The emergence of modification patterns in the Dutch noun phrase[1]

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Abstract

This article gives a diachronic account of adnominal modification from Proto-Indo-European to present-day Dutch. The main conclusion is that through the ages, noun phrases appear to "fold out": they acquire their layered structure for different lexical modifiers over time. The latest stage in this process is the fairly recent development of a specific slot for interpersonal modification of the whole noun phrase. The different stages in the diachronic development are described with the layered and modular representation of functional discourse grammar (FDG).

1. Introduction

This article will examine, from a diachronic perspective, the morphosyntactic and the interpersonal structure of the noun phrase (NP), as laid out in Hengeveld (2008). The diachronic perspective seems to have been somewhat neglected hitherto, both in FG and in FDG, as have interpersonal phenomena in NPs, as is acknowledged by, for instance, Butler (2003: 311).

The major point in this article is that if we apply the modular and layered FDG approach to the structure of the NP we can draw an important generalization in the syntactic changes in NPs from Proto-Indo-European to present-day Dutch: the layered NP structure is argued to be the result of a diachronic development whereby higher layers evolve successively over the centuries, culminating in a full-fledged separate interpersonal modification slot in present-day Dutch.

The idea that layering is relevant to diachrony was already recognized in Hengeveld's (1989) key article on the layered structure of the clause, in which the hypothesis is raised that "diachronic developments in the field of operators tend to follow the direction $\pi_1 > \pi_2 > \pi_3 > \pi_4$" (1989: 142).[2]

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Hengeveld's hypothesis focuses on the verbal domain, but can be applied to the nominal domain as well, to some extent: articles can be argued to be one layer up from demonstratives (see Rijkhoff 2002: Ch. 7), from which they tend to derive diachronically (Greenberg 1978). The present article, however, argues for another link between layering and diachrony: the hypothesis is not that morphemes shift up in the layering of the NP, but rather that the NP acquires its layered structure over time. The focus will not be so much on the grammaticalization of individual morphemes, but rather on the emergence of (lexically underspecified) modification slots in the NP:

(1) Lower NP layers emerge before higher NP layers.

More concretely, I argue that the elaborate NPs that we have in present-day Dutch (and English, for that matter) have developed out of rudimentary NPs in Proto-Indo-European, by the successive incorporation of elements that formerly functioned as separate constituents at the clause rank. In other words: NPs are encroaching on sentence level material, yielding increasingly bulkier NPs over time.

The article is organized as follows: Section 2 is a brief introduction to the FDG approach to NP structure. In Section 3, the core of the article, the relevant data are presented and discussed. Section 4 tentatively offers some explanations for the diachronic process as described in Section 3. Section 5 rounds off with the conclusions.

2. The layered structure of the NP

2.1. *The FDG model*

Since Rijkhoff's (1992) groundbreaking analysis of the NP in FG and its integration in Dik (1997), the structure of the NP has been repeatedly adjusted in F(D)G (see Keizer 2004 for an overview of the successive models). The latest version is in Hengeveld (2008), where NPs are made up of both a representational level (RL) and an interpersonal level (IL). Apart from these, there is a morphosyntactic level (ML), where syntactic constituency and dependency is handled. Each of these three levels is internally layered. The full technical representation of a standard NP looks as follows:[3]

(2) IL $(\Pi^{R}\ R_I: [(T_I)(T_J)(T_K)(\ldots)](R_I): \Sigma^{R}(R_I))$[4]
RL $(\pi^{x}\ x_i: [\pi^{f}\ f_i: \sigma^{f}(f_i)](x_i): \sigma^{x}(x_i): \ldots)$
ML $(Np_1: [(\ldots)(Aw_1)(Aw_2)(Nw_1)](Np_1))$

At IL the NP is represented by a variable R, with an index I. This R variable is a subact within the discourse act. Subacts can be either referential (R), in which case they "refer", or they can be ascriptive (T), in which case they "assign a property". NPs are generally referential subacts, hence the R_I variable in the standard representation in (2), but when used as a predicate nominal, they are ascriptive and are represented with a T variable.

The noun phrase, represented in its entirety by the variable R_I, consists of a complex head, which is introduced after the first colon. This head is a group of ascriptive sub-subacts, represented as $[(T_I)(T_J)(T_K)(\ldots)]$. The idea is that for the execution of a referential act by a full NP speakers may draw on ascriptive acts representing the head noun and the various adjectives (see Mackenzie 2002: 1–2). T_I represents the head noun; T_J and T_K correspond to the various modifiers in the NP.

The referential subact R_I is accompanied by operators (Π^R) and modifiers (Σ^R). Operators of R pertain to "identifiability" and are morphosyntactically often expressed by articles. Modifiers of R are concerned with the attitude of the speaker towards the referent of the NP (Hengeveld 2008; Butler 2008).

At RL the NP is represented by a variable x with an index i. Again, x_i consists of a complex head, which is made up of a predicate f_i with its operators π^f and satellites σ^f. The idea that underlying an entity x (a first-order entity) there is a property f (a zero-order entity) is a consequence of the proposals by Hengeveld (1992), Keizer (1992) and Mackenzie (1992).[5] The operator (π^f) expresses "shape" and "measure" (see Rijkhoff 2002), and the satellite (σ^f) expresses "reference modification". The operators and satellites of x (π^x and σ^x, respectively), on the other hand, deal with such issues as number, location, and "referent modification". The difference between reference and referent modification comes from Bolinger (1967). Referent modifiers are about extensional matters: they specify properties of the referent of the head noun. Reference modifiers deal with intensional matters by specifying subproperties of the property of the head noun. The difference between these two types of modification can be illustrated by the various readings of *a beautiful dancer*. If *beautiful* has the meaning of 'physically attractive as a person', it is a referent modifier, as it specifies a property of the entity the NP extensionally refers to. The entity is beautiful and s/he is a dancer. If it has the meaning of 'excellent in performance', it is a reference modifier, as it specifies the subproperty of *dancing*, intensionally implied in *dancer*. The entity is beautiful qua dancer.

At ML the syntactic dependency structure of the NP is given. As in RL and IL, the notation is built upon the general template (v_i: h(v_i)), with v_i

representing a variable of any kind, and h representing a (complex) head. The representation under (3) can be compared to a structure like [... [word$_A$ [word$_A$ [word$_N$]]]]$_{NP}$ in more standard syntactic notations.[6]

Not all modification slots need to be filled, of course, but to make clear what the various symbols in the technical format in (2) stand for, an example of a fully expanded, rather crammed NP is given in (3) (where *poor* is to be read as expressing compassion, and *criminal* as 'specializing in criminal law').

(3)		*the*	*poor*		*intelligent*	*criminal*	*lawyer*	
	IL	Π^R	Σ^R	R_I:	[T_K	T_J	T_I]	
	RL			x_i:	[σ_x	σ_f	f_i]	
	ML	Np_1: [Gw_1	Aw_1		Aw_2	Aw_3	Nw_1	](Np_1)

2.2. *Two remarks about the model*

In this article, I shall concentrate on the modifiers (Σ/σ), leaving aside the operators (Π/π). Unfortunately, the distinction between the two is by no means straightforward. The difference between what is grammatically expressed and what is lexically expressed is very fuzzy, especially in diachronic data, since autonomous lexical modifiers often gradually grammaticalize into operators. In what follows, I shall take a liberal stance on what counts as modifiers, and include numerals, quantifiers and possessive pronouns as well, if they are expressed as separate words or when they can be modified (see also Hengeveld and Mackenzie 2008: 246).

A second remark about the FDG model as sketched in Section 2.1 has to do with the R-modifiers (Σ^R). According to Hengeveld, Σ^R typically takes the form of an adjective expressing the attitudinal stance of the speaker, rather than some objective property. This is, however, a rather murky criterion. Quite a lot of adjectives that are treated as ordinary referent modifiers (σ^x) can have a subjective flavor as well. A referent modifier like *beautiful* in *a beautiful statue* is not devoid of subjectivity on the part of the speaker, it seems. Moreover, subjective adjectives can follow numerals, which are on the x-layer.

(4) *those two poor creatures*
(Google)

If word order in the NP reflects scopal properties, as is assumed in F(D)G, then it seems that subjective adjectives can have smaller scope than numerals, and are consequently to be situated on a lower layer, but in that case, an analysis as Σ^R becomes hard to defend (see also Rijkhoff 2008). This is not to say that adjectives can never be Σ^R. After all, some

of them can precede numerals as well. Rather, I would like to suggest that the prototypical Σ^R-modifiers are not adjectives, but what Huddleston and Pullum (2002: 436–439) have called *peripheral modifiers*. An extensive discussion of their interpersonal nature in the FDG framework is given in Van de Velde (2007). The following examples may clarify what is meant:

(5) *A beautiful trip, with **unfortunately** a malfunctioning cooling system of our LandCruiser*
(Google)

(6) *After considerable consideration and discussion with, **frankly**, a rather reluctant spouse, I have agreed*
(Google)

(7) *when Geller's photos of **supposedly** a UFO are revealed as identical to the lampshade in his house*
(Google)

In an FDG analysis, adverbs like *unfortunately*, *frankly* and *supposedly* normally modify the discourse act, the illocution and the communicated content, respectively (see Keizer and van Staden, this issue). In (5)–(7), however, they only have an NP in their scope (*a malfunctioning cooling system of our LandCruiser*, *a rather reluctant spouse* and *a UFO*, respectively). This analysis is supported formally by their position after the preposition, and semantically by what the adverbs at issue exactly have scope over: in (5) it is only the malfunctioning cooling system, not the beautiful trip the speaker considers to be unfortunate. Something similar goes for Examples (6) and (7). An example like (7) can be represented as (8).

(8) IL Σ^R Π^R R_I:
RL x_i:
ML (Np_1:[($Advw_1$:supposedly($Advw_1$)) (Gw_1:a(Gw_1))
(T_I)
(f_i)
(Nw_1:UFO(Nw_1))](Np_1))

3. Diachrony of Dutch NPs

3.1. *Proto Indo-European*

Contrary to what is often assumed, Proto-Indo-European (PIE) can be argued not to have had attributive adjectives. Firstly, it did not have attributive modifiers, and secondly, it did not have adjectives. This means

that what is expressed in a single noun phrase in present-day Dutch or English, breaks down in a series of atomic NPs in PIE, as visualized in (9)–(10) (the reconstructed forms are taken from Ringe 2006).

(9) English: [three [white [sheep]]]$_{NP}$
(10) PIE: [*h$_2$óweyes]$_{NP}$ [*h$_2$r̥ǵréh$_2$es]$_{NP}$ [*tisres]$_{NP}$ (lit.: 'sheep, white ones, three')

This may seem like a rather bold statement, so let us see which arguments there are for such a position.

(i) *No adjectives*: The idea that PIE did not have adjectives is not to be taken as implying that speakers of this language were not able to express modification of a noun, of course. Rather, the kind of meaning that in present-day Dutch or English would be expressed by an adjective was conceived of as a noun in PIE.

A first argument for this idea is that adjectives did not have their own inflectional paradigm. In the words of Bammesberger (1992: 52): "a given 'adjectival' form of Indo-European probably lacked special morphological characteristics which would have set it off from a noun." According to Kurzová (1993), adjectives and nouns form one part of speech:

> IE adjectives are, in fact, referential expressions constituting a subclass of nouns in a larger sense. They refer to the individual less directly, by denoting non-essential properties of the individual, whereas substantives refer to the individual directly by naming its essential property. Yet, the difference between constitutive, (essential) and non-essential property is only relative, and the adjective can function as noun head without derivational modifications in IE. (Kurzová 1993: 41)

Secondly, the equivalence of nouns and adjectives is supported by the observation that in the old daughter languages, nouns can often function as adjectives without any morphological adaptation (see Brugmann and Delbrück 1889: 436, 444–448). Latin *ūber* e.g., can both be used as a noun ('udder'), and as an adjective ('rich'). It is probably no coincidence that the old grammarians treated the adjective as a subclass of the noun (*nomen adjectivum*, see e.g., Törnqvist 1974: 324). Such a system is by no means more "primitive" than what speakers of Dutch or English are familiar with. Languages with only one part of speech for our adjectives and nouns can still be found today. Examples in case are Quechua and Turkish (see Schachter 1985; Hengeveld 1992; Stassen 1997).

Those who maintain that PIE did have adjectives, generally support their case by pointing at gender agreement and gradation, and occasionally at the existence of derivational adjective suffixes (see e.g., Hirt 1927: 270, 1934: 145–146). None of these arguments are compelling, however.

Gender agreement is probably a relatively recent phenomenon. According to Lehmann (1974: 69–70), "The rules which are generally posited to govern agreement in number, case, and gender cannot have been in force until the development in late PIE of the adjective declension (...)". In the old European dialect, gender agreement often fails (see Brugmann and Delbrück 1893: 402–410; Hirt 1927: 330–332; 1934: 143–144; Lehmann 1974: 69–73). Some adjectives, like Latin *fēlix* ('happy'), Greek *argés* ('white'), or Hittite *kurur* ('hostile'), have only one form for the three genders; others, like Latin *fortis* ('brave') or Sanskrit *durmanā́s* ('sad') have one form for the masculine and feminine (common) gender, and another one for the neutral gender. Brugmann and Delbrück (1893: 403, 419) concede that these adjectives really are nouns. Adjectives with deficient agreement morphology probably reflect the original PIE situation, as is argued in Hirt (1927: 330). Lack of gender agreement is attested in the oldest daughter languages of PIE, like Sanskrit, Greek, Latin and Hittite (which as the oldest daughter lacks a feminine gender altogether), so that a common origin is very plausible. Moreover, gender agreement is often lacking in morphologically complex adjectives (as in Greek), which are more likely to have retained the old situation, as well as in (Hittite) consonant stems, which probably constitute the oldest nominal paradigms (Lehmann 1974: 70).

With regard to *gradation*, it must be noted that this was not restricted to adjectives. Brugmann and Delbrück (1893: 415–416), Hirt (1934: 147) and Lehmann (1995: 156, 227) provide examples of comparatives and superlatives of undisputed nouns, like Sanskrit *kavítara* and *kavítama*, which literally translate as 'more poet' and 'most poet'. The same phenomenon occurred in Greek. Again, it is hardly a coincidence that examples come from early attested languages.

With regard to the idea that PIE had a set of *suffixes deriving adjectives* (see e.g., Hirt 1934: 145–146 and Ringe 2006: 62–63), it must of course be independently proven that the results of such derivations behaved syntactically as adjectives. I do not know of any such proof. Some of the so-called adjective suffixes can even be shown to derive unsuspicious nouns as well.

(ii) *No attributive modifiers*: I submit that PIE did not have attributive modifiers. Modifiers of the noun did not form a constituent with their "head". Again, there are several arguments to support this.

One argument is that adnominal modifiers could be easily separated from their heads, see (11)–(14).[7] With Harris and Campbell (1995: 237) I take this as indicative of their belonging to separate constituents.

(11) Greek
fílōi *epepeítheth'*
beloved:DAT.M.SG be.persuaded:IND.IPFV.3SG
hetaírōi
companion:DAT.M.SG
'he obeyed the beloved companion'
(Hirt 1937: 230)

(12) Latin
spem *nos* *vetat* *inchoare*
hope:ACC.F.SG we:ACC forbid:ACT.IND.PRES.3SG begin:INF
longam
long:ACC.F.SG
'[the short span of life] forbids us to cherish remote hope'
(Hirt 1937: 230)

(13) Sanskrit
juvám *śvētám* *Pēdáva . . .* *adattam*
you:NOM.PL white:ACC.M.SG P. give:ACT.IND.IMPV.2DU
áśvam
horse:ACC.M.SG
'the white horse you gave to P.'
(Hirt 1937: 231)

(14) Hittite
hantezziyass= *a=* *as* *ÌR* *lē*
first:NOM and he:NOM servant not
'Let him not be one of [my] ministers'
(Luraghi 1990: 171)[8]

A second argument is that adnominal modifiers often have their own NP-markers. They may occasionally have their own case, differing from the one of their head (as in *nominativus pro vocativo*, see Gonda 1956; or as in cases where a gender/number-agreeing adjective in the nominative case is accompanied by a noun in the genitive case, see Kühner and Gerth 1963: 278–279 for examples from Greek and Latin). And in languages that developed an article, like Greek, adjectives can have their own article, as is illustrated in (15).

(15) Greek
hoi *ándres* *hoi*
ART.DEF:NOM.M.PL man:NOM.M.PL ART.DEF:NOM.M.PL
agathoí
good:NOM.M.PL
'the good men'
(Gildersleeve 1980: 282)

The absence of adjectives (i) and the lack of attributive modification (ii) can be taken as arguments for the isolated structure of adnominal modification in NPs in PIE, as symbolized in (10). This is also explicitly recognized by Meillet (1934: 360) and by Lehmann, who states that "the primary relationship between nominal elements, whether nouns or adjectives, was appositional" (1974: 84).

The question now is how to translate this in an FDG representation. It seems that the Greek construction in (11) is to be represented by two separate referential subacts, as in (16).[9] (The actual meaning may be more accurately rendered as 'the companion, the beloved one'.) This is in accordance with the treatment of appositional structures in FDG as argued in Van de Velde (2007), and with Hengeveld and Mackenzie (2008: 115), who claim that "[i]n languages in which the relationship between subacts (...) is not restrictive, but appositional or juxtapositional, the looser relationship at the interpersonal level is decisive for the ultimate structure".

(16) IL $(R_I: [(T_I)](R_I))$ $(R_J: [(T_J)](R_J))$
ML $(Np_1:(\text{-fílōi-})(Np_1))$ $(Np_2:(\text{-hetaírōi-})(Np_2))$

From all this, I hypothesize the basic template for the NP in PIE to maximally consist of a single noun, as in (17).

(17) IL $(R_I: [(T_I)](R_I))$
(a maximally expanded NP template at IL in PIE)

In the next sections, it will be shown that the PIE NP structure in (17) underwent a structural expansion: over time, a single NP/subact could be loaded with modifiers of higher and higher layers.

3.2. *Proto-Germanic*

Proto-Germanic differs from its PIE mother in that it has adjectives as a separate part of speech:

> The development of the adjective is perhaps one of the most conspicuous innovations in Germanic morphology. In Germanic the adjective is not only semantically deliminated by generally expressing some 'quality' (...), but it is also morphologically clearly definable. (Bammesberger 1992: 52–53)

This innovation does not, however, imply that adjectives were immediately part of a tightly structured NP. If their floating position is a symptom of their autonomy as a constituent, it seems that in the oldest stages of various Germanic languages adjectives were not integrated in the NP yet.

(18) Gothic
dauns *sijum* *woþi*
odor:NOM.F.SG be:IND.PRES.1PL sweet:NOM.F.SG
'we are a sweet odor'
(Behaghel 1932: 241)[10]

(19) Old Saxon
hiet *that* *hie* *is*
order:ACT.IND.PRES.3SG that he:NOM.SG he:GEN.SG
suerd *dedi* *scarp* *an*
sword:ACC.N.SG do:ACT.CONJ.PRET.3SG sharp:ACC.N.SG in
scethia
sheath:ACC.F.SG
'ordered to put his sharp sword in the sheath'
(Heliand vv. 4883–4884)

(20) Old English
hé *dógora* *gehwám* *dréam*
he:NOM.SG day.GEN.N.PL each:DAT.N.SG joy:ACC.M.SG
gehýrde *hlúdne* *in* *healle*
hear:ACT.IND.PRET.3SG loud:ACC.M.SG in hall:DAT.F.SG
'Each day he heard loud joy in the hall'
(Beowulf vv. 88–89)

Still, "floating" adjectives were not as abundant anymore in the old Germanic languages, as they were in the ancient daughters of PIE (Hirt 1937: 231). They occur in Gothic, a notably old Germanic language, but afterwards, the construction becomes obsolete. The examples in (19) and (20) are taken from alliterative poetry, which may have cultivated archaic patterns in order to comply with the phonetic requirements of the genre. In the examples of floating ("appositional") adnominal modifiers in Germanic, as listed in Grimm (1967), Behaghel (1932), Hirt (1937), Peltola (1960), Reszkiewicz (1966) or Mitchell (1985), there are hardly any regular, simple adjectives. Only complex modifiers still occur regularly outside the NP proper. This can be illustrated with the following example from Old English:

(21) Old English
Sum *casere* *wæs* *on*
some:NOM.M.SG emperor:NOM.M.SG be:ACT.IND.PRET.3SG in
þam *dagum,* *cristen* *and*
ART.DEF:DAT.M.PL day:DAT.M.PL christian:NOM.M.SG and
gelyfed, *Eraclius* *gehaten,*
pious:NOM.M.SG E. name:PASS.PTCP.PST.NOM.M.SG

unearh *on* *gefeohtum*
bold:NOM.M.SG in fight:DAT.N.PL
'In those days, there was a christian and pious emperor named E., who was bold in fights'
(Peltola 1960: 166)

In this example, all floating modifiers are grammatically complex: the modifier *cristen and gelyfed* is a coordinated pair of adjectives. In *Eraclius gehaten* and *unearh on gefeohtum* the adjective/participle has its own complement or modifier. Note that such heavy APs can still resist obligatory prenominal position in present-day English, Dutch and German.

If we take the linear surface structure seriously, the decrease of floating adjectives must be accounted for in the syntax. I believe this diachronic tendency is due to a syntactic change, whereby the NP developed a slot for attributive modifiers. Adjectives do no longer start a separate NP, but are integrated in the NP of the head noun. This can be reflected in FDG by representing the modifier as a sub-subact within the referential subact (R_I). The Old High German example in (22) is then analyzed as (23). T_I represents the head noun and T_J represents the adjective.[11]

(22) Old High German
huitte *scilti*
white:ACC.M.PL shields:ACC.M.PL
'white shields'
(Hildebrandslied v.66)

(23) IL $(R_I: [(T_I)(T_J)](R_I))$
ML $(Np_1:[(Aw_1:\text{-huitte-}(Aw_1))(Nw_1:\text{-scilti-}(Nw_1))](Np_1))$

Proto-Germanic NPs could probably contain no more than one real adjective. Spamer (1979) argues that Old English still eschews the use of more than one referent modifier in a single NP (see also Fischer and van der Wurff 2006: 125).[12] If the noun has more than one modifier, only one can be integrated in the NP at most. The other is still relegated to a separate subact. This is the case in Example under (24), analyzed as (25).[13]

(24) Old English
blodig *wolcen* *micel*
bloody:NOM/ACC.N.SG heaven:NOM/ACC.N.SG great:NOM/ACC.N.SG
'great bloody sky'
(Mitchell 1985: 77)

(25) IL $(R_I: [(T_I)(T_J)](R_I))$ $(T_K: [(T_L)](T_K))$
ML $(Np_1:[(Aw_1:\text{-blodig-}(Aw_1))(Nw_1:\text{-wolcen-}(Nw_1))](Np_1))$
$(Ap_1:(Aw_2:\text{-micel-}(Aw_2))(Ap_1))$

With Fischer (2000: 159, 170; 2001: 256–257; 2004; 2006) I doubt that postnominal adjectives are well-integrated in the NP proper. Supportive evidence for the analysis of postnominal adjectives as separate NPs is the observation that they can be preceded by their own article, or by a repetition of the preposition (or conjunction), as in (26). An Early Middle Dutch example is given in (27). Such a pattern is nowadays no longer possible, neither in English, nor in Dutch, except of course for cases in which one refers to various separate entities.

(26) Old English
He forbeah heora stanas,
he:NOM.SG dodge:ACT.IND.PRET.3SG their stone:ACC.M.PL
swa swa mann, swa swa eadmod
like man:NOM.M.SG like humble:NOM.M.SG
'He dodged their stones, like a humble man'
(Peltola 1960: 163)

(27) Early Middle Dutch
met crommen clauwen ende met langhen
with hooked:DAT.PL claws:DAT.PL and with long:DAT.PL
'with long, hooked claws'
(van der Horst 2008: 522)

Moreover, the postnominal adjective need not be adjacent to its head. A clear example of separation of the postnominal adjective is given in (28).

(28) Old English
Maran cyle ic geseah, and
greater:ACC.M.SG cold:ACC.M.SG I:NOM see:ACT.IND.PRET.1SG and
wyrsan
worse:ACC.M.SG
'I have seen a greater and worse cold'
(Mitchell 1985: 78)

Interestingly, the adnominal modifiers with wider scope (quantifiers, possessives) enter the NP later than the modifiers with lower scope (referent modifiers), which supports the hypothesis in (1).[14] Obligatory prenominal position for quantifiers and possessives is of later date than for adjectives. This can be illustrated by examples like (29)–(31), with numerals or quantifiers separated from their head.[15] Such constructions are no longer possible today, but they still had some currency at a time when adjectives were almost consistently put adjacent to their noun.

(29) Old English
fīfe lāgon . . . , cyningas geonge
five lay:ACT.IND.PRET.3PL king.NOM.M.PL young:NOM.M.PL
'there lay five young kings'
(Hirt 1937: 231)

(30) Old English
þa teð hie
ART.DEF:ACC.M.PL teeth:ACC.M.PL they:NOM.PL
brochton sume þæm
bring:ACT.IND.PRET.3PL some:ACC.M.PL ART.DEF:DAT.M.SG
cyninge
king:DAT.M.SG
'they brought some teeth for the king'
(Heltveit 1977: 52)

(31) Old High German
sume ouh thie ginoza
some:NOM.M.PL also ART.DEF:NOM.M.PL companion:NOM.M.PL
druagun stangun groza
carry:ACT.IND.PRET.3PL spear:ACC.F.PL long:ACC.F.PL
'and some companions carried long spears'
(Schrodt 2004: 32)

If the assumption is correct that in Proto-Germanic NPs adjectives could not yet be stacked, like in present-day Dutch and English, a template as in (32) may be hypothesized for the earliest stages. A referential subact (R_I) can have two sub-subacts at most: one representing the head noun, and one representing an adnominal modifier.

(32) IL $(R_I: [(T_I)(T_J)](R_I))$
(a maximally expanded NP template at IL in Proto-Germanic)

3.3. *Old Dutch (500–1150)*

From Proto-Germanic to Old Dutch, the NP was further elaborated. Although Old Dutch is not extensively preserved, two texts of considerable length may reveal what Old Dutch syntax looked like. One is a 10th century text known as the Wachtendonck Psalms (see De Grauwe 1982), an interlinear translation from Latin. For word order patterns, this text is not always that useful: the translation stays very close to the Latin original, to the extent that it is more of a word-by-word translation than an authentic Old Dutch text. In some cases, however, the translator was forced to render a single Latin word by two words in Old Dutch. Here,

the translator was free to follow the word order that was prevailing in his own language. It turns out that in the 8 relevant instances (Psalms 2,1; 2,13; 54.13; 57,4; 59,5; 65,3; 67,11; 138,15) the adjective is invariably prenominal.

(33) Old Dutch
îdele *thing*
idle:NOM/ACC.N.PL thing:NOM/ACC.N.PL
'idle things'
(Wachtendonck Psalms 2,1)

The other text is known as the Leidse Willeram (see Sanders 1971), an adaptation (not a translation) of the Song of Songs, about 14,500 words in length. In this text, where word order is more informative than in the Wachtendonck Psalms, there is not a single instance of a floating adjective. There are two instances of postnominal adjectives, (34) and (35), but in both instances we have a coordinated pair of adjectives, which can still occur in postnominal and floating position in present-day Dutch, contrary to what is the case with simple adjectives.

(34) Old Dutch
Sine *hande* *guldin* *ande*
his:NOM.F.PL hand:NOM.F.PL golden:UNDELC and
sinowolde *waren* *uol* *iachande*
round:NOM.F.PL be:IND.PRET.3PL full:UNDECL gem:GEN.M.PL
'His golden round hands were full of gems'
(Leidse Willeram 92,10)

(35) Old Dutch
Allerslahta *ouaz* *niwa* *ande*
all.sorts:GEN.F.PL fruit:ACC.N.PL new:ACC.N.PL and
ald *hauon* *ich* *thir*
old:ACC.N.PL have:AUX.IND.PRF.1SG I:NOM you:DAT.SG
gehaldon, *wine* *min*
save:(PTCP)PRF love:NOM/VOC.SG my:UNDECL
'All sorts of new and old fruit have I saved for you, my love'
(Leidse Willeram 129,2)

The Old Dutch material shows that a single NP can contain several adnominal modifiers in attributive, prenominal position, as for instance in (36), although the old construction with one modifier integrated in the NP and the other one in postnominal position is still attested in Middle Dutch (see [27] above).

(36) Old Dutch
mid *iuwan* *goodan*
with your:DAT.N.SG/PL good:DAT.N.SG/PL
bilethen
example:DAT.N.SG/PL
'with your good example(s)'
(Leidse Willeram 31,5)

Due to the limited size of the extant Old Dutch text corpus, it is difficult to determine how many adjectives an Old Dutch NP maximally contained, but it may be safely assumed that a single referential subact could host more than one modifier.[16]

(37) IL $(R_I: [(T_I)(T_J)(T_K)](R_I))$
ML $(Np_1:[(Aw_1:\text{-iuwan-}(Aw_1))(Aw_2:\text{-goodan-}(Aw_2))$
$(Nw_1:\text{-bilethen-}(Nw_1))](Np_1))$

The full template for a maximally extended NP looks as follows:

(38) IL $(R_I: [(T_I)(T_J)(T_K)](R_I)]$
(a maximally expanded NP template at IL in Old Dutch)

3.4. *Middle Dutch (1150–1550)*

The elaboration of the NP continued in Middle Dutch. The construction in (36) was gradually replaced by ever larger NPs. In (39) the head noun is preceded by three modifiers, resulting in four sub-subacts in the representation in (40).

(39) Middle Dutch
sinen *goeden* *suuer* *wijf*
his good pure wife
'his good pure wife'
(van der Horst 2008: 755)

(40) IL $(R_I: [(T_I)(T_J)(T_K)(T_L)](R_I))$
ML $(Np_1:[(Aw_1:\text{-sinen-}(Aw_1))(Aw_2:\text{-goeden-}(Aw_2))(Aw_3:\text{-suuer-}$
$(Aw_3))(Nw_1:\text{-wijf-}(Nw_1))](Np_1))$

Apart from this *syntagmatic extension*, that is, the process of having a growing number of modifiers in a row yielding heavier and heavier NPs, Middle Dutch also undergoes a process of what may be called *paradigmatic extension*: the growth of the inventory of potential slot fillers: more and more elements that used to function as a secondary predicate are

drawn into the attributive modifier slot. This is for instance the case with participles.[17]

Participles were not as keen to enter the NP as adjectives. Both with regard to their inflection and to their word order relative to the NP they semantically adhere to, they displayed properties of full NPs in older stages of the Germanic languages, and as such can be considered as appositions in the same way as the example in (16) (see also Brugmann and Delbrück 1893: 431; Hirt 1937: 246). As van der Horst (2008: 211, 217, 301) notes, attributive participles were rather uncommon in Old Dutch. They seem not to have reached customary status until Middle Dutch. Early examples are given in (41) and (42). Since late Middle Dutch, they are visibly on the increase.

(41) Early Middle Dutch
als een verslindende vier
like ART.INDF consume:ACT.PTCP.PRES fire
'like a consuming fire'
(van der Horst 2008: 524)

(42) Early Middle Dutch
in een verholnen stat
in ART.INDF conceal:PASS.PTCP.PST place
'at a secret place'
(van der Horst 2008: 524)

Concluding on the Middle Dutch period, it may be reasonably assumed that the elaboration of the NP since PIE still carried on. As the changes in NP structure are gradual — just as the transition of Old Dutch into Middle Dutch in general — it is difficult to draw a line between what was possible in Middle Dutch, but not yet in Old Dutch and vice versa. Still, on the basis of attested examples like (39), it seems not too far-fetched to assume the following template of a maximally extended NP for Middle Dutch.

(43) IL $(R_I: [(T_I)(T_J)(T_K)(T_L)](R_I))$
(a maximally expanded NP template at IL in Middle Dutch)

3.5. *Modern Dutch (1550–1900)*

The elaboration of Dutch NPs did not cease in the Middle Dutch period. Several innovations only set in relatively recently. One of these changes is the "paradigmatic extension" of attributive modifiers. After adjectives and participles, a new sort of adjectival attribute transpired that

goes under the name of "gerundive infinitive". An example is given in (44).

(44) Modern Dutch
ter *verlichtinge* *van* *de* *te* *benoemen*
to.the:DAT.F.SG relief:DAT.F.SG of ART.DEF to appoint:INF
commissie
commission:F.SG
'for the relief of the commission to be appointed'
(van der Horst 2008: 1431)

In this construction the so-called "long infinitive" *te benoemen* is used as a prenominal modifier with passive and deontic meaning, hence its name "gerundive infinitive". Attributive use as a prenominal modifier did not occur until the 18th century in Dutch (van der Horst 2008: 1431, 1579), and is thus a genuine innovation of the Modern Dutch period.

It is probably no coincidence that such gerundives were integrated in the NP some time after the participles and long after the adjectives. Glossing over the details, participles may be considered as adjectives with aspect/tense marking, and gerundive infinitives as adjectives with mood marking. In view of the hypothesis in (1), the relative chronology of their integration in the NP is entirely as expected.

A second, more profound innovation in Modern Dutch NPs, was the emergence of subjective modification of the whole NP by elements in front of the determiner. In other words: a new morphosyntactic slot cropped up for the expression of interpersonal modification of the whole subact. In the technical description of the IL in (2), these modifiers are represented as Σ^R. This kind of NP-modification was initially brought about by focus particles, which according to Hoeksema (2002) arose in the 17th century. An example with focus particle *zelfs* (written here as *selfs*) is provided in (45).

(45) Modern Dutch (late 17th century)
selfs *de* *jeugt* *toont* *sich*
even ART.DEF youth show:ACT.IND.PRES.3SG REFL
geposeerd
demure:PASS.PTCP.PST
'even the youth behaves demurely'

As Dutch is a verb-second language, the focus particle must be analyzed as forming a single constituent with the NP *de jeugt*. The interpersonal status of the focus particle *zelfs* is evidenced by its nontruthconditional semantics, as reflected e.g., in its potential scope over the negation. The FDG representation looks something like (46).

(46) IL $(\Pi^{R}\ R_I{:}[(T_I)](R_I){:}\ \Sigma^{R}(R_I))$
ML $(Np_1{:}[(Advw_1{:}selfs(Advw_1))(Gw_1{:}de(Gw_1))(Nw_1{:}$ jeugt$(Nw_1))](Np_1))$

This new kind of interpersonal modification normally has scope over all the representational modifiers. As it is a function, with the subact R_I as its argument, Σ^{R} encompasses the whole subact. It is thus on a higher layer, and so its relatively late appearance as a separate morphosyntactic modification slot in front of the determiner is in line with the hypothesis under (1).

The maximally extended NP in Modern Dutch can thus be argued to look as follows:

(47) IL $(R_I{:}\ [(T_I)(T_J)(T_K)(T_L)\ \ldots](R_I){:}\ \Sigma^{R}(R_I))$
(a maximally expanded NP template at IL in Modern Dutch)

3.6. *Present-day Dutch (1900–present)*

The present-day Dutch changes in the NP structure continue the line of changes of the previous periods: NPs get heavier. In the 20th century, the Modern Dutch innovation of a separate slot for predeterminer Σ^{R} as illustrated in (45) was elaborated by "paradigmatic extension": the number of different elements that could function as a Σ^{R} slot filler was on the increase.

(Focus) particles had already become grammatically more complex during the Modern Dutch period, with the emergence of focus particle clusters (e.g., *zelfs ook*, literally: 'even also') in the latter half of the 18th century (Hoeksema 2002: 57).

(48) Modern Dutch (late 18th century)

de	*vrouwen,*	*en*	*zelfs*	*ook*	*de*	*vrijsters*
ART.DEF	woman:PL	and	even	also	ART.DEF	spinster:PL

'the women and even the spinsters as well'

From the beginning of the 20th century onward, focus particles are no longer the only interpersonal modifiers (Σ^{R}). New members of the slot are full polysyllabic interpersonal adverbs, as in (5)–(7) and (49):

(49) Present-day Dutch

tijd	*voor*	*uiteraard*	*een*	*biertje*
time	for	obviously	ART.INDF	beer:DIMINUTIVE

'time for a beer, obviously'
(Google)

The NP *uiteraard een biertje* ('obviously a beer') can be formally represented as follows:

(50) IL $(\Pi^{R}\ R_I{:}[(T_I)](R_I){:}\ \Sigma^{R}(R_I))$
ML $(Np_1{:}[(Advw_1{:}uiteraard(Advw_1))(Gw_1{:}een(Gw_1))(Nw_1{:}$ biertje$(Nw_1))](Np_1))$

Through the years, Σ^{R} exhibits larger and larger syntactic complexity:

(51) Present-day Dutch
het puiraam boven de deur met ***naar***
ART.DEF façade.window above ART.DEF door with to
alle waarschijnlijkheid *de initialen van de*
all probability ART.DEF initial:PL of ART.DEF
eigenaar
owner
'the façade window above the door with in all probability the initials of the owner'
(Google)

(52) Present-day Dutch
een feest met ***ik denk*** *de rijkste historie in*
ART.INDF party with I think ART.DEF richest history in
Nederland
the.Netherlands
'a party with I think the richest history in the Netherlands'
(Google)

(53) Present-day Dutch
De Philips TV+DVD is een slanke, maar
ART.DEF Philips TV+DVD is ART.INDEF slender but
redelijk diepe en zware verschijning met ***wat bekend***
rather deep and heavy appearance with what known
staat als *een monitorlook*
stands as ART.INDF monitor.look
'The Philips TV+DVD is a slender, but rather deep and heavy appearance with what is known as a monitor look'
(Google)

Example (51) displays an adverbial in the form of a prepositional phrase. In (52)–(53), the Σ^{R} modifier takes the form of what for convenience sake I would like to call *clause fragments*, that is, elements with a finite verb. A straightforward example of such a clause fragment is the epistemic parenthetical in (52). Example (53) displays a more complex instance. Here we have a so-called *transparent free relative* (see e.g., Wilder 1999), a construction that has also developed in English. There is some controversy

as to how to analyze its dependency structure (see Schelfhout et al. 2004), but I think the best way to approach it is by assigning it Σ^R status at IL. The construction probably started off as a regular free relative, but part of it has been reanalyzed as a Σ^R modifier. Such a process is comparable to the reanalysis of quantity nouns like *heap (of)* or *sort (of)* as premodifiers of the noun (see e.g., Brems 2004). A more extensive motivation for an analysis as Σ^R of the examples in (51)–(53) as well as an attempt to formalize them in an FDG framework can be found in Van de Velde (2007). Here, it suffices to note that their emergence in the history of Dutch is in line with what one could expect on the basis of former developments in the NP structure.

Not only do the interpersonal modifiers in front of the determiner gain morphosyntactic complexity (paradigmatic extension) over time, it becomes possible to cram more than one Σ^R modifier in a single NP. Early instances could be the focus particle clusters illustrated in (48), if these are to be analyzed compositionally, at least.[18] Later on, Dutch exhibits combinations of focus particles with a full adverb, as illustrated in (54)–(55).

(54) Present-day Dutch
een *bestuur* *dat* *zich* *onmogelijk* *heeft*
ART.INDF administration that REFL inpossible has
gemaakt, *met,* ***kortom,*** ***alleen maar*** *verliezers*
made with in.short only but loser:PL
'an administration that made itself impossible with, in short, nothing but losers'
(Google)

(55) Present-day Dutch
op *straffe van* ***misschien*** ***zelfs*** *de* *dood*
on penalty of maybe even ART.DEF death
'on the penalty of maybe even death'
(Google)

Table 1. *Occurrences of Σ^R in Present-day Dutch*

Period	Hits	Corpus size	Indexed
1932–1940	4	2119kb	10.84
1941–1950	6	3449kb	9.99
1951–1960	13	3055kb	24.44
1961–1970	28	3600kb	44.67
1971–1980	43	4277kb	57.74
1981–1990	136	9759kb	80.04
1991–2000	253	14531kb	100.00

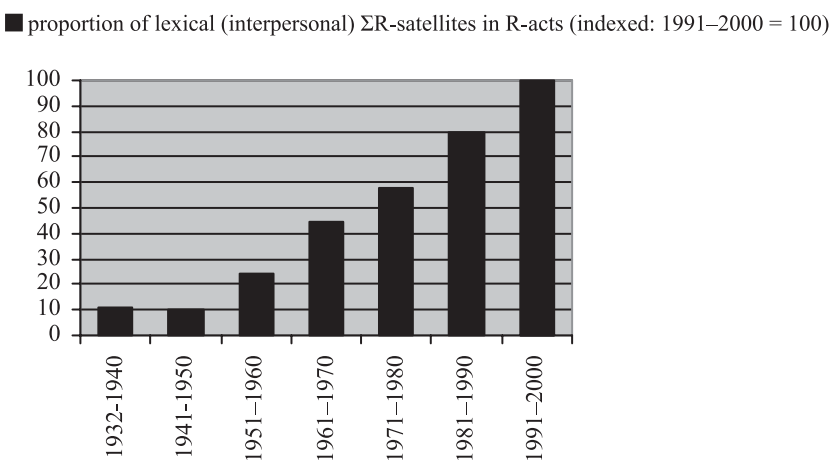

Figure 1. *Increase of* Σ^R

The NP *misschien zelfs de dood* can be represented as:[19]

(56) IL $(\Pi^R\ R_I{:}[(T_I)](R_I){:}\ \Sigma^R(R_I){:}\ \Sigma^R(R_I))$
ML $(Np_1{:}[(Advw_1{:}misschien(Advw_1))(Advw_2{:}zelfs(Advw_2))$
$(Gw_1{:}de(Gw_1))(Nw_1{:}dood(Nw_1))](Np_1))$

Full sentence adverbs in front of the NP, like in (49) have been observed from the mid 20th century onward in Dutch (Zaalberg 1975: 22; van den Toorn 1997: 544; van der Horst and van der Horst 1999: 299). As can be argued on the basis of quantified corpus[20] inquiry, the extension of the predeterminer Σ^R slot is a robust change in NP structure. Their frequency of occurrence is rapidly increasing during the 20th century.

This steady increase is made visible In Figure 1, where the proportions of hits to the corpus size are indexed (1991–2000 = 100).

Concluding on the situation in present-day Dutch, the following template may be assumed for the NP:

(57) IL $(R_I{:}\ [(T_I)(T_J)(T_K)(T_L)\ldots](R_I){:}\ \Sigma^R(R_I){:}\ \Sigma^R(R_I)\ldots)$
(a maximally expanded NP template at IL in Modern Dutch)

4. Explanations

If the NP has indeed grown over the past few millennia, as argued in Sections 3.1–3.6, the question rises what the motivation was behind this

apparently robust change. In other words: what was wrong with the NP in PIE?

Several opinions have been upheld with regard to these kinds of unidirectional long-term languages changes. One is that PIE is somehow more "primitive" than present-day languages. The absence of attributive modification is then indicative of the incapability of speakers of PIE to deal with complex structures. The same immaturity of PIE is presumed to be responsible for the absence of hypotaxis. Explanations along these lines were popular with many 19th century Indo-European scholars, but have currently been largely abandoned. Today, it is generally believed that PIE was a full-fledged language already.

Yet the idea that PIE was just as full-grown a language as present-day Dutch does not rule out that certain morphosyntactic structures can become more complex over time. Increasing complexity may then be due to cultural changes, rather than to the evolution of mental capacities of the speakers of PIE. Indeed, languages in cultures without a written tradition have been argued to generally rely on less complex syntactic structures (see e.g., Perkins 1992), and even within languages with an extensive written tradition a considerable amount of variation may be observed with regard to complexity in one syntactic domain or another. Biber and Clark (2002) e.g., show that in its recent history English has made increasing use of postnominal modification, which they attribute to a change in stylistic preferences.

A somewhat different explanation is that complex syntactic patterns constantly emerge out of formerly loosely composed discourse material, without one stage being more primitive than the other. This idea is generally linked with the name of Givón (1971, 1979). His idea of perpetual change (renewal) has been embraced in grammaticalization theory.

To these explanations, I would like to add yet another one. Arguably, the difference between what is expressed by NPs and what is expressed at the clausal rank is arbitrary to a certain extent. That is to say: in any language, stable concepts are most probably captured by NPs, and transient states are separately predicated at clause rank, but naturally there is a considerable amount of variation (see e.g., Hurford 2007). As a consequence, languages may vary in how much they express in the nominal field, and how much is relegated to the clausal field (see e.g., Capell 1965). This arbitrariness may be conveniently exploited. In a heavily inflected language like PIE, adnominal modification could well be relegated to a separate NP, because the case endings warranted the interpretation in conjunction with its "head noun". When deflection set in, possibly due to the phonetic erosion of inflectional endings, it was no longer clear

which NP a free adjective semantically adhered to. These vagrant adjuncts could have found shelter in the NP, given that lower syntactic ranks are always arranged more rigidly than higher ranks (see Ross 1973; Plank 1980).

5. Conclusion

In Sections 3.1–3.6 it was argued that the NP has steadily grown over the past few millennia, by successively integrating modifiers that formerly operated as separate constituents at the clausal rank. The first modifiers to enter the NP are simple adjectives, which originally formed appositional NPs in PIE. The integration of elements on higher layers, like possessives and quantifiers, is of later date. Still more recent is the emergence of a separate slot for interpersonal peripheral modifiers, which range over the whole NP. This long-term elaboration of the NP with modifiers of increasingly higher scope is in accordance with the hypothesis in (1) that (elements on) higher layers tend to develop later. The entire process can be schematized as follows:

Expansion of the NP at IL:

Proto-Indo-European	$(R_I: [(T_I)](R_I))$
Proto-Germanic	$(R_I: [(T_I)(T_J)](R_I))$
Old Dutch	$(R_I: [(T_I)(T_J)(T_K)](R_I))$
Middle Dutch	$(R_I: [(T_I)(T_J)(T_K)(T_L)](R_I))$
Modern Dutch	$(R_I: [(T_I)(T_J)(T_K)(T_L) \ldots](R_I): \Sigma^R(R_I))$
Present-day Dutch	$(R_I: [(T_I)(T_J)(T_K)(T_L) \ldots](R_I): \Sigma^R(R_I): \Sigma^R(R_I) \ldots)$

Apart from the integration of more and more modifiers in a single NP ("syntagmatic extension"), the elaboration of the NP is also visible in the increase of potential slot fillers ("paradigmatic extension"). In early Middle Dutch the slot for adjectives began to recruit participles as well, and in Modern Dutch it opened up for gerundive infinitives. This development is again reminiscent of Hengeveld's diachronic hypothesis, as participles enrich the adjective modifier slot with aspect or tense, and gerundive infinitives add mood elements. In present-day Dutch, the slot for interpersonal NP modifiers underwent paradigmatic extension: today focus particles are by no means the only Σ^R modifiers, but alternate with more substantial adverbs and with what may be called clause fragments.

Why do we need the FDG model to describe the diachronic processes discussed in this article? The main advantage of this framework is its *layered* and *modular* approach to language. Without a *layered* design of the

NP, one may easily overlook the directionality of the whole change along the lines of the hypothesis in (1): the expansion of the NP does not come about haphazardly, but follows a well-known path. The *modular* organization, on the other hand, allows us to describe the expansion of the NP not only as a change in (morphosyntactic) form, but also as a change in (interpersonal) function. Both aspects are relevant. As argued, PIE differs from present-day Dutch in the expression of adnominal modification. In PIE it is taken care of in a separate NP. This can be supported by morphosyntactic arguments (word order, inflectional morphology etc., see Section 3.1). As a consequence, the diachronic process is to be represented at the morphosyntactic level (ML) in the FDG representation. However, the decision whether or not to set up a new NP for the expression of an adnominal modifier has to do with the organization of discourse, and as such is also an interpersonal matter. This can be reflected in the FDG representation, as NPs are represented at both the morphosyntactic level and the interpersonal level (IL).

The changes in the interpersonal level should then be understood as follows: speakers of PIE and speakers of Dutch are both able to refer to the same entity, say 'a brown horse', but they diverge in the way they construe this entity. In PIE the 'brownness' is independently asserted, as a separate subact, whereas in Dutch, the most normal way to refer to a brown horse is by summoning one fused concept, although constructions like *a horse, which was brown* or *a horse, more specifically a brown one* offer a way to spread the representation over two subacts.

Variation in construal possibilities is not restricted to NP structure, but occurs in other domains of the grammar as well. In cases like passivization or nominalization to name just a few, languages users equally have various constructions at their disposal to express the same state-of-affairs. They pick out the construction that best suits their communicative needs — a primarily interpersonal matter — but they are obviously bound by the inventory of constructions in their language.

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Notes

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2. π_1, π_2, π_3, π_4 is a technical FG notation for operators (grammatically expressed modifiers) pertaining to the layer of the property (e.g., internal aspect), the SoA (e.g., tense), the proposition (e.g., epistemic modality) and the discourse act (e.g., question tags), respectively.
3. Rijkhoff's (2002) model — predating Hengeveld's — is largely comparable, but it makes some attractive suggestions (e.g., it does not treat modifiers as restrictors but rather as satellites, which may be more accurate). The choice for one or the other representation is not decisive for the argument in this article. As Hengeveld's model is closest to the FDG template in Keizer and van Staden (this issue), it will be the one used in this article.
4. The use of square and round brackets and of capitalization is in conformity with common FDG practice (see Hengeveld and Mackenzie 2008: 44 for details).
5. For the difference between entities of different order, see Lyons (1977: 442–447) and Mackenzie (2004).
6. Abbreviations at ML used in this article are: Advw (adverbial word), Ap (adjective phrase), Aw (adjective word), Gw (grammatical word), Np (noun phrase), Nw (nominal word).
7. This does not only apply to ''adjectives'', but to pronouns as well.
8. For the conventions in the transcription of Hittite data see Friedrich (1960).
9. As this article is about the interpersonal level (IL), the representational level (RL) is left out in the representation in (16). The most straightforward way to represent the NP at RL would be to attribute one x-variable to the entire complex. After all, there is only one entity that is referred to.
10. This Gothic pattern is not due to interference from Greek. The Gothic translation deviates from the Greek original, as the latter does not use an adjective in this Bible verse (*euōdía esmèn*).
11. The dashes in the ML representation are used to indicate that the analysis is not carried through to the morphological level (see Hengeveld and Mackenzie 2008: 43).
12. Whether this strong claim holds for the entire Old English period remains to be seen (see Fischer 2000: 164–168 for some pertinent objections), but Spamer's idea might be correct for the older periods. All in all Old English does make frequent use of the construction in (24) and (26), which has disappeared in present-day English.
13. I have analyzed the second subact (*micel*) as an ascriptive subact, rather than as a referential one, as it consists of merely an adjective.
14. Note that in F(D)G, scope differences are taken to reflect differences in the layering. See Rijkhoff (2002) for an extensive account on why possessives, quantifiers and adjectives are on different layers.
15. In order not to complicate matters unnecessarily, numerals and quantifiers with partitive genitives are excluded from the discussion.
16. Depending on whether *thero* is to be analyzed as an operator or as a modifier, the Old Dutch example *thero sinero micholen genathon* (literally: 'this his great mercy') may display three adnominal modifiers in a row, to be represented as four successive subsubacts. As *thero* is a budding article, an analysis as an operator may be more appealing, so I shall leave the issue here.
17. For the theoretical underpinnings of the more general notion of *extension* in diachronic syntax, see Harris and Campbell (1995), and Croft (2000: 148–156) on what he calls *intraference*.

18. In the case of *zelfs ook*, a compositional semantic analysis can be defended, but other cases, like the NPI *ook maar* are probably better treated as a lexicalized item that is no longer transparent.
19. An alternative analysis is one in which *misschien zelfs* is seen as a composite adverbial, to be represented by a single Σ^R (I owe this idea to Evelien Keizer and Miriam van Staden), in which case (55) is an instance of paradigmatic, rather than syntagmatic extension. Still another analysis is to treat *misschien* as a submodifier of *zelfs*, but this would render the IL representation exceedingly complicated, as such an analysis suggests that Σ^R should get its own T-variable.
20. The corpus I consulted consisted of all issues of a magazine from 1932, when it was first published, to 2000, amounting to 6.5 million words in total. A query was run on strings with sentence adverbs following a preposition and preceding an NP. 79 of the most frequent prepositions and 96 of the most frequent sentence adverbs have been included, and the results were individually filtered in order to retain only unambiguous instances of the relevant pattern. The corpus size difference for the various decades is due to the expansion of the volume of the issues over the years. The proportions of hits to the corpus size have been indexed (1991–2000 = 100).

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