the number of (non)transparent features it possesses. However, it is not only languages that may have different degrees of transparency; in addition, since transparency or opacity may be the result of different processes of language change, there may be a period of time where also a particular feature may possess a degree of transparency or opacity, rather than being either transparent or opaque.

4. Data and results

In this section, I analyze Brazilian Portuguese subjects within the framework of FDG. My main claim is that since the use of pronominal subject with zero-verbal form is more frequently used, subject expression has become transparent since there is a straightforward alignment between the levels of analysis of FDG.

4.1 The sample

The data was collected at *Iboruna* (Gonçalves 2003), a database of spoken Brazilian Portuguese of the Northwest of *São Paulo* State.[6] The sample is composed of 1500 sentences which were randomly collected, with no restrictions on TAM and

6. Additional data for the purpose of illustration were collected at *Corpus do Português* (Davies & Ferreira 2006), a database of written and spoken Portuguese and at C-Oral Brasil (Raso & Mello 2012), a database of spoken Brazilian Portuguese of *Minas Gerais* State.

sentence type. However, the most frequent sentence type found is declarative main clauses in the indicative mood (present and past). All pronouns with non-specific reference were excluded from the sample.

4.2 Transparency in Brazilian Portuguese subject expression

The overall distribution of pronominal or morphological subjects in the sample is given in Table 4.

Table 4. Subject expression strategies in Brazilian Portuguese

Subject marking in BP		
Pronominal + verbal marking subjects	915	(61%)
Verbal marking subjects	585	(39%)
Total	**1500**	**(100%)**

The data confirms the overall claim made so far, since 61% of subjects are expressed by verbal marking combined with an overt pronoun. This preference is also confirmed in the distribution of subjects across the different grammatical persons. With the exception of the first person plural pronoun *nós*, a pronominally specified subject combined with verbal morphology is favoured, as shown in Table 5.

Table 5. Distribution of subject expression across grammatical persons

Person reference	**Pronominal subjects + verbal marking subjects**		**Verbal marking subjects**		**Total**	
1SG (*eu*)	333	(55%)	269	(45%)	602	(100%)
2SG (*você*)	160	(80%)	40	(20%)	200	(100%)
3SG (*ele*)	212	(57%)	158	(43%)	370	(100%)
1PL (*nós*)	12	(25%)	36	(75%)	48	(100%)
1PL (*a gente*)	128	(80%)	32	(20%)	160	(100%)
2PL (*vocês*)	–		–		–	
3PL (*eles*)	70	(58%)	50	(42%)	120	(100%)
Total	**915**	**(61%)**	**585**	**(39%)**	**1500**	**(100%)**

Tables 4 and 5 show there are two possibilities for encoding subjects with identifiable reference in BP: cross-reference or single reference. As cases of cross-reference, subjects are expressed by two Referential Subacts represented by a single Individual, which is, in turn, encoded by two morphosyntactic units. Consider examples (36) and (37):

(36) *então pra mim foi muito bom **eu** aprend-**i***
so for me COP.PST.3SG very good I learn-PST.1SG
'so for me it was really good I learned' (Gonçalves 2003)

(37) *éh mas aí você vê… em cada uma delas… o que:: **elas** tê-**m** pra dar*
yes but then you see.3SG in every one of-them the what they have.3PL for give.INF
'yeah but then you see… in each of them… what they have to offer'
(Gonçalves 2003)

In cases like (36), the subject is expressed by the affix *i*, which indicates person and number, and can by itself refer to the individual in question. In addition, the same argument is lexically expressed as the first person pronoun *eu*; this means that, in FDG terms, it is a case of cross-reference. This is represented in (36a). The same holds for (37), where subject is realized by the affix *m* and by the pronoun *ela*, as represented in (37b). This type of violation is represented in Figure 2 above.

(36) a. IL: $(R_I: [+S, -A] (R_I)) (R_J: [+S, -A] (R_J))$
RL: (x_1)
ML: $(Np_i (Nw_i: eu_{1SG} (Nw_i)) (Np_i))_{Subj} (Aff_i: -i_{1SG})$

(37) a. IL: $(R_I: [-S, -A] (R_I)) (R_J: [-S, -A] (R_J))$
RL: (x_1)
ML: $(Np_i (Nw_i: elas_{3PL} (Nw_i)) (Np_i))_{Subj} (Aff_i: -m_{3PL})$

There are two discrepancies, situated at different interfaces. On one hand, there are two Referential Subacts corresponding to a single semantic unit represented by the Individual (x_i); this is a many-to-one relationship. On the other hand, there is also no straightforward relation between the one Individual (x_i) at the Representational Level and its realization at the Morphosyntactic Level, since it is expressed by both the pronoun *eu* and the affix *-I*. These mismatches form a clear case of opacity, since there is no alignment between the levels.

Nevertheless, the most frequent situation in BP is that the subject referent is specified as a single reference, which can assume two forms: (i) one Referential Subact and one Individual are encoded by verbal morphology, and (ii) one Referential Subact and one Individual are encoded by a noun phrase, i.e. by a pronoun. Consider the following two examples:

(38) *por ter:: ramificação em Ipiguá… onde eu me [1]*
for have.INF branch-office in Ipiguá where I REFL.1SG
*casei [2] namore-**i** o tempo todo…*
married.1SG date-PST.1SG the time all
'because it has a branch in Ipiguá … where I got married I dated … all the time'
(Gonçalves 2003)

(39) ***você*** *sabe* *o* *que* *eu* *sou* *do* *fulano?*
you know.3SG the what I COP.1SG of-the person
'Do you know what I am to this person?' (Gonçalves 2003)

In example (38), in clause [2], reference to the subject is made by means of verbal morphology only. In FDG terms, this means that a single Referential Subact, corresponding to a single Individual, is expressed by one morphosyntactic unit, an Affix. This can be formalized as in (38a):

(38) a. IL: $(R_I: [+S, -A] (R_I))$
RL: (x_1)
ML: $(Aff_i: -i_{1SG})$

Therefore, we have a one-to-one relation since there is perfect alignment between the levels:

(40) (R_I)
|
(x_i)
|
(Aff_i)

In example (39) there is a similar situation, only in this case there is no verbal morphology specifying the person of the referent. Here we find the pronoun *você* in combination with third person zero morphology on the verb. This means that there is only one Referential Subact, realized by the pronoun, as formalized in (39a):

(39) a. IL: $(R_I: [-S, +A] (R_I))$
RL: (x_1)
ML: $(Np_i (Nw_i: você_{3PL} (Nw_i)) (Np_i))_{Subj}$

Again we clearly have a transparent situation, since there is a one-to-one relation between all levels involved:

(41) (R_I)
|
(x_i)
|
(Np_i)

Note that cases like these cannot be treated as agreement. As third person singular is used for *ele(a)*, (3SG), *a gente* (1PL) and *você* (2SG), the zero verbal form cannot be triggered by a copying mechanism, since it does not contain any information about person or number.

If we reinterpret the data in terms of these relations, we end up with the following general picture:

Table 6. Identifiable subjects expression in BP

	Subjects in BP	
Single reference	1095	(73%)
Cross-reference	405	(27%)
Total	**1500**	**(100%)**

Cross-reference occurs only for first person singular and plural and third person plural. Single reference is found for all grammatical persons, being the most frequent means to express the subject, whether the subject is expressed only by morphology or only by a person pronoun. Clearly, the data analyzed here confirms the impact of the overall spreading of third person singular morphology in BP discussed earlier.

At this point, it is clear that since the preference is for a referential pronoun with no reduplication of the argument in the form of verbal morphology, cross-reference is becoming a marked strategy for subject expression in BP. As subjects are indicated mostly by lexical or by pronominal expressions combined with verbs with zero morphology, we can say that the newly developed system is more in accordance with the notion of transparency as defined in FDG. This supports my initial hypothesis that BP is adopting a more transparent system for subject with identifiable referents expression.

A relevant question to ask at this point is whether, since the first person and third person plural are still expressed by cross-reference, the language still exhibits a non-transparent system for subject reference. This is claimed by Olbertz (2017), who argues that since subject pronouns have a tendency to become obligatory in BP, BP would probably be developing a syntactic agreement system. This situation is, as we have seen in Section 3, also non-transparent, since it is a syntactic copying of one property to another. However, this claim does not undermine the position taken here. Even if we assume that first person and third person plural are reinterpreted as cases of person agreement, for the other persons the claim still holds: they are no longer cases of cross-reference, nor can they be regarded as agreement, since they are realized as cases of single reference. As we have seem a particular feature may have a certain degree of transparency; this is what we find in BP, where the process has not (yet) led to a fully neutralized state.

Moreover, there could be plenty of explanations for why first person is still expressed by double marking. Firstly, it is widely accepted that deictic person markers are very conservative, and among these first person is the most resistant, since the speaker is highly salient (Siewierska 2004). Besides, as Posio (2013) has pointed out, the first person singular is more resistant since it occurs in more petrified contexts, especially when it co-occurs with verbs of cognition. Cross-linguistic prevalence for first person is suggested by various authors e.g. Heine & Song 2011; Siewierska 2004; Givón 1976). Secondly, in Portuguese morphology the first person marker is phonologically much stronger, which may also be a reason for its resistance to change.

5. Conclusions

In this chapter, I have examined the properties of the expression of subjects with identifiable referents in Brazilian Portuguese within the theory of FDG. My main goal was to offer a functional alternative to the claim that Brazilian Portuguese is becoming a partial pro-drop language (Duarte 2000, 2008) within the context of FDG. I have shown that the differences between that BP and other Romance languages regarding subject expression can be captured in terms of the interfaces between different levels of analysis, which may result in different degrees of transparency.

I started by examining the claim that Brazilian Portuguese has a preference for the use of overt referential pronouns since, as a result of changes in the verbal paradigm of person/number marking, the person inflection system is becoming more syncretic. As a consequence, subject expression in BP is becoming more transparent (in this respect) than other Romance languages.

In BP, subjects are expressed by a pronoun for second person singular and plural, first person plural and third singular, while cross-reference is still used for first person singular, and sometimes for first person plural and third person plural. Based on the evidence presented in this chapter, I believe is justified to conclude that BP is developing a more transparent system for expressing subjects with identifiable referents.

A number of issues require further investigation. An interesting development not discussed in this chapter, for instance, is the nature of the subject pronouns in BP, which are undergoing some changes and are becoming clitic-like pronouns (Kato and Duarte 2014). In addition, a comparison between the behavior of referential and non-referential subjects could help to shed some light on the question of subject expression, since the use of explicit pronouns for non-referential subjects would strongly suggest that overt subject expressions are indeed becoming obligatory.

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Measuring polysynthesis

A Functional Discourse Grammar approach

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This chapter proposes a framework for a quantitative approach to the typology of polysynthesis based in Functional Discourse Grammar (FDG). FDG's strict separation between the Interpersonal, Representational and Morphosyntactic Levels of analysis combined with its approach to morpheme types allows for a detailed examination of the scalar nature of polysynthesis. The analysis refines FDG's treatment of morphological typology, which characterizes languages according to two parameters, viz. transparency and synthesis. Inspired by recent FDG treatments of transparency (esp. Leufkens 2015; Hengeveld & Leufkens 2018), and building on FDG work by Fortescue (2007) and Smit (2005), I propose the following set of parameters: (1) (verbal) lexical density (qualitative and quantitative); (2) anisomorphism between Formulation and Encoding levels; (3) anisomorphism within the Morphosyntactic Level (word-internal layering in the verbal word); (4) alignment restrictions; (5) optionality (availability of analytic alternative). This quantitative approach is intended to complement the qualitative typology developed by Mattissen (2004, 2017).

1. Introduction

There is no generally accepted definition of what exactly constitutes polysynthesis. Some quotes from the recent literature serve to illustrate this:[1]

1. I am grateful to the audiences at the International Conference on Functional Discourse Grammar in Vienna in 2016, and the Syntax and Semantics Circle at the Department of Linguistics at UC Berkeley in 2017 for insightful discussion that helped me develop my thoughts. I thank Hella Olbertz and Evelien Keizer for comments on the first draft. I am also indebted to two anonymous reviewers for very detailed and thoughtful constructive feedback that I hope has allowed me to significantly clarify and strengthen my argument. Mahaliah Peddle assisted with bibliography, proofreading and formatting. The research for this chapter was made possible by a sabbatical leave granted by the University of Lethbridge for the 2016–2017 academic year. I gratefully acknowledge

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> The term *polysynthesis* is generally understood in linguistics as extreme morphological complexity in the verb. (Fortescue et al. 2017b: 1; italics in original)

> The term 'polysynthetic' is loosely used to describe languages with complex morphologies capable of packing into a single word many morphemes that in more analytic languages would be independent words. (Fortescue 1994: 2600)

> Polysynthesis is not a homogeneous principle of language structure, but comprises a range of heterogeneous phenomena, such as polypersonalism, noun incorporation, verb root serialization, derivation, and affixation. As yet, there is no generally acknowledged definition of polysynthesis, and polysynthesis in the traditional understanding is rather a "feeling" than a clear-cut class.
> (Mattissen 2004: 189–190; see also Sadock 2017: 100)

Various typological and theoretical approaches differ in terms of what are considered the crucial defining characteristics of polysynthesis, and as a result may regard different languages as more or less prototypical (Fortescue et al. 2017b). Informally, as first expressed by Duponceau (1819), the more a language is characterized by holophrasis, the more polysynthetic it is. Others take a more quantitative approach, emphasizing the sheer number of morphemes that can make up a word (esp. Greenberg 1960; also Fortescue 1994; Comrie 1989; Mithun 2009). Incorporation is a requirement for many authors (Baker 1996; Foley 2017), but not for all (Mattissen 2004, 2017; Comrie 1989; De Reuse 2009). The occurrence of a special type of "lexically heavy" bound morpheme is emphasized by several authors as well (Mattissen 2003, 2004, 2017; De Reuse 2009; Drossard 1997, 2002; Fortescue 1994). Some authors additionally point to a correlation between polysynthesis and other typological characteristics, such as, in particular, head marking (Baker 1996; Foley 2017) and free word order (Baker 1996). Finally, it is possible to make the argument that polysynthesis is not a particularly interesting or meaningful way to approach typological classification, as it is impossible to define and probably an epiphenomenon of other more fundamental properties (esp. Comrie 1989) or merely a stage in a diachronic grammaticalization process (Givón 2017). However, its correlation with other linguistic and non-linguistic phenomena (such as head marking or the size of the speaker community) remains the subject of lively discussion; and, as I hope to show in this chapter, FDG can quantify and qualify polysynthesis in interesting ways that should tell us something about the limits of the word. This FDG approach to the classification of polysynthesis is intended to complement the classification proposed by Mattissen (2003, 2004, 2017), discussed in more detail in Section 2.7.

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In the next section I first discuss the main characteristics of polysynthesis as discussed in the most important recent literature. This section ends with a summary of which characteristics are considered necessary conditions for polysynthesis by several of the leading authors in the field (Section 2.6) and a more detailed discussion of Mattissen's classification. In Section 3 I then present the FDG approach to polysynthesis as (verbal) lexical density. In Section 4 I propose a more detailed typology of polysynthesis couched in FDG terms, treating polysynthesis as a set of separate but interrelated continua, based on the treatment of transparency as developed by Leufkens (2015) in particular and building on earlier work on polysynthesis by Fortescue (2007) and on incorporation by Smit (2005). Section 5 summarizes this proposal, contrasts it with other available treatments, and discusses directions for future research in this area.

2. Features of polysynthesis

In this section I begin by discussing the defining features of polysynthesis as discussed in some of the most important recent typological and theoretical literature on the subject (Sections 2.1–2.5). In Subsection 2.6 I briefly discuss how different authors regard different features as the crucial defining characteristics of a polysynthetic language, resulting in different languages or language families being presented as "prototypically polysynthetic". It is important to note that polysynthesis concerns the structure of verbs, not of nouns or other word classes. While many authors speak about the structure or make-up of "words", it is very clear from all the examples given and the general discussion that they generally mean "verbal words" rather than other types of words in the language(s) under consideration.

2.1 Morpheme-to-word ratio

A comparatively large morpheme-to-word ratio is an obvious place to start. Languages that can pack many morphemes into a word are, on this parameter, more synthetic than languages whose words contain fewer morphemes. Greenberg (1960), based on a re-evaluation of Sapir (1921), proposed a set of ten parameters for the quantification of morphological typology, the first of which is the "synthetic index": "the degree of synthesis or gross complexity of the word" (1960: 185). This is measured straightforwardly as follows: "The ratio M/W where M equals morpheme and W equals word" (Greenberg 1960: 185). Depending on whether the resulting ratio is small, medium, or large, a language is said to be analytic, synthetic, or polysynthetic. The theoretical lower limit is 1, and Greenberg mentions that a ratio of

3 or higher is rare. Taking Eskimo as a typical polysynthetic language, Greenberg (1960: 193) gives it a very high synthesis ratio of 3.72 (see Sadock 2017: 101–102 for a critique of Greenberg's approach).

It must be noted that Greenberg's ratios are intended to apply to languages as a whole rather than to constructions or words, even though Greenberg himself already mentions that it might be better to characterize individual constructions rather than languages. His ratios are based on a random sample of 100 words from a specific text in 22 languages, and are thus better considered not as characterizing the language as a whole or its constructions, but rather the texts from which they are extracted (Dahl 2017: 22–25).

It is obvious that individual words can contain many more morphemes, as shown in example (1), which contains no less than 12 morphemes:

(1) West Greenlandic
Aliikusersuillammassuaanerartassagaluarpaalli.
aliiku-sersu-i-llammas-sua-a-nerar ta-ssa-galuar-paal-li
entertainment-provide-SEMITRANS-one.good.at-COP-say.that-REP-FUT-sure.but-3PL.SBJ/3SG.OBJ-but
'However, they will say that he is a great entertainer, but…'
(Eskaleut; Fortescue 1983: 97; cited in Evans & Sasse 2002: 3)

Greenberg also mentions that the validity of such calculations depends on one's definition of "word", noting that it may make a difference whether a phonological or morphological definition is used, although he does not further problematize this rather crucial issue (see e.g. Russell 1999a, b; Dyck 2009; Bickel & Zúñiga 2017; also Comrie 1989: 47–48; Fortescue 1994: 2601). In this chapter I will generally ignore this issue and focus on the morphosyntactic word. We might add that the validity of Greenbergian calculation also depends on one's definition of "morpheme", in particular in languages with morphologically complex lexemes or derivational elements. The question is whether we count those as one morpheme and focus our morpheme count on the elements of the syntactic word, or whether we rather count all morphemes, irrespective of whether they contribute to a lexeme, a derivational element, or a syntactic word (Drossard 2002: 224–5; Sadock 2017: 102–105; Dorais 2017). As an example, consider the following utterance from Blackfoot:

(2) Blackfoot
Ómahksisttsííksiinaiksi iiksí'sskaana'pssiyi.
omahksisttsiiksiinaa-iksi iik-í'sskaana'pssi-yi
rattlesnake-AN.PL very-be.dangerous.AI-3PL
'Rattlesnakes are very dangerous.' (Algonquian; Russell & Genee 2014: 32)

Glossed as in (2), this sentence has 5 morphemes, giving us a Greenberg ratio of 2.5. However, the lexeme for 'rattlesnake' consists of two transparently separable elements and the lexeme for the animate intransitive verb 'be dangerous' can be further subdivided into 2 or 3 separate elements, as follows:

(2′) *omahk-isttsiiksiinaa-iksi* *iik-í'sskaan-a'p-ssi-yi*
big-snake-AN.PL very-dangerous-be(?)-AI-3PL

On this analysis, the sentence has 8 morphemes, giving us a Greenberg ratio of 4. Not splitting the verb 'be' into the two elements *a'p-ssi* would reduce the count to 7, still giving a ratio of 3.5.

Related issues that would affect morpheme counts include how to deal with clitics (are they part of the word or not?) and whether or not to count zero-morphemes (Comrie 1989: 48). The latter is illustrated in example (3) from Ket, which contains zero-morphemes for tense and aspect, as well as an epenthetic consonant (EC). Does this verb contain 2 or 4 morphemes?

(3) Ket
di-Ø-ɣ-Ø-aq
1SG.SBJ-(TNS)-EC-(ASP)-leave
'I leave' (Yeniseian; Drossard 2002: 231; citing data from Werner 1994, 1997)

2.2 Polypersonalism

Polypersonalism refers to the ability of a verb to encode multiple arguments – usually at least subject and object, but sometimes additional arguments – thus allowing for holophrasis of a basic type, in which a complex verbal word can express a whole utterance and translate into a complete sentence in a less synthetic language like English. Example (4) shows an extreme case of this: Nahuatl allows up to four arguments to be cross-referenced directly onto the verb, resulting in a single utterance with four participants all expressed within the verbal word:

(4) Nahuatl
Nimitztētlamaquiltīz
ni-mits-teː-tla-maki-ltiː-s'
I-you-him-it-give-CAUS-FUT
'I shall persuade somebody to give it to you' (Uto-Aztecan; Suárez 1983: 61)

This characteristic is crucial to generative approaches to polysynthesis based on Jelinek's (1984) pronominal argument hypothesis, which posits that the argument markers on such verbs are not merely agreement markers, but are the actual

arguments. This reduces any lexically expressed coreferential arguments in the same sentence to the status of adjuncts or appositions. Such approaches usually emphasize the correlation between polysynthesis on the one hand and free word order (non-configurationality) and head marking on the other hand.

Baker's (1996) proposal for a polysynthesis macroparameter for the typological classification of languages crucially involves this characteristic, succinctly paraphrased by Hansen (2010: 276) as follows: "[P]olysynthetic languages by definition require that every phrasal argument be marked on the head of which the phrase is an argument, and this marking can be achieved either by use of agreement morphemes or by incorporating the argument noun phrase into the head." Evans and Sasse (2002: 3), working in a different framework, formulate it as follows: "[A] prototypical polysynthetic language is one in which it is possible, in a single word, to use processes of morphological composition to encode information about both the predicate and all its arguments, for all major clause types (i.e. one, two- and three-place predicates, basic and derived), to a level of specificity allowing this word to serve alone as a free-standing utterance without reliance on context."

2.3 Incorporation and serialization

There is disagreement in the literature on what exactly constitutes incorporation and whether it is a necessary characteristic of polysynthesis (Fortescue et al. 2017b: 1; Foley 2017: 338). The index in the recent *Oxford Handbook of Polysynthesis* (Fortescue et al. 2017a: 1049) distinguishes the following major types: adjective, adjunct, adverb, noun, verb incorporation; subtypes of noun incorporation include: body parts, natural phenomena, partitive object, predicate nominal.

The most canonical type of incorporation is probably noun incorporation, in particular the incorporation of an object into the verb stem, as shown in (5):

(5) Chukchi
anko *mat-mec-qora-garke-platko-mak*
then 1PL.SBJ-almost-deer-hunt-finish-AOR.1PL
'Then we almost finished hunting reindeer'
(Chukotko-Kamchatkan; Spencer 1995: 459; cited in Mattissen 2004: 203)

Fortescue (1994) calls this "pure incorporating". Baker (1996) regards it as a necessary feature of polysynthetic languages, while Mattissen (2004; 2017) regards it as often co-occurring with polysynthesis but not essential (similarly Comrie 1989: 43, 45). When the incorporated nominal expresses a verbal argument, it can be seen as an alternative way to reach polypersonalism, as it contributes to the language's ability to express all its arguments inside the verbal complex. For example, Bugaeva

(2017) shows that incorporated nouns in Ainu can refer to objects as well as transitive and intransitive subjects and be valency-decreasing or valency-retaining.

As noted, the incorporated nominal element does not have to be an argument (Smit 2005; Fortescue 2007: 17–20; Mithun 2017: 40–46). This is shown in (6), where the incorporated element *djobge* 'hand' evokes a location rather than an object (the reflexive verb is intransitive):

(6) Bininj Gun-Wok
Nga-bid-djobge-rr-inj
1SG.SBJ-hand-cut-REFL/RECP-PSTPRF
'I cut myself on the hand.' (Gunwinyguan; Evans & Sasse 2002: 2)

Adverbial type elements can be incorporated as well, as seen in (7):

(7) Bininj Gun-Wok
Birri-yawoyh-djarrk-mirnde-moname-rr-inj
3PL.PST-again-together-many-assemble-REFL/RECP-PSTPRF
'They assembled together as a group.' (Gunwinyguan; Carroll 1976: 62)

Word-internal verb serialization can be seen as a form of verb incorporation (Mattissen 2004: 196). Compare the analytic serial verb construction ('catch give') in (8) with the synthetic one ('hunt-finish') in (5) above:

(8) Negerhollands
Fan som fligi gi mi
Catch some flies give me
'Catch some flies for me!' (Lit.: 'Catch some flies give me.')
(Dutch Creole; Jansen et al. 1978; cited in Hengeveld & Mackenzie 2008: 169)

While it is often the case that word-internal verb serialization combines with polypersonalism (and incorporation) to create holophrastic expressions, as in (5) above, this is not necessarily always the case, and the two phenomena are in principle independent of each other. This is shown in (9), where the verb complex contains the serial verb sequence *odori-tukare* 'dance-get.tired' but the subject is a separate noun phrase not indexed on the verb (a case of monopersonal/non-holophrastic polysynthesis; see below Sections 2.5 and 2.6).

(9) Japanese
Hanako ga odori-tukare-ta
H. NOM dance-get.tired-PST
'Hanako got tired from dancing.' (Japonic; Fukushima 2005: 585)

2.4 Lexical affixation

Polysynthetic languages are often claimed to have special lexically heavy derivational morphemes, i.e. bound morphemes which are not roots in the usual sense of the word but seem to "have more lexical 'weight' than those that are found within verbs in non-isolating languages" (Fortescue 1994: 2602). Instead of incorporating a stem or root into another verb stem, these languages attach lexically heavy derivational morphemes to verb or noun roots or stems to create complex verbal stems, as in the following example from Central Siberia Yupik Eskimo:

(10) Central Siberia Yupik Eskimo
neghyaghtughyugumayaghpetaa
negh-yaghtugh-yug-uma-yagh-pete-aa
eat-go.to.V-want.to.V-PST-FRUSTR-INFRN-IND.3SBJ>3OBJ
'It turns out s/he wanted to go eat it, but…' (Eskaleut; De Reuse 2009: 23)

The point is that all the lexical-looking elements except the verb stem *negh* 'eat' are derivational morphemes that cannot occur by themselves. Other terms for this phenomenon include "Productive Noninflectional Concatenation (PNC)" (De Reuse 2009), "recursive derivational suffixation" (Woodbury 2004), "recursive suffixing" (Fortescue 2007) and "non-root bound morphemes" (Mattissen 2004; 2017).

2.5 Holophrasis

There is disagreement in the literature about what exactly constitutes holophrasis and whether or not it is a necessary condition for polysynthesis. According to Mithun (2017: 31), the term was "originally coined by Francis Lieber in 1853 to refer to the combination of many ideas into a single word". This is reminiscent of Evans' & Sasse's (2002: 7) "spectacularly self-sufficient verbal words", which can express complex events requiring many words in a more analytic language like English. Woodbury (2017: 536) calls such constructions "prolifically holophrastic".

Some scholars use a more restricted definition of holophrasis, which essentially equates it with polypersonalism. For instance, Mithun (2017) defines holophrasis in a narrower sense as "the specification within the verb of the essential elements of the clause: the predicate and core arguments" (Mithun 2017: 31), and even more specifically as the marking of "*the relations* between the predicate and arguments" (emphasis added), so not necessarily the arguments themselves. Likewise Fortescue (2016) defines holophrasis as "independent "word-sentences" with bound core argument pronominals" (also Fortescue 2017: 116). Mattissen (2017: 90) employs a different definition of "holophrastic polysynthesis" as a

combination of two characteristics, the first of which encompasses polypersonalism: "adverbials and person encoding of all central participants on the verb" and "all wordforms being predicates, including expressions for objects and animates".

It seems, then, that there are two basic interpretations of the term holophrasis: first, a narrow interpretation, which defines holophrasis as the ability of a single word to express an entire clause, without taking into account the complexity or length of that clause, essentially equating holophrasis with polypersonalism; and, secondly, a broad interpretation, which defines holophrasis as the ability of a single word to express an entire clause including not only core arguments but other clausal dependents as well, such as non-core arguments, adjuncts, adverbials, TAM and polarity elements, etc. It is the combination of polypersonalism with the ability of the verb complex to include other elements as implied by the broad interpretation of the term holophrasis that results in the spectacularly long words in examples such as (1), (7) and (10) above.

2.6 What is (prototypical) polysynthesis?

As alluded to in the preceding sections, different authors consider different characteristics to be essential to the definition of polysynthesis. The main disagreements appear to revolve around the centrality of polypersonalism, (noun) incorporation, and lexical affixation. Without aiming at comprehensiveness, this section presents what I see as the main positions as they have established themselves over the last few decades.

For Baker (1996), the presence of both polypersonalism and noun incorporation are crucial; for him, Iroquoian languages are prototypically polysynthetic and Eskaleut languages are not (similarly Mithun 1988: 446–447).

For Mattissen (2003, 2004, 2017), lexical affixation ("non-root bound morphemes with rather 'lexical' meaning"; 2004: 190) is crucial, and polypersonalism is excluded from her typology. She explicitly allows for the existence of "apersonal" or "monopersonal" (i.e. non-holophrastic) polysynthesis. The requirement for a language to contain "non-root bound morphemes" in order to be classified as polysynthetic is necessary, according to Mattissen, in order to exclude agglutinating languages of the Turkish or Yucatec Maya type, which can sometimes have quite spectacularly long words without, according to her, qualifying as polysynthetic: "the overall complexity of the verb form measured by morpheme count is not a valid distinctive feature" (Mattissen 2004: 191). For De Reuse (2009) it also is the existence of special morphology, which he terms "Productive Noninflectional Concatenation", that is the defining characteristic of polysynthetic languages. For him, therefore, the Eskaleut languages are the best examples of the polysynthetic

type, and the Athabascan languages, which are often see as prototypically polysynthetic, are not particularly good examples. Polypersonalism and incorporation do not play a role in his classification at all. As De Reuse himself mentions (2009: 20, 30–31), his approach is therefore diametrically opposed to that of Baker (1996). Drossard (1997, 2002) also requires a language to have "at least one semantically definable category (i.e. adverbial concepts) that occurs exclusively in bound form, primarily with a verbal head" (Drossard 2002: 226) in order to be called polysynthetic. Similarly to Mattissen's apersonal/monopersonal polysynthesis, he explicitly recognizes "non-sentential polysynthesis" in languages such as Haida, which has very long verbs but requires independent subject pronouns (therefore lacking holophrasis).

For Fortescue (1994, 2007) (noun) incorporation and/or lexical affixation ("recursive suffixing" and "field-affixing") are crucial, making Eskimo a good example of the prototype; however, in Fortescue (2016, 2017: 122) he includes both "holophrasis (independent "word-sentences" with bound core argument pronominals) and the possibility of more than one lexically "heavy" element (lexical or affixal) in a single such "word-sentence"," essentially requiring both polypersonalism and either incorporation or lexical affixation or both. He lists a large number of languages.

For Mithun (2009), who argues, against Baker, that Eskaleut-type lexical affixation languages are just as polysynthetic as Iroquoian-type incorporation languages, morpheme-per-word count ultimately seems to be the most important feature. Comrie (1989: 45) also takes the ability "to combine a large number of morphemes, be they lexical or grammatical, into a single word", as definitional, explicitly including languages of the incorporating type and of the affixing type.

Foley (2017: 337–9) argues that polysynthesis requires polypersonalism and incorporation as well as head marking, emphasizing that incorporation can include, in addition to noun incorporation, also incorporation of other elements into the verb complex, such as "adverbials, locations, and instruments" (Foley 2017: 338).

For Evans & Sasse (2002), no single characteristic appears to be essential, but a "prototypical polysynthetic language" would include all of them. Fortescue (2017) is an attempt to determine the upper boundaries of polysynthesis in terms of Talmy's (2000) notion of "macro-event".

This can be summarized as in Table 1. Anticipating the discussion of the FDG approach to polysynthesis in Section 3, the final row includes Hengeveld & Mackenzie (2008).

Table 1. Some key features of polysynthesis as discussed in recent literature**

Feature / Author	Polypersonalism	(Noun) incorporation	Lexical affixation	Comments
Baker 1996	+	+	**n/a**	BOTH required
De Reuse 2009	**n/a**	**n/a**	+	
Drossard 1997, 2002	**n/a**	**n/a**	+	
Evans & Sasse 2002	+/–	+/–	+/–	All features are prototypical rather than required
Foley 2017	+	+		Head marking also required
Fortescue 1994, 2007	+/–	+	+	EITHER required
Fortescue 2016, 2017	+	+	+	
Mattissen 2003, 2004, 2017	+/–	+/–	+	
Mithun 1988, 2009	+/–	+/–	+/–	
Hengeveld & Mackenzie 2008	**n/a**	+	+	At least one required

** Explanation of symbols: +: necessary feature: a language is not polysynthetic without it. +/–: feature contributes to polysynthesis, but is not necessary. **n/a**: feature is irrelevant. An empty cell indicates the feature is not clearly discussed.

2.7 Mattissen's typology of polysynthesis

While many authors write about the necessary and/or sufficient characteristics of polysynthetic languages, as far as I can see Mattissen (2004, 2017) is the only attempt at a systematic typology aimed at capturing the essential nature of all polysynthetic languages. Mattissen defines a language as polysynthetic is if it contains "complex, polymorphemic verb forms which allow, within one word unit, for components in the form of non-root bound morphemes with rather 'lexical' meaning and optionally for concatenation of lexical roots" (2004: 190). Her more recent definition includes grammatical components as well, but the requirement that at least some of these take the forms of "non-root bound morphemes" remains in place:

> Languages qualify as polysynthetic if they have complex, polymorphemic verbal units which necessarily integrate productively non-root bound morphemes with 'lexical' *and grammatical* meanings, especially local ones, and optionally allow concatenation of lexical roots within a verbal wordform. (2017: 72; italics added)

This obviously excludes some languages that others would consider to be polysynthetic (see Section 2.6 above) but the point here is to introduce the parameters used by Mattissen to determine sub-types within the collection of languages considered to be polysynthetic according to this basic criterion. She identified two axes which cross-sect to create four main types.

The first axis defines the basic word-formation type as affixal vs. compositional: a language must have at least one qualifying affix (i.e. non-root bound morpheme) to be considered polysynthetic, but languages then vary in terms of whether they mostly allow only one independent lexical root per verbal word, with the rest being bound morphemes (the affixal type), or whether they mostly create multi-morphemic verbal words by concatenating independent lexical roots (the compositional type). Greenlandic is an example of the extremely affixal type, while Chukchi is an example of the extremely compositional type (Mattissen 2004: 200–201, 2017: 74–75), with other languages taking up a position on the cline somewhere in between these two extremes. The compositional type exhibits noun incorporation and/or verb serialization, the affixal type does not.

The second axis concerns the internal make-up of the polysynthetic verb and defines the basic organization of the polysynthetic verb as templatic vs. scope-ordered. In templatic languages, the verb "offers a fixed number of slots for different elements which are fixed in their position and their order relative to each other" (Mattissen 2004: 206, also 2017: 79). In scope-ordered languages, "the components of a verb are not fixed in their position, but in their scope, which allows them to be ordered according to their intended meaning […] (as) conditioned by semantics and compatibility restrictions" (Mattissen 2004: 207). Navaho is an example of the extremely templatic type, while Greenlandic is an example of the extremely scope-ordered type (Mattissen 2017: 80), again with other languages taking up a position on the cline somewhere in between these two extremes and showing more mixed types of various kinds.

Mattissen's typology is summarized in Table 2.

While this typology defines two scalar axes along which languages can be located, this does not imply an attempt to define degree of polysynthesis or to quantify individual languages as more or less polysynthetic on some hierarchical cline. The remainder of this chapter is devoted to investigating how FDG can provide a framework for doing just that.

Table 2. Mattissen's (2004: 210; 2017: 82) polysynthesis types with examples**

Non-root bound morpheme	Noun incorporation	Verb root serialization	Scope-ordered	Templatic	Language(s)
+	+	+	+	+	Nivkh, Lakhota, Bininj Gun-Wok
+	+	+	+	−	Pano
+	+	+	−	+	So:ra, Ket, Wichita
+	+	−	+	+	Blackfoot, Baure
+	+	−	+	−	(example lacking)
+	+	−	−	+	Takelma, Sarcee
+	−	+	+	+	Maidu, Yimas
+	−	+	+	−	Capanawa, Yagua
+	−	+	−	+	Tonkawa, Awtuw
+	−	−	+	+	Quileute, Klamath, Tariana
+	−	−	+	−	Greenlandic, Kwakwala
+	−	−	−	+	Navaho, Tiwi

** The Table does not include "transitional types" from Mattissen (2017). Columns are rearranged to better show the affixal vs. compositional dimension in the first three columns and the scope-ordered vs. templatic dimension in the fourth and fifth column.

3. The Functional Discourse Grammar approach to polysynthesis

In this section I first discuss how FDG conceptualizes polysynthesis before proposing a more detailed typology with several parameters in Section 4.

The FDG approach to polysynthesis crucially relies on its approach to the nature of the word. For FDG, a Word is a morphosyntactic unit containing morphemes, and, in polysynthetic languages, also higher level units such as other Words, Phrases and Clauses. It is important to emphasize the distinction between Words and Lexemes (Hengeveld & Mackenzie 2008: 217, 400). Words are morphosyntactic constructs resulting from Encoding operations that take representational (semantic)

and interpersonal (pragmatic) structures resulting from Formulation operations as their input. Lexemes are representational (semantic) elements. Hengeveld & Mackenzie (2008: 400–401) give several examples to show that there is no one-to-one relation between a Word and a Lexeme, including: a Word may contain more than one Lexeme (e.g., synthetic compounds of the type *sword-swallower*); a Lexeme may contain more than one Word (e.g., idiomatic expressions of the type *kick the bucket*) (Keizer 2016); a Word may contain no Lexeme at all (e.g., grammatical Words such as tense auxiliaries and pronouns).

The FDG approach to polysynthesis is embedded within its approach to morphological typology, which characterizes languages according to two parameters, viz. transparency and synthesis:

> Along the first parameter we may distinguish isolating, agglutinating, and fusional languages. Isolating languages are semantically transparent in the sense that in the ideal type of an isolating language there is a one-to-one relation between a Word and a unit of meaning, whereas in agglutinating languages there is ideally a one-to-one relation between a morpheme and a unit of meaning. Fusional languages are semantically opaque in the sense that there is no one-to-one relation between a unit of form and a unit of meaning. Along the second parameter we may distinguish between polysynthetic and non-polysynthetic languages. Polysynthetic languages allow the presence of more than one lexical element within a single Word, while non-polysynthetic languages do not.
>
> The two parameters are basically independent of each other: the first is primarily concerned with the status of grammatical elements in the language, whereas the second has to do with the status of lexical elements. As a result, polysynthetic languages can be either fusional of agglutinating just like non-polysynthetic languages. […] The types distinguished here are of course idealized: many languages exhibit features of more than one morphological type.
>
> (Hengeveld & Mackenzie 2008: 301)

The first of these parameters, transparency (vs. opacity), can be seen as an elaboration of Comrie's (1989: 42–52) "index of fusion" (Sapir's [1921] "technique"); it has received recent attention in the FDG framework (Hengeveld 2011a, b), in particular in work on Dutch (Hengeveld 2011b), Kharia (Leufkens 2011), Quechua (Grández Ávila 2011), Sri Lankan Malay (Nordhoff 2011), Esperanto (Jansen 2011), and Hebrew (Mulder 2013). Work by Leufkens (2011, 2013) culminated in a detailed comparative investigation of 22 languages in Leufkens (2015); a corpus of 30 languages is investigated and ranked in terms of degree of transparency in Hengeveld & Leufkens (2018). Leufkens (2015) develops the following catalogue of features that contribute to high degrees of transparency: (i) lack of redundancy (e.g. apposition, cross-reference, agreement, concord); (ii) lack of discontinuity (e.g. raising, extraposition, circumfixes and infixes); (iii) lack of fusion/cumulation; (iv) lack of "form-based form", i.e. purely morphosyntactic phenomena (e.g. grammatical (as

opposed to natural) gender, morphosyntactically or phonologically determined stem alternations, suppletion) (chapter 4, esp. 95–96).

The second of these parameters, (poly)synthesis, can be seen as an elaboration of Comrie's (1989: 42–52) "index of synthesis". It has not yet received much specific attention within the FDG framework since the publication of Hengeveld & Mackenzie (2008), in which it is mentioned fairly briefly. An FDG treatment of noun incorporation is pursued in Smit (2005). Fortescue (2007) offers a characterization of polysynthesis as an alternative to Baker (1996); his approach is based on Dik's (1989) conceptualization of the relationship between the Fund and the grammar as conceptualized in FDG's predecessor Functional Grammar, but nevertheless contains the core of an FDG-based approach. Hengeveld and Mackenzie (2008: 302, 304–305) give the following example from Southern Tiwa as an illustration of a polysynthetic construction:

(11) Southern Tiwa
Te-shut-pe-ban
1SG.SBJ>PL.OBJ-shirt-make-PST
'I made (the) shirts.' (Tanoan; Allen et al. 1984: 293)

What makes this construction polysynthetic from the point of view of FDG is the occurrence of two distinct lexical items (*shut* 'shirt' and *pe* 'make') in one word. The pertinent interpersonal, representational and morphosyntactic representations of this noun-incorporation construction are given in (12) (slightly adapted from Hengeveld and Mackenzie 2008: 305) (lexical elements and units corresponding to them are bolded):

(12) IL $(A_I: [(F_I: \text{DECL } (F_I)) (P_I)_S (P_J)_A (C: [(\mathbf{T_I}) (R_I: [+S, -A] (R_I)) (\mathbf{R_J})] (C_I))] (A_I))$

RL $(\text{past ep}_i: (\text{sim e}_i: [(\text{f}^c_i: [(\text{f}_i: \boldsymbol{pe}_V (\text{f}_i)) (1\text{x}_i)_A (\text{mx}_j: (\text{f}_j: \boldsymbol{shut}_N (\text{f}_j)) (\text{x}_j))_U] (\text{f}^c_i)) (\text{e}_i)) (\text{ep}_i))$

ML $(\text{Le}_i: (\text{Cl}_i: (\text{Vp}_i: (\text{Vw}_i: [(\text{Aff}_i: \textit{te} (\text{Aff}_i)) (\text{Ns}_i: \boldsymbol{shut} (\text{Ns}_i)) (\text{Vs}_i: \boldsymbol{pe} (\text{Vs}_i)) (\text{Aff}_j: \textit{ban} (\text{Aff}_j))] (\text{Vw}_i)) (\text{Vp}_i)) (\text{Cl}_i)) (\text{Le}_i))$

At the Interpersonal Level (IL), the construction contains two Referential Subacts (one for the Speaker and one for 'shirt') and one Ascriptive Subact ('make'). At the Representational Level (RL), the construction contains the verbal lexical item *pe* 'make' and the nominal lexical item *shut* 'shirt', the latter occurring in the Undergoer argument to the Verbal Property. The polysynthetic nature of this noun-incorporation construction is represented at the Morphosyntactic Level (ML), because here we see that the representational configuration containing two independent lexical items maps onto one complex Word. This takes the form of a Linguistic expression (Le) containing a single Clause (Cl) which consists of a single Verb Phrase (Vp) which in turn contains a single Verbal Word (Vw). This Verbal

Word consists of an Affix (Aff_i) followed by a Nominal Stem (Ns), a Verbal Stem (Vs), and another Affix (Aff_j). What makes this verb polysynthetic for FDG is not the presence of four morphemes in one word or its holophrasis, but its lexical density, i.e. the presence in one Verbal Word of two lexical morphemes corresponding to distinct lexical items at RL and to distinct Subacts at IL. Note in particular that according to this approach pronominal argument affixes (in this case the portmanteau morpheme *te-*, which crossreferences both the Actor and the Undergoer) are not considered to contribute to the polysynthetic nature of the construction, since they do not correspond to lexical items at RL and are not encoded as lexical morphemes at ML. Thus, for FDG, polypersonalism does not contribute to polysynthesis.

A combination of high degrees of opacity with high degrees of (poly)synthesis as defined by FDG would then result in high degrees of morphological complexity. Hengeveld & Mackenzie (2008) discuss complexity mainly in the syntactic sense, i.e. as resulting from heaviness or constituent length, but it is clear that morphological complexity is a phenomenon in its own right. The term "complex" or "complexity" is often employed when discussing the nature of the polysynthetic word, but often includes notions relating to transparency as well. See for instance Dahl's (2004) notion of "non-linearity" for an approach to grammatical complexity mainly relying on (lack of) transparency; Dahl (2017) and Trudgill (2017) for a discussion of the relationship between polysynthesis and complexity; and Sadock (2017: esp. 100) for an approach to polysynthesis that explicitly includes low degrees of transparency as a feature contributing to polysynthesis, thus essentially equating polysynthesis with complexity.

According to Hengeveld and Mackenzie, polysynthetic languages are crucially characterized by: "(i) a lack of isomorphism between the Interpersonal and Representational Levels on the one hand and the Morphosyntactic Level on the other hand; (ii) internal layering of words" (2008: 305). Lexical density is further discussed in Sections 3.1 and 3.2, which deal with the classification of morphemes and the definition of lexical content respectively. Section 3.3 then briefly illustrates what is meant by lack of isomorphism between Formulation and Encoding levels and internal layering of words.

3.1 Lexical density and the classification of morphemes in FDG

Hengeveld and Mackenzie's reliance on (verbal) lexical density as the central defining characteristic of polysynthesis raises the question of what counts as a lexical morpheme. In Sections 2.4 and 2.6 above we saw that several authors distinguish independent lexemes (i.e. those that can also occur as the sole lexical element in a Verbal Word, as in independent noun incorporation or verb root serialization) from lexical affixes or non-root bound morphemes (i.e. morphemes with lexical content that cannot occur as the sole element in a Verbal Word). The approach to

morpheme classes in FDG is fairly radically different from that of most traditional and theoretical approaches to morphology, and it is precisely this difference that allows us to minimize the distinction between independent lexemes and lexical affixes such as Mattissen's non-root bound morphemes, De Reuse's Productive Noninflectional Concatenation and Fortescue's field affixes.

Hengeveld & Mackenzie (2008) recognize three main types of morphemes: Stems (Xs), Roots (Xr) and Affixes (Aff). While these are familiar terms, their FDG-specific definitions diverge rather sharply from what is usually found. We therefore consistently capitalize them when using them with their specific FDG definitions. For FDG, a Stem is defined as "a Morpheme with lexical content that may occur as the sole lexical component of a Word", a Root as "a Morpheme with lexical content, but one that may only occur in conjunction with another Root or Stem", and an Affix as "a Morpheme with grammatical content, [which] may occur in conjunction with a Stem" (Hengeveld & Mackenzie 2008: 404). This is summarized in Table 3.

Table 3. Morpheme types in FDG (adapted from Hengeveld & Mackenzie 2008: 404)

Morpheme	Lexical	Dependent	Must minimally combine with
Stem	+	–	–
Root	+	+	Root or Stem
Affix	–	+	Stem

According to Hengeveld & Mackenzie's definition given above, FDG only requires the presence of at least two morphemes with lexical content within a word for the language to qualify as minimally polysynthetic. It does not matter whether these morphemes are Stems or Roots (as long as one of them is a Verbal Stem (Vs) or Verbal Root (Vr); see below). Languages with lots of compounding, incorporation or serialization of elements that can also be used independently (FDG Stems) are not per se more or less polysynthetic than languages with lots of lexical affixation (FDG Roots). Incidentally, it also doesn't matter what type of Stems or Roots are involved. However, Hengeveld & Mackenzie's Tiwa example suggests, in agreement with virtually all other approaches, that polysynthesis is primarily about long verbs, and not about long nouns or other word classes (e.g. Mithun 1988; Dahl 2017: 23–4). In particular, it is not about the type of lexical compounding that creates complex Properties at RL. Lexical items such as Dutch *wasmachine* 'washing machine' and *zoet-zuur* 'sweet (and) sour' are complex heads which crucially express a single concept and together correspond to one Subact at IL; they are created in the lexicon rather than in the grammar (Hengeveld & Mackenzie 2008: 216). We can thus state that, for FDG, for a language to be minimally polysynthetic, it must have at least one word containing more than one lexical morpheme, at least one of which must be verbal, and the resulting structure must not be lexicalized.

3.2 What counts as "lexical content"?

So far, we have established that, for FDG as described in Hengeveld & Mackenzie (2008), (poly)synthesis is about verbal lexical density, and morphemes with "lexical content" are classified as Stems or Roots depending on their ability to occur as the single lexical element in a Word. The next question is what qualifies as lexical content, in particular in the case of what in other frameworks would be called derivational affixes. This is not a trivial question, nor is it a question only of interest to particular theoretical frameworks. It is even of relevance to frameworks which deny the existence of a lexicon per se, such as Distributed Morphology (see e.g. Lowenstamm 2015 and Creemers et al. 2017 on "root affixes"), or in which no fundamental distinction is made between grammar and lexicon, such as Construction Grammar (see in this context especially Rice 2017 on "phraseology").

As illustrated in Figure 1, which is a slightly simplified version of the one quoted by Keizer and Olbertz (this volume), the FDG Lexicon is part of a larger component called the Fund, which is the storehouse for primitives that feed the grammar component. In addition to a Lexicon, the Fund also contains a Structicon and a Grammaticon. The Structicon contains structural elements to feed all four levels of the grammar: interpersonal and representational frames, and morphosyntactic and phonological templates. The Grammaticon contains grammatical elements specific to all four levels as well, called operators and functions. The Lexicon contains lexemes, grammatical morphemes, and suppletive forms (Genee et al. 2016; O'Neill 2014).

From the discussion of morpheme types in Section 3.1 above it will be clear that grammatical morphemes and suppletive forms (as well as the placeholders that represent them at higher levels of representation) do not have lexical content in the sense intended here. "Lexical content" in the sense intended here means "corresponding to a lexeme". Lexemes are introduced at the Interpersonal or Representational Level and are represented by a ♦ symbol in formalizations. Lexemes which only have pragmatic content, such as exclamations ("*wow!*", "*ouch!*"), and proper names, are introduced at IL, but all others are introduced at RL.

Importantly, this approach means that some of the affixes considered to be "lexically heavy" by authors such as Mattissen (2004) and Fortescue (1994) would not be included in the characterization of (poly)synthesis in cases where they can be shown to be the expression of higher level functions and operators rather than lexemes. In such cases, they would be considered purely grammatical in FDG terms: they are Affixes, not Roots. Consider the list of potential "lexically heavy" morphemes given by Mattissen (2004: 190–191): "event or participant classification and quantification, setting (e.g. 'in the night'), location or direction, motion, instrument (e.g. 'by hand'), manner ('by pulling', 'quickly'), modality (including evidentiality), degree, scale ('only', 'also'), and focus, chronology (e.g. 'first', 'again'),

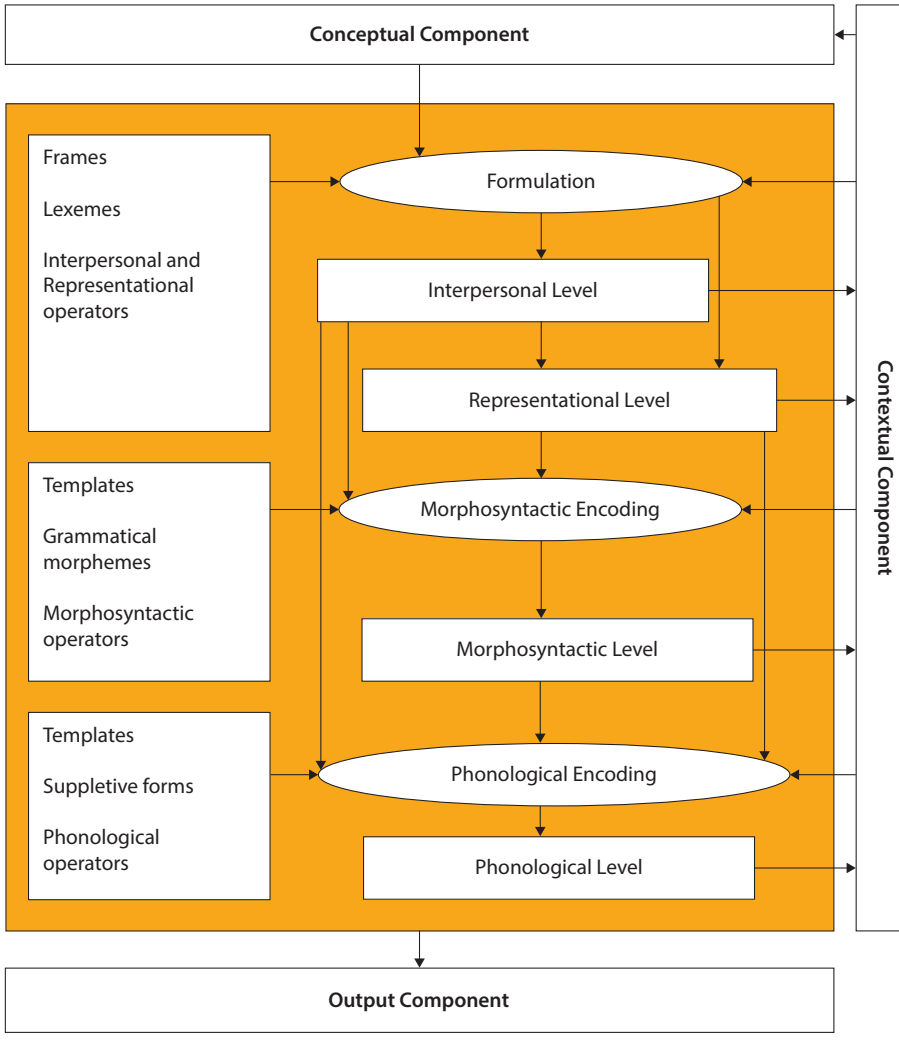

Figure 1. General layout of FDG (based on Hengeveld & Mackenzie 2008: 13)

as well as the usual categories, valence, voice, central participants, tense, aspect (phase), mood, and polarity". While languages can obviously differ on whether a specific concept is expressed lexically or grammatically, it is probably safe to say that some of the elements in this list are non-lexical in most languages, i.e. the expression of operators or functions rather than lexemes. In particular the last ones (valence, voice, tense, aspect, mood and polarity) are usually analyzed as expressions of operators, and in many languages the same can be said for event and participant classification and quantification, and modality. Focus is a part

of the set of pragmatic functions in FDG, and hence morphemes expressing this dimension are also considered to be Affixes.

Conversely, some morphemes usually considered to be derivational affixes would not be analyzed as Affixes in the FDG sense, but would instead be Roots, on the basis of their lexical content. An example is the treatment of causativizers. While it is possible that causativizers in some languages are no more than markers of an increase in valency, in Genee (2016) I have argued that the Blackfoot causativizer *áttsi* is not a derivational affix but a verbal lexeme that receives encoding as a Verbal Root (Vr) – it is a perfect example of Mattissen's "non-root bound morphemes with rather "lexical" meaning". The expression in (13) is analyzed as an instance of Event serialization as represented in (14) (lexical elements and units corresponding to them are bolded):

(13) Blackfoot
nitá'po'takiáttsaawa
nit-a'po'taki-áttsi-aa-wa
1-work.AI-cause.TA-DIR-3SG
'I made him/her work'
(Frantz & Russell 1995 s.v. *áttsi*; cited in Genee 2016: 1086)

(14) IL $(A_I: [(F_I: DECL\ (F_I))\ (P_I)_S\ (P_J)_A$
$(C: [(\mathbf{T_I})\ (\mathbf{T_J})\ (R_I: [+S, -A]\ (R_I))\ (R_J: [-S, -A]\ (R_J))]\ (C_I))]$
$(A_I))$
RL $(ep_i: [(e_i: [[(f^c{}_i: [f_i: \mathbf{\textit{áttsi}}_{TA}\ (f_i))\ (x_i)_A\ (x_j)_U]\ (f^c{}_i))\ (e_i)])$
$(e_j: [[(f^c{}_j: [f_j: \mathbf{\textit{a'po'taki}}_{AI}\ (f_j))\ (x_j)_A]\ (f^c{}_j))\ (e_j)])_{Res}]$
$(ep_i))$
ML $(Le_i: (Cl_i: (Vp_i:$
$(Vw_i: [(Aff_i: \textit{nit-}\ (Aff_i))\ (^{AI}Vs_i: \mathbf{\textit{a'po'taki}}\ (Vs_i))\ (^{TA}Vr_i: \textit{-}\mathbf{\textit{áttsi}}\ (Vr_i))$
$(Aff_j: \textit{-aa}\ (Aff_j))\ (Aff_k: \textit{-wa}\ (Aff_k))]$
$(Vw_i))\ (Vp_i))\ (Cl_i))\ (Le_i))$

At IL, this construction contains two Referential Subacts (one for 'I' and one for 'him/her') and two Ascriptive Subacts (one for 'make/cause' and one for 'work'). At RL, it contains the two verbal Lexical Properties *áttsi* 'make/cause' and *a'po'taki* 'work'.[2] Each forms its own State-of-Affairs (e), and the two States-of-Affairs together constitute a complex Episode; the second Event ('work') is marked with the function

2. Ignore the fact that *a'po'taki* can be split into the elements *a'po't-* 'work' (a verb root) and *-aki* AI (a so-called 'abstract final'), and that there is additional evidence that, historically, the pre-final part of the stem consists of *a'p-o't-*; this evidence includes the fact that the durative/imperfective marker *á-*, which normally follows person prefixes but precedes the main verb stem, will appear after *a'p-* in all verbs stem that contain it. For details of the internal structure of this and similar stems see Genee (2013, 2016) and Frantz (2017: 36).

Res(ult) and its Actor argument $(x_j)_A$ is coreferential with the Undergoer argument $(x_j)_U$ in the first Event. At ML this configuration maps onto one complex Verbal Word (Vw) consisting of the Affix *nit-* expressing the Speaker, the Animate Intransitive Verbal Stem *a'po'taki*, the Transitive Animate Verb Root *-áttsi*, the Direction Affix *-aa*, and an Affix *-wa* expressing the non-local participant.[3] As in example (11) from Southern Tiwa given above, what makes this construction polysynthetic is the presence of two lexical morphemes corresponding to distinct Lexemes inside the word, viz. the Vs *a'po'taki* 'work' and the Vr *-áttsi* 'make, cause'. The other three morphemes do not count towards the polysynthethic nature of this construction.

This raises another important issue, namely the problematic nature of the boundary between lexical and grammatical. As a functional theory, FDG of course recognizes that categorization is scalar rather than discrete, and that grammaticalization processes involve elements gradually becoming less lexical and more grammatical (Keizer 2007; Olbertz 2016). The gradual nature of diachronic grammaticalization processes as the combination of loss of lexical properties with accumulation of grammatical properties is well described in a large body of literature (e.g. Heine & Kuteva 2002; Bybee et al. 1994; Hopper & Traugott 1993). The question is what this means for the synchronic analysis of a grammaticalizing element. Within the FDG framework, each specific instantiation of the actual use of a grammaticalizing item can be analyzed as falling either on the lexical or grammatical side of the divide: the crucial turning point is whether a fuzzy item is better represented as an operator or function rather than a lexeme. As long as it is better represented as a lexeme, even one with reduced lexical properties, such as loss of pragmatic freedom, semantic bleaching, increased co-occurrence restrictions, and phonetic reduction (Keizer 2007: 40–41), it is essentially lexical; once it has become so lexically reduced that it is better represented as a function or operator, it is essentially grammatical.

3.3 Anisomorphism and word-internal layering

Hengeveld & Mackenzie state that polysynthetic languages are characterized by "a lack of isomorphism between the Interpersonal and Representational Levels on the one hand and the Morphosyntactic Level on the other hand" and "internal layering of words" (2008: 305).

Lack of isomorphism as intended here means a many-to-one mapping of units created by the formulator (IL and RL) to the Word unit at ML (and PL). Perfect isomorphism would mean that each unit from IL would map onto exactly one unit

3. This representation is significantly simplified in order to focus only on the difference between Stems, Roots and Affixes in the composition of this Verbal Word.

at RL, ML and PL. For example, a Referential Subact (R) at IL maps onto an Individual (x) at RL, a Noun phrase (Np) at ML, and a Phonological Phrase (PP) at PL; an Ascriptive Subact (T) at IL maps onto a Property (f) at RL, a Verbal Word (Vw) at ML, and a Phonological Word (PW) at PL. The examples from Southern Tiwa and Blackfoot given in Section 3.2 above show that, in polysynthetic languages, units created at IL and RL typically map onto word-internal components rather than onto Verbal Words or Phrases at ML.[4] For instance, the Southern Tiwa example given in (11) above contains lexical morphemes corresponding to an Ascriptive Subact plus a Referential Subact at IL, and to a verbal plus a nominal Lexical Property at RL, as represented in (12).

Internal layering of words as intended here means that words can contain not just morphemes, but also other words and units larger than a word, such as Phrases and Clauses (Hengeveld & Mackenzie 2008: 400), corresponding to what Dahl (2017) calls "structural complexity". This can be seen as word-internal subordination (Hengeveld & Mackenzie 2008: 414–416). The basic template for Words is given in (15):

(15) (Xw_1: [(Xm) (Xw) (Xp) (Cl)] (Xw_1))

In non-polysynthetic languages words contain only morphemes. An example of Clause incorporation is found in (5), repeated here as (16). For FDG, a Clause is any "grouping of one or more Phrases characterized, to a greater or lesser extent, by a template for the ordering of those Phrases and, also to a greater or lesser extent, by morphological expressions of connectedness (notably government and agreement)" (Hengeveld & Mackenzie 2008: 293). The sequence *qora-garke* 'deer-hunt' is analyzed as a Clause in FDG terms, because it consists of a Np and a Vp which are ordered according to a specific template (Hengeveld & Mackenzie 2008: 416).

(16) Chukchi
Anko mat-mec-[*qora-garke*]*-platko-mak*
then 1PL.SBJ-almost-[deer-hunt]-finish-AOR.1PL
'Then we almost finished [hunting reindeer].'
(Chukotko-Kamchatkan; Spencer 1995: 459; cited in Mattissen 2004: 203)

4. A new approach to polysynthesis

In this section I show how we can refine the existing FDG approach to synthesis by proposing a set of parameters which characterize an individual language or construction as more or less polysynthetic. Each parameter is formulated as a

4. For reasons of space I am omitting the Phonological Level from further discussion.

continuum with discrete points and should be interpreted as an implicational hierarchy with the existence of a construction belonging to a specific point implying all points to the left. A language or construction on the highest end of the continuum is maximally polysynthetic, and a language or construction on the lowest end of the continuum is maximally analytic. As far as I am aware, this is the first attempt to formulate such a systematic quantitative typology. Mattissen (2004, 2017) is the only other attempt of which I am aware to propose a systematic classification. However, as mentioned in Section 2.7 above, Mattissen does not attempt to quantify or measure polysynthesis in the sense of locating languages and constructions on a hierarchy from more to less polysynthetic; her classification is rather an inventory of types, with two intersecting parameters resulting in four basic types and several mixed or borderline types. See Fortescue 2017 for an attempt to determine the upper boundaries of polysynthesis within Mattissen's basic classification.

4.1 Verbal lexical density

Verbal lexical density is about the number and type of morphemes with lexical content that can occur within a single Verbal Word. It is the only parameter allowing for straightforward numerical quantification in that we can simply count the number of relevant morphemes or morpheme types (ignoring, of course, the often thorny matter of deciding with certainty which morphemes are lexical and which are grammatical, as discussed briefly in Section 3.3 above). We can distinguish two subparameters: quantitative verbal lexical density (number of lexical morphemes) and qualitative verbal lexical density (number of *types* of lexical morphemes):

> Parameter 1a. Quantitative verbal lexical density
> A construction/language that contains/allows a larger number of lexical morphemes (Roots and Stems) within one morphosyntactic Verbal Word (Vw) is more polysynthetic than a construction/language that contains/allows a smaller number of lexical morphemes per morphosyntactic Verbal Word. A language on the extreme left hand side of this continuum would not have any Verbal Roots in the FDG sense (i.e. Mattissen's non-root bound morphemes). The upper boundary of this continuum cannot be determined, as scope-ordered languages in Mattissen's sense could in principle always recursively add another component if the semantics allow for it.
>
> *Number of lexical morphemes per Verbal Word*
> Analytic >> (Poly)synthetic
> 1 > 2 > 3 > 4 > 5 > 6 > 7 ……

Parameter 1b. Qualitative verbal lexical density
A construction/language that contains/allows a larger number of different *types* of lexical morphemes within one morphosyntactic Verbal Word (Vw) in more distinct combinations is more polysynthetic than a construction/language that allows fewer different lexical morpheme types and/or fewer combinations. Morpheme types include Roots and Stems corresponding to all lexical categories (such as nouns, verbs, adjectives, etc.) relevant to the language under consideration. A language on the extreme left hand side of this continuum would again not have any Verbal Roots in the FDG sense: each Vw contains exactly one Vs. The theoretical upper boundary of this continuum is determined by the number of different lexical categories available in the language under consideration.

Types of lexical morphemes per Verbal Word
Analytic >> (Poly)synthetic
(Vw: [(Vs)]) > (Vw: [(Ns) (Vs) (As) (Nr) (Vr) (Ar)]

Some examples are given to illustrate how a construction would be scored on these two parameters:

(17) Inuktitut
sinnatuuma-ju-ujaa-raalut-tu-ujaa-nirar-ta-u-qat-ta-lau-runnair-nira-laur-tu=ugaluaq
dream-INTR.PRTCP-look.like-much-INTR.PTCP-look.like-say.that-PASS.PTCP-be-DUR-PST-not.anymore-say.that-PST-3SG.IND=however
'However, he said that it was not unusual anymore for him to be said to look like somebody who looks a lot like one who is dreaming'
(Eskaleut; Dorais 2017: 135)
(Vw: [(Vs)..(Vr) (Ar)..(Vr) (Vr).. (Vr).. (Ar) (Vr)..])
Quantitative density = 8; Qualitative density = 3

(18) Innu
uitshikapeueu *ne* *ishkueu*
wi:ci-ka:pe:w-e:-w ne iškwe:w
like-coffee-FIN.AI-3IDP DEM woman.AN
'This woman is a coffee-addict.' (Algonquian; Drapeau 2017: 569)
(Vw: [(Vs) (Ns)] …)
Quantitive density = 2; Qualitative density = 2

(19) Mapudungun
Ina-mara-le-i *tachi* *pu* *trewa*
chase-hare-PROG-IND ART PL dog
'The dogs are chasing hares.' (isolate; Salas 2006: 179; cited in Zúñiga 2017: 703)
(Vw: [(Vs) (Ns)] …)
Quantitive density = 2; Qualitative density = 2

(20) Mapudungun
Adkintu-we-ngilla-n-mansun-kiyaw-i
watch-newly-buy-PTCP-OX-PERAMB-IND
'He is going around looking after newly bought oxen.'
(isolate; Harmelink 1992: 133; cited in Zúñiga 2017: 705)
(Vw: [(Vs) (As) (Vs)..(Ns)..])
Quantitative density = 4; Qualitative density = 3

(21) Mapudungun
Kalli-küpa-pe
allow-come-3SBJ
'Let him (be allowed to) come!' (isolate; Zúñiga 2017: 706)
(Vw: [(Vr) (Vs)] …)
Quantitive density = 2; Qualitative density = 2

4.2 Anisomorphism between Formulation and Encoding levels

As discussed in Section 3.3, anisomorphism between Formulation and Encoding levels concerns the type and size of interpersonal or representational units that may be incorporated within a verbal Word. Units corresponding to higher levels, and higher layers within those levels, contribute to higher degrees of polysynthesis than units corresponding to lower levels and layers. The relevant levels and layers are given in (22) below. (Note that these schemata are significantly simplified in order to be able to focus on the most important distinctions. In particular, positions for operators, functions and modifiers are omitted. Units marked with an asterisk * may occur more than once.)

(22) IL $(M_1: (A_1{*}:[(F_1)\ (P_1)_S\ (P_2)_A\ (C_1: [(T_1)^*\ (R_1)^*]\ (C_1))]\ (A_1))\ (M1))$
RL $(p_1: (ep_1{*}: (e_1{*}: (f^c{}_1{*}: [(f_1)^*\ (x_1)^*]\ (f^c{}_1))\ (e_1))\ (ep_1))\ (p_1))$

At IL, the relevant layers are the Move (M), Discourse Act (A), Illocution (F), Speech Act Participants (Speaker ($(P_1)_S$) and Addressee ($(P_2)_A$)), Communicated Content (C), and Ascriptive (T) and Referential (R) Subacts. At RL, the relevant layers are the Propositional Content (p), Episode (ep), State-of-Affairs (e), Situational Concept or Configurational Property (f^c), Lexical Property (f) and Individual (x).

We will again split this parameter into two subparameters: anisomophism between IL and ML and anisomorphism between RL and ML.

> Parameter 2a. Anisomorphism between IL and ML
> A construction/language that contains/allows morphosyntactic units corresponding to higher interpersonal layers within one morphosyntactic Verbal Word is more polysynthetic than a construction/language that contains/allows morphosyntactic units corresponding to lower interpersonal layers or that does not allow interpersonal units to be incorporated at all.

Maximum size of IL layer incorporated into ML Verbal Word

Analytic >> (Poly)synthetic

None > R/T > C > A > M

Parameter 2b. Anisomorphism between RL and ML

A construction/language that contains/allows morphosyntactic units corresponding to higher representational layers within one Verbal Word is more polysynthetic than a construction/language that allows morphosyntactic units corresponding to lower representational layers or that does not allow representational layers to be incorporated at all.

Maximum size of RL layer incorporated into ML Verbal Word

Analytic >> (Poly)synthetic

None > f > x > f^c > e > ep > p

On both these parameters, a construction as in example (1), repeated here as (23), would score high, because complements of *verba dicendi* (the bracketed constituent) correspond to (at least) a Communicated Content (C) at IL and to a Propositional Content (p) at RL.

(23) West Greenlandic
[*Aliikusersuillammassuaa*]*nerartassagaluarpaalli*.
[aliiku-sersu-i-llammas-sua-a]-nerar-ta-ssa-galuar-paal-li
[entertainment-provide-SEMITRANS-one.good.at-COP]-say.
that-REP-FUT-sure.but-3PL.SBJ/3SG.OBJ-but
'However, they will say [that he is a great entertainer], but…'
(Eskaleut; Fortescue 1983: 97, cited in Evans & Sasse 2002: 3)[5]

In the case of noun incorporation, the question boils down to whether the incorporated noun is referential or not, and whether it corresponds to an entity or not: if it is referential, it corresponds to a Referential Subact (R), if it is not, it has no corresponding unit at IL. Smit (2005) presents a re-analysis in FDG terms of Mithun's (1984) typology of deliberate noun incorporation (NI). Smit distinguishes three main types of NI: ^{f}NI (incorporation of a predicate noun designating a Property), ^{x}NI (incorporation of a non-referential noun designating an Individual) and ^{R}NI (incorporation of a referential entity).

5. Fortescue (2007: 6) characterizes this kind of word-internal layering as resulting from "processes in the Fund 'dipping down' to already partially specified structures further down in the layered structure of the clause, and drawing them back before sending them down the 'conveyor belt' for complete inflectional specification in the final expression rule stage." Because Fortescue assumes, following Dik (1989), that word-formation takes place in the Fund, he has to allow for interactions between the Fund and the grammar which are not needed in FDG, where morphosyntactic Words may also be generated by the grammar.

Crucial properties of Referential Subacts include that they can be anaphorically referred to, as in (24), in which the incorporated noun *nakt* 'bed' corresponds to a Referential Subact (^{R}NI):

(24) Mohawk
Thetʌre' *wa'-ke-nakt-a-hnínu-'.* *Í-k-her-e'* *Uwári*
yesterday FACT-1SG.SBJ-bed-ø-buy-PUNC ø-1SG.SBJ-think-IMPF Mary
ʌ-ye-núhwe'-ne'
FUT-F.SG.SBJ-like-PUNC
'Yesterday I bought a bed. I think Mary will like it.'
(Iroquioan; Baker 1988: 288; cited in Smit 2005: 115)

The representation of the Southern Tiwa example in (11) given in (12) above implies a similar situation, with full referentiality for the incorporated noun *shut* 'shirt'.

Smit (2005: 124) analyzes constructions involving possessor raising with inalienable possession (body parts, kinship terms) such as (25) as "non-referential term incorporation". He does not test the non-referentiality of the incorporated noun *ʔnyukwal* 'snout', but argues that it designates an entity (x) at RL without being able to be independently referred to. The only referential entities in the construction are the pig and the speaker. If this analysis is correct, this would be an example of ^{x}NI:

(25) Mohawk
kwískwis *y-a^{ʔ}-t-ho-ʔnyukwal-íhsta-ʔ*
pig TRS-AOR-DPL-3M.3M-snout-grab-PUNC
'He snout-grabbed the pig' > 'He grabbed the pig's snout'
(Iroquioan; Rosen 1989: 301; cited in Smit 2005: 124)

Finally, the incorporated noun *mitmit* 'knife' in (26) functions as a "qualifier" in an "intransitive, de-actualized State-of-Affairs" (Smit 2005: 104); it is neither referential nor does it designate an actual entity. It is a case of Property incorporation (^{f}NI):

(26) Kusaiean
Nga *twetwe-mitmit-lah.*
1SG sharpen-knife-PRS.PRF
'I have knife-sharpened.' (Austronesian; Lee 1975: 217; cited in Smit 2005: 105)

Thus, (24) ranks highest on this parameters, incorporating a (C) at IL and a (p) at RL. (25) is second, incorporating no unit at IL and an (x) at RL. (26) ranks lowest, incorporating no unit at IL and an (f) at RL.

In the case of verb incorporation (verb serialization), the question boils down to whether each verbal element corresponds to a separate Ascriptive Subact (T) or not, and whether each represents its own Property or whether they together constitute a complex Property. The serializing constructions in (27) contain only one Ascriptive Subact, and thus do not incorporate any IL unit at all. Zúñiga's description of these

examples suggests that they also represent only one Configurational Property (f^c) rather than two separate Properties: while the elements *püra* 'ascend' and *nag* 'descend' "freely combine with verbs denoting motion or physical activities", they usually "agree in valency with the verb expressing the concurrent activity", and *nag* 'descend' also occurs in quasi-lexicalized stems with non-compositional meanings (706–707). (27) would thus score low on both these parameters, because the two serialized verbs do not correspond to two Ascriptive Subacts at IL, nor do they correspond to two independent Configurational Properties at RL.

(27) Mapudungun
a. *anü-püra-i.*
sit-ascend-IND
'He sat up.'
b. *anü-nag-i.*
sit-descend-IND
'He sat down.' (isolate; Zúñiga 2017: 706–7)

In comparison, consider again example (13) above, repeated here as (28). Assuming the analysis of this example as event serialization as given in (14), this construction contains units corresponding to two separate States-of-Affairs (e) in FDG terms.

(28) Blackfoot
nitá'po'takiáttsaawa
nit-a'po'taki-áttsi-aa-wa
1-work.AI-cause.TA-DIR-3SG
'I made him/her work'
(Frantz & Russell 1995 s.v. *áttsi*; cited in Genee 2016: 1086)

Finally, Mapudungun offers an example of an incorporated Propositional Content (p) in (29):

(29) Mapudungun
Rume-weda-feye-l-n.
[very-bad]-believe-APPL-1SG.IND
'I believe him to be very bad.'
(isolate; Hernández et al. 2006: 135; cited in Zúñiga 2017: 709)

4.3 Internal layering within the Word

As discussed in Section 3.3, word-internal layering concerns the type and size of morphosyntactic units that may be incorporated within a Word. Units containing higher layers contribute to higher levels of polysynthesis than those containing lower layers. The relevant template was given in (15) above and is repeated here as (30).

(30) (Vw_1: [(Xm) (Xw) (Xp) (Cl)] (Xw_1))

Words in non-polysynthetic languages contain only morphemes, while words in polysynthetic languages may also contain other words, phrases, and clauses.

> Parameter 3. Word-internal layering
> A construction/language that allows higher morphosyntactic units (Clauses, Phrases and Words) within one morphosyntactic Verbal Word is more polysynthetic than a construction/language that allows lower units or that does not allow units above the Morpheme to appear inside a Verbal Word at all.
>
> *Maximum size of ML layer incorporated into ML Verbal Word*
> Analytic >> (Poly)synthetic
> Xm > Xw > Xp > Cl > (Le)[6]

An example was given in (16) above. As explained in Section 3.3, under the analysis of this construction as given in Hengeveld & Mackenzie (2008: 416), this is an example of a word-internal Clause.

Another example of phrase-level incorporation comes from Mapudungun, which has limited abilities to incorporate syntactically complex Nps. This is shown in (20) above, repeated here as (31), with the complex Np 'newly bought oxen' marked in brackets:

(31) Mapudungun
Adkintu-we-ngilla-n-mansun-kiyaw-i
watch-[newly-buy-PTCP-OX]-PERAMB-IND
'He is going around looking after newly bought oxen.'
(isolate; Harmelink 1992: 133; cited in Zúñiga 2017: 705)

Zúñiga mentions that such incorporated Np's can "can include adjectives (or participles, like *ngilla-n* 'bought' […]) and even adverbs (like *we* 'newly'), but they cannot include numerals, demonstratives, or articles" (2017: 705). This suggests that these kinds of Np's are not referential (do not correspond to a Referential Subact at IL) and are also not fully specified entities (do not correspond to an Individual that is fully quantifiable and located in space at RL).

6. The highest layer at ML is the Linguistic Expression (Le), defined as "any set of at least one unit" (Hengeveld & Mackenzie 2008: 292). Word-internal Lexical Expressions would be relevant if it could be shows that there are languages that allow multiple non-hierarchically conjoined Clauses or Phrases within one morphosyntactic Word.

4.4 Alignment

Alignment refers to "the way in which non-hierarchically related pragmatic and semantic units map onto morphosyntactic ones" (Hengeveld & Mackenzie 2008: 316). This applies for instance to the expression and placement of arguments. It is usually thought of as applying at the layer of the clause, but also applies at the phrasal layer and, importantly for our discussion, at the layer of the word. FDG recognizes three main alignment types: interpersonal, representational, and morphosyntactic. Syntactic functions (such as Subject and Object) are recognized only if it can be shown for the language under consideration that "the formal properties of linguistic units cannot be reduced to the pragmatic and semantic categories and functions underlying them" (Hengeveld & Mackenzie 2008: 316). For example, in a language like Cree all the formal aspects of the expression of verbal arguments can be accounted for by reference to notions of topicality (IL), animacy, and person (RL), obviating the need to posit functions like Subject and Object at ML (Wolvengrey 2005; Hengeveld & Mackenzie 2008: 321–323).

For polysynthetic languages, alignment factors determine what kinds of arguments and modifiers may or must be incorporated into a word (Hengeveld & Mackenzie 2008: 406). As with clausal alignment, these factors may be pragmatic (e.g. referentiality or topicality), semantic (e.g. animacy or agency) or morphosyntactic (e.g. subjecthood or heaviness). The fewer such restrictions there are, the more different types of units can be incorporated.

> Parameter 4. Alignment restrictions/requirements
> A construction/language that has fewer morphosyntactic, representational, and interpersonal conditions on the type of unit that may be expressed inside a morphosyntactic Verbal Word is more polysynthetic than a construction/language that has more such conditions. Conversely, a construction/language that has more morphosyntactic, representational, and interpersonal conditions requiring specific types of units to be expressed inside the morphosyntactic Verbal Word is more polysynthetic than a construction/language that has fewer such requirements.

Alignment restrictions/requirements

Analytic	>>			(Poly)synthetic
More restrictions	>	Few restrictions	>	No restrictions
No requirements	>	Few requirements	>	More requirements

As Hengeveld & Mackenzie (2008: 407–408) show in detail, Southern Tiwa provides many examples of representational (semantic) and interpersonal (pragmatic) alignment conditions, some of which are illustrated in (32)–(33): inanimate Objects must be incorporated (19a–b) (representational: animacy), while Objects headed

by a proper name cannot be incorporated (20a–b) (interpersonal: inherent referentiality and identifiability) (see Fortescue 2007: 13, 18 for comparable requirements in Koyukon (Athabascan)).

(32) Southern Tiwa
a. *Te-**shut**-pe-ban*
1SG.SBJ>PL.OBJ-**shirt**-make-PST
'I made (the) **shirts**.'
b. ****Shut*** *te-pe-ban*
shirt 1SG.SBJ>PL.OBJ-make-PST (Allen et al. 1984: 293)

(33) Southern Tiwa
a. **Ti-**Jesse**-mũ-ban*
1SG.SBJ>SG.OBJ-**Jesse**-see-PST
'I saw **Jesse**.'
b. ***Jesse*** *ti-mũ-ban*
Jesse 1SG.SBJ>SG.OBJ-see-PST (Allen et al. 1984: 301)

Other examples are easy to find and would include the many languages in which only body part nouns are easily incorporated (representational: inalienable possession) or languages in which the incorporated noun must be the verb's Undergoer (representational: semantic function) or Object (morphosyntactic: syntactic function).

4.5 Optionality

This final parameter is implied by parameter 4, but it bears expression in more general terms. Polysynthetic languages usually have both synthetic and analytic ways to express the same event. Such a situation is described in detail by Mithun's (1984) discussion of deliberate noun incorporation, which describes several mostly pragmatic factors promoting incorporation (see also Fortescue et al. 2017b: 3). A treatment of the same facts in FDG terms is provided in Smit (2005). For our purposes, we extend this to other forms of synthetic expression to claim that a language that has a choice between analytic and synthetic expression of an event is less polysynthetic than a language that only allows a synthetic construction.

> Parameter 5. Optionality
> A language that allows the same semantic/pragmatic configuration to be expressed both synthetically and analytically is less polysynthetic than a language that must express the event synthetically. A language that does have both a synthetic and an analytic expression for the same configuration is more polysynthetic the more conditions there are on the analytic construction, or the fewer conditions there are on the synthetic construction.

Optionality

Analytic	>>			(Poly)synthetic
No synthetic construction available	>	Analytic constr. default Conditions on synthetic construction	>	Synthetic constr. default Conditions on analytic construction	>	No analytic construction available

5. Discussion and conclusion

The parameters proposed in Section 4 are summarized in Table 4.

Table 4. FDG-based polysynthesis parameters

Parameter	Less polysynthetic, more analytic	More polysynthetic, less analytic
1a. Verbal lexical density: quantitative	Fewer lexical morphemes per Word	More lexical morphemes per Word
1b. Verbal lexical density: qualitative	Fewer types of lexical morphemes per Word	More types of lexical morphemes per Word
2a. Anisomorphism between IL and ML	Morphosyntactic units corresponding to lower (or no) IL layers in the Word	Morphosyntactic units corresponding to higher RL layers in the Word
2b. Anisomorphism between RL and ML	Morphosyntactic units corresponding to lower (or no) RL layers in the Word	Morphosyntactic units corresponding to higher RL layers in the Word
3. Word-internal layering	Lower morphosyntactic units within one Word	Higher morphosyntactic layers (Le, Cl, Xp, Xw) within one Word
4. Alignment	More restrictions, fewer requirements	Fewer restrictions, more requirements
5. Optionality	No synthetic alternative	No analytic alternative

A scalar classification such as the one proposed here provides a quantitative typology that can be used in combination with Mattissen's qualitative typology to characterize individual languages in terms of how polysynthetic they are, as suggested by Fortescue: "rather than stating that a language X simply is or is not polysynthetic, one should say something like: 'X is a highly/mildly polysynthetic language of the predominantly compounding or affixal (and scopal or templatic) type – with or without any qualifications" (2017: 127). According to the quantitative typology proposed here, the most polysynthetic language would be the one that has the greatest number of morphosyntactic Verbal Words with the largest numbers and types of lexical morphemes, word-internal units corresponding to the highest interpersonal, representational and morphosyntactic layers, no restrictions on what can be expressed word-internally, and no analytic alternatives for its synthetic constructions.

While it would be tempting to conclude this chapter by making suggestions for which types of language or language families would qualify as highly, moderately, mildly or minimally polysynthetic, as suggested by an anonymous reviewer, I will leave the classification of individual languages for future work. A proper assessment of an individual language on all parameters requires very detailed grammatical description of a type that is not always readily available. To give just one example: grammars of polysynthetic languages will usually indicate what *can* be incorporated, but not what *must* be incorporated, and when there are analytic and synthetic alternatives a grammar will often not describe in enough detail for our purposes what conditions the variation.

As an illustration of what would be involved in the full assessment of a specific construction, consider again examples (23) and (32), repeated here as (34) and (35), now with tentative analyses:

(34) West Greenlandic
[*Aliikusersuillammassuaa*]*nerartassagaluarpaalli*.
[aliiku-sersu-i-llammas-sua-a]-nerar-ta-ssa-galuar-paal-li
[entertainment-provide-SEMITRANS-one.good.at-COP]-say.
that-REP-FUT-sure.but-3PL.SBJ/3SG.OBJ-but
'However, they will say [that he is a great entertainer], but…'
(Eskaleut; Fortescue 1983: 97, cited in Evans & Sasse 2002: 3)

1. a. Quantitative density: 4 (?) (*aliiku-, sersu-, llammas-, sua*)
   b. Qualitative density: 3 (?) (Ns, Vr (x2), Nr)
2. a. IL word-internal unit: Communicated Content
   b. RL word-internal unit: Proposition
3. ML word-internal unit: Clause
4. Alignment condition: ??
5. Optionality: ??

(35) Southern Tiwa
a. *Te-shut-pe-ban*
1SG.SBJ>PL.OBJ-shirt-make-PST
'I made (the) shirts.'
b. **Shut te-pe-ban*
shirt 1SG.SBJ>PL.OBJ-make-PST (Allen et al. 1984: 293)

1. a. Quantitative density: 2 (*shut, pe*)
   b. Qualitative density: 2 (Ns, Vs)
2. a. IL word-internal unit: n/a
   b. RL word-internal unit: Individual (x)
3. ML word-internal unit: Nominal Stem
4. Alignment condition: animacy
5. Optionality: obligatory

Closer inspection of the proposed parameters will likely reveal dependencies. For instance, we would expect that a language that allows higher word-internal IL (2a) units would also allow higher RL (2b) and ML (3) units. Similarly, one would expect that a language allowing higher word-internal IL, RL and ML units would also score higher on both quantitative (1a) and qualitative (1b) verbal lexical density. The dependence between parameters 4 and 5 was already mentioned above. Further investigation of such interactions may result in a smaller set of macro-parameters of which these are subparameters, and/or of implicational relations between individual parameters along the lines of the implications shown for transparency features in Hengeveld (2011b; see also Leufkens 2015: 42–53).

A scalar classification like the one proposed here allows for the formulation of hypotheses in the form of implicational hierarchies, both in terms of what occurs in a particular language synchronically, and what directions diachronic developments might take. For example, one would expect a language that allows the incorporation of representational units corresponding to a State-of-Affairs (e) to also allow incorporation of representational units corresponding to a the lower layers of the Configurational Property (f^c), Individual (x) and Property (f) (see Fortescue 2007: 22). Similarly, one would expect a language on the path toward polysynthesis to first allow word-internal units corresponding to lower semantic layers (f, x), before developing the possibility to allow higher layers (f^c, e, ep, p); and one would expect a language on the path toward analysis to first lose the ability to incorporate higher word-internal layers before losing the ability to incorporate lower layers.

As Mithun has said, "[t]ypological features are more interesting if they correlate with other features" (2009: 15). In particular, it would be interesting to see what this typology allows us to predict or explain in terms of historical development, contact situations, learnability, and correlation with other linguistics characteristics (Fortescue, Mithun & Evans 2017b). Leufkens (2015: 42–48) notes with regard to transparency, that, all things being equal, languages as well as their speakers acquire transparent structures before more opaque structures. Quoting work by Lupyan & Dale (2010) and Kusters (2003) she presents evidence for the association of transparency with language contact and large numbers of L2 speakers, while opacity is associated with "esoteric communities, that is, communities with little language contact" (Leufkens 2015: 44); as expected, contact languages such as creoles are characterized by a high degree of transparency (Leufkens 2013).

While it is not possible to examine these issues in detail here, some intriguing suggestions are made in the recent literature.

With regard to historical development, Fortescue (2007: 21) suggests some diagnostics for distinguishing between "older" and "newer" polysynthesis. Fortescue's (2007) comments regarding the grammaticalization of morpheme types that

accompanies the development of polysynthesis – "a […] pathway leading from lexical stem > incorporate > lexical affix > grammatical affix" – can be restated in FDG terms as the expectation that Stems develop into Roots which develop into Affixes. Givón's (2017) discussion of diachronic pathways towards complex verbs in Ute highlights the transitional nature of polysynthesis as a stage in the grammaticalization process. The loss of independence of one of the verbs in complex verb constructions, such as loss of valency, can be described as a loss of representational layers in FDG terms.

With regard to contact situations, Fortescue (2016) suggests that languages in isolation develop more synthetic structures, while language contact and large numbers of L2 speakers are associated with less synthesis: "Polysynthetic languages are quintessential exemplars of "esoterogenic" languages in which group identity and orality is central, as opposed to "exoterogenic" ones, which tend to simplify in the service of greater communicability, ultimately as lingua francas" (2016: n.p.). Similar suggestions have been made by Trudgill (2011, 2017), Rice (2017), and Bakker & Van der Voort (2017). Since a similar correlation with opacity exists as well, as mentioned above, it would seem that small, isolated, densely networked communities tend to correlate with morphologically complex languages.

The relationship with learnability is complex. Fortescue (2016) suggests that there is a parallel between the more "expressive", holistic style of learning characterized by "fluent but stereotyped clauses with adult-like intonation" exhibited by some children and the more "verby", head marking structure of polysynthetic languages, and Rice (2017) suggests that oral language acquisition of analytic and synthetic languages isn't all that different once it is recognized that language processing and learning employs intermediate "chunks" which she calls "phrasemes". Allen (2017) describes how children acquiring Inuit languages go through a "two-morpheme stage" rather than a two-word stage, and learn complex inflectional and derivational morphology earlier than children acquiring analytic languages, producing structures such as noun incorporation and causatives by the age of 2, and Stoll et al (2017) describe similar developmental milestones in the acquisition of Chintang. It seems that we can conclude that the language-learning child focusses on the acquisition of the characteristic features of the language being acquired; in the case of a language with lots of morphology, that means morphology is acquired earlier than in the case of a language with less morphology.

In conclusion, I hope to have shown that it is possible to develop a set of FDG parameters for (poly)synthesis along the lines of those already proposed for transparency. Together these parameter sets provide a full and detailed treatment of morphological typology in FDG terms, and should allow us to develop a fine-grained FDG theory of morphological complexity as well.

The FDG approach suggested here differs from other treatments in non-trivial ways:

1. Polypersonalism a la Baker (1996) is not included for clearly motivated theory-internal reasons.
2. Lexical affixation a la Mattissen (2003, 2004), De Reuse (2009), Drossard (1997, 2002), and Fortescue (1994, 2007) is not defined as a crucial characteristic, again for clearly motivated theory-internal reasons. Instead, lexical affixation (by means of Roots) is one path toward polysynthesis, while incorporation/serialization (by means of Stems) is the other path.
3. The FDG Root vs. Affix distinction allows for a principled categorization of "lexically heavy affixes" on a language-specific basis.
4. FDG's Layers-and-Levels approach allows for a finegrained scalar subclassification that can provide a quantitative typology to complement Mattissen's qualitative typology.

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This volume presents a collection of papers using the theory of Functional Discourse Grammar (FDG) to analyse and explain a number of specific constructions or phenomena (external possessor contructions and binominal constructions, negation, modification, modality, polysynthesis and transparency) from different perspectives, language-specific, comparative and typological. In addition to applying the theory to the topics in question, these papers aim to contribute to the further development of the theory by modifying and extending it on the basis of new linguistic evidence from a range of languages, thus providing the latest state-of-the-art in FDG. The volume as a whole, however, does more than this, as separately and together the papers collected here aim to demonstrate how FDG, with its unique architecture, can provide new insights into a number of issues and phenomena that are currently of interest to theoretical linguists in general.

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