

Interdependence of Diachronic and Synchronic Analyses

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Interdependence of Diachronic and Synchronic Analyses

Edited by Folke Josephson and Ingmar Söhrman

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Folke Josephson

Ingmar Söhrman

University of Gothenburg

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Contributors

Peter Bakker, University of Aarhus
linpb@hum.au.dk

Sven-Olof Dahlgren, University of Gothenburg
svo@delta.telenordia.se

Åke Engsheden Uppsala University
akeengsh@yahoo.se

Eva-Carin Gerö, Stockholm University
eva-carin.gero@klassiska.su.se

Atle Grønn, University of Oslo
atle.gronn@ilos.uio.no

Dag Haug, University of Oslo
d.t.t.haug@ifikk.uio.no

Gerd V.M. Haverling, Uppsala University (formerly at University of Aarhus)
Gerd.Haverling@lingfil.uu.se

Folke Josephson, University of Gothenburg
folke.josephson@hum.gu.se

William B. McGregor, University of Aarhus
linwmg@hum.au.dk

Jouni Filip Maho, University of Gothenburg
maho@brevet.nu

Kåre Nilsson, University of Oslo
kare.nilsson@ilos.uio.no

Kjartan Ottosson, University of Oslo
kjartan.ottosson@iln.uio.no

Jan Rijkhoff, University of Aarhus
jan.rijkhoff@hum.au.dk

Hans Ruge, Johannes-Gutenberg-Universität, Mainz

Ingmar Söhrman, University of Gothenburg
ingmar.sohrman@rom.gu.se

Christina Thornell, University of Gothenburg
christina.thornell@african.gu.se

Introduction

The present volume contains the acts of a Colloquium on Diachronic Typology which was arranged in Gothenburg in November 2004 as a cooperation between the West Scandinavian universities of Gothenburg, Oslo and Aarhus. The project was based on the fundamental insight that a typological approach is indispensable in diachronic studies and that the diachronic dimension of continuity and change is an important complement to synchronic analysis.

The matters treated were conceptual parallels and diachronic relations between grammatical categories in the clause (and in the NP) with respect to actionality, aspect and tense. Other topics were paths of grammaticalization and the syntax, semantics of clitics and verb semantics. Reflexive and Middle were discussed as well as the possibility of an interrelationship of reflexivity and aspect. The depth of the attested diachronic dimension was increased by well-established results of the reconstruction of Proto-Indo-European, Proto-Italic and Proto-Nordic and the typological approach was carried on to modern languages with the diachronic perspective in view. A measure of reconstruction of Bantu and Australian languages was suggested. As the antecedents of formal elements of Creole languages are generally well known a study of grammaticalization in those languages contributed to the diachronic dimension.

In a theoretical article on synchronic and diachronic evidence for parallels between the layered structures of NPs and sentences Rijkhoff (this volume) discusses conceptual parallels and diachronic relations between grammatical categories in the clause (aspect, tense, mood) and in the NP and shows that they can have the same lexical modifier as well as the same aspectual modifier. There are three layers of modification: quality, quantity and location. As Rijkhoff sees it nominal and verbal aspects are qualifying modifiers whereas demonstratives and tense are localizing modifiers. Unidirectional semantic grammaticalization takes place by means of reanalysis and analogy as syntactic reanalysis/metonymy is followed by analogy/metaphor. Semantic change according to grammaticalization theory occurs by metaphor from NP to clause, from space to time and from concrete to abstract and also, by metonymy, from demonstrative to article and from progressive to tense. There is also grammaticalization from the semantically more complex to the less complex. In the clause, aspect markers may change to tense markers and tense markers to markers of mood. In the NP, collective markers can become plural markers and demonstratives can develop into definite articles. Examples are given of diachronic developments from space to time, i.e. collective > perfective, for which evidence from IE languages is cited. It involves qualifying

modifiers such as Germanic *ge-* and Greek *sun-* as well as quantifying modifiers as in the case of nominal plural > verbal plural.

Bakker (this volume) discusses grammaticalization of lexical elements into markers of TAM in Creole and a typology of affix order that differs from the prototypical order where mood precedes tense and aspect (Bybee 1985) since the generalised affix order in Creole languages is *tense-mood-aspect*. In Creole languages tense connects an event in relation to a context, while mood has scope over the proposition and aspect over the verb (Givón 1982). Bakker argues that this could seem to be a more “natural” affix order, though on the other hand Creoles seem to be rather conservative. In most other respects the sources for the TAM elements are similar to those found in other languages. He demonstrates how the well known lexical sources of the grammaticalized elements of Creole languages can be used in the reconstruction of historical processes both in languages in general and in establishing the historical connection between different Creoles. One further advantage that Creoles have in the historical reconstruction of languages is that being fairly young linguistic varieties their TAM markers have uncontested etymologies, a fact that should make the typological analysis clearer, especially since they seem to contain a “minimal” grammatical system where TAM markers are expressed by a limited number of preverbal elements. This affix order as well as grammaticalization turn them into some kind of “test tube” languages.

The function of the PIE verb suffix **-sk'e/o-* has become a central problem in the study of aspect and tense in ancient IE. Cf. Jasanoff (2003: 133–134) who states that productive elaborations of **-sk'e/o-* include the Latin inchoative present in *-ēscō*, the Greek (Ionic) iterative imperfects in *-σκε-*, Hittite iteratives in *-ske/a-* and the Tocharian B causatives in *-sk-*. The development that led to this situation was analyzed by Ruijgh (2004: 49–50) who described the situation in the following way: IE had a stative suffix **-eh₁-*, Ingressive *-eh₁-s-* and inchoative *-eh₁-sk'e/o-* were formed by means of additional suffixation. The inchoative meaning was lost in Greek except for one verb *aldēskei* ‘it is becoming fullgrown’. The suffix *-s* formed a telic stem. Greek *depso* was the only remaining present of this kind. After the PIE period *-s* could become the morpheme of the aorist. Stative + telic gave *ingressive* meaning (cf. *ekrātēsa*). Hittite *-esk-* seems to be a near equivalent to fientive *-es*. Verbs such as Greek *gignosco* and Latin *gnosco* refer to a process step by step leading up to a resultant state (cf. *aldēskei*, *rubescit*). *baskō* ‘I am going step by step’ explains the iterative meaning found in Hittite and Greek preterit forms like *histaskon*, *staskon*, formed from present and aorist stems.

Latin and Greek are the topics of three contributions to this volume. Haug follows the changes of aspectual oppositions from prehistoric times to Latin with its *perfectum* and *imperfectum*. Reconstructed Early and Late Proto-IE and Proto-Italic are used to illustrate the development of the aspectual system. He further discusses the PIE background of Latin and Italic and observes that imperfective stems were obtained by *grammaticalized derivation* with several different suffixes. **-sk'e/o-* was one of those. Haug states that PIE aspect was grammaticalized aktionsart as in modern Slavic, but was obtained by suffixation alone. Aspectual stems were in focus, and various stem

formants had phasal meanings. The present stem became the imperfective at a time when a *regular* opposition between two preterits gave rise to the inflectional category of aspect. The coexistence of forms such as $*g'n_h h_3-$ and $*g'n_h h_3-sk'e/o-$ gave rise to the category of aspect as derivation became grammaticalized. Sanskrit *prcchati* and Latin *posco* show that the consuetudinal and iterative meaning of the $*-sk'e/o-$ form could cause its use as a characterized present.

Haverling (this volume) analyses the development of actionality, tense and viewpoint from Early to Late Latin and how the earlier actional opposition which was expressed by the help of prefixes, was replaced by other means, such as the use of definite and indefinite articles or the viewpoint opposition between past tense and imperfect tense in the Romance languages. In an earlier study Haverling (2000) showed that the Latin unprefixated *-sc-*verbs designate activities and processes of on-going nature and gradual action. When the “inchoative-progressive” *-sc-*verbs were prefixed by *con-* they were *dynamic* and simultaneously *telic*.

Gerö and Ruge study the continuity of function of imperfect and future throughout the history of Greek: The imperfect is understood as a marked imperfective form. The synthetic future is seen as aspectually neutral. The Latin viewpoint *imperfect* which describes a situation from within and can indicate progressivity is used for *backgrounding* (cf. also Haverling 2000 and this volume). The Greek imperfect is used for the same purpose (cf. Rijksbaron 1988). According to Gerö and Ruge (this volume) Greek *imperfective* is a marked form which is used in order to indicate a *backgrounded* event.

The concept of *interval* is discussed by Gerö and Ruge with a reference to Cowper (1999: 218) who stresses that languages choose either *moment* (perfective) or *interval*. In the narrative style of Middle Hittite the *present tense* of progressive *-ske/a-* verbs was used in *tense switching* in order to express *backgrounding* and *interval* (cf. Dahlgren this volume and Josephson 2006 and this volume).

In Josephson's treatment of Hittite actionality and aspect synchrony is involved as well as five centuries of attested diachronic development of the language. In that contribution, as also in Haverling's treatment of Latin actionality in the present volume, there is a discussion of the function of PIE $*-sk'e/o-$ and of questions of imperfectivity, progressivity and distributivity. Josephson furthermore argues that tense as used in Hittite *tense switching* can express aspect, and that actionality and aspect can be expressed by some of the Wackernagel clitics.

The nature of the process that caused a grammaticalization of the PIE $*-sk'e/o-$ form can be understood by an analysis of form and function of the Hittite *-ske/a-* verbs. Josephson raises the question if a grammaticalization of the *-ske/a-* form had been completed in Hittite. The language did not possess an imperfect tense but had a *general past tense* and temporal distinctions were thus similar to those of Italic described by Haug. The preterit of a telic stem was functionally perfective by implicature as in PIE. Using the terminology of Johanson (2000) Josephson proposes that the Hittite *-ske/a-* verbs were +INTRA LOW FOCAL progressives with frequentative (consuetudinal) and iterative meaning. The employment of those verbs shows a remarkable

similarity to that of the *-ske/o-* verbs of Homeric Greek. In Hittite, however, there was a proliferation of *present tense* forms of *-ske/a-* verbs which clearly behaved as progressives. A combination of progressive form and present tense is found in *tense switching*, which is common in narrative texts of the Middle Hittite period (cf. Josephson 2006). This fact illustrates the statement of Haug (this volume) that “progressives should be found in the present tense”.

Hittite verbs with suffixed *-nn-* have a similar, but not identical, meaning. They are not iterative. The action is seen as a whole and the *-nn-* form seems to be a +INTRA HIGH FOCAL progressive (cf. Josephson 2006). They can refer to ongoing motion as *iyanna-* ‘march’, ‘proceed’ or to violent or intensive activity as *hattanna-* (cf. Jasanoff 2003: 122). The action can be *ingressive* in verbs of motion as in the case of *iyanna-* ‘start marching’. The *-nn-* verbs had probably been lexicalized. The suffix *-ske/a-* can be added to the *-nn-* verb.

According to Jasanoff (2003: 193–194) PIE completive stems with *-s* had developed to anteriors, to witness the *-s* endings of Hittite. In PIE, the *preterit* of telic roots was understood as perfective by implicature. Cf. the similar view of Haug (this volume). This was in fact the situation in Hittite which did not have an aorist. For a different reason Hittite was thus similar to Italic, which had lost the PIE imperfect and whose “perfective past was the general past” as stated by Haug (this volume). Haug explains that, in Italic, expressions of temporal distinctions became necessary for secondary verbs. This caused an extension of the use of *-s*-completives to anteriors and then to perfectives in the case of all semantic types. The distribution of resultatives (completives) widened as new anteriors developed, to witness the Sabellian forms suffixed by *-tt-*. A new Latin imperfect developed from constructions such as **agents βwāt* ‘he was an agent’ (with *habitual* meaning). Consequently, aspect could be re-introduced.

The relation in Russian and other Slavic languages between “(aspectual) perfectivity” and “(lexical) telicity – an Aktionsart sometimes also referred to as ‘perfectivity’” (Abraham 2004: 106–107) has become a highly debated issue. In a contrastive study, Grønn (this volume) discusses viewpoint aspect in Russian and French and concentrates on the nature of imperfectivity and problems of markedness that he analyses formally using Optimality Theory which enables him to give an invariance definition of perfectivity to which he contrasts the different usages of unmarked imperfectivity in Russian while French *imparfait* is marked. He argues that the apparent similarities between imperfective viewpoint in the two languages are accidental. French *imparfait* thus gets a uniform interpretation and has the meaning of contemporaneity. Diachronically, there is a pressure towards a binary opposition in Russian that develops a derivational aspectual category Perfective/Imperfective, whereas French partly retains the original inflectional category. The use of Optimality Theory presented in Grønn’s analysis provides a better understanding of TAM in Russian and French at the same time as it points out that accidental similarity has to be considered in typological research, and that accidental parallelisms also add to our knowledge of universal typology.

In a contrastive study of predicative expressions of verbs of transition in Portuguese and Spanish which have mostly been neglected in monolingual descriptions of Romance syntax Söhrman and Nilsson (this volume) are concerned with aspect, aktionsart and tense and how an act of transition is carried out in languages where Latin *stare* and *essere* have developed into two parallel copula verbs thus creating a system with *individual norm* and *general norm* (Falk 1979). The many verbal expressions of this act of semantic transition can be divided into two cognitive categories: *resultative* and *transformational*. Germanic languages (especially Scandinavian languages) tend to use very few verbs to express the semantic value of transition, while Romance and Slavic languages among others need a greater variety. These languages often use many verbs with an ingressive value. This is also sometimes the case in Scandinavian languages as for instance Norwegian *mørkne* with the ingressive suffix *-ne*.

However, in the case of Romance languages both French and Italian turn out to be slightly closer to the Germanic usage of fewer verbs of transition as there are verbs such as *devenir/e/*. In Latin there are inchoative verbs of transition, but *feri* played to a large extent the same role as Scandinavian *bli*. This means that there are considerable typological differences between languages of the same linguistic family. Although Spanish and Portuguese share many linguistic structures it turns out that Spanish has a more complex system and that this polysemantic field to a great extent also concerns aspect and to a lesser extent tense.

The prefix *con-* plays an important role in Haverling's research on viewpoint aspect and tense in Latin (Haverling 2000 and this volume). In Hittite, the clitics *-kan* and *-san*, which commonly occur in Wackernagel's position, function in relation to the verb very much like Latin prefixed *con-* and Greek *sun-* (cf. Josephson this volume). The semantics of Gothic verbs prefixed by *ga-* confirm this use of Hittite *-kan* as both clitics show a tendency towards perfective meaning. Rijkhoff (this volume) also discusses this particle and stresses that Latin *con-* and Gothic *ga-* form a collective perfective and have a quantized realisation.

Italic *com* has the meaning of coming together in one final point as in Osc.-Umbr. *comenei* and Latin *comitium*. Greek *koinós* has the sense of 'gemeinsam' (cf. Untermann 2000: 414). Sabellian *com* also functions as preposition and as postposition accompanied by the *ablative* case. Similarly, Hittite *-kan* frequently occurs with the *ablative* case, but is also commonly found with a *locative* case form. Hittite provides an important insight into the original deictic and directive functions of *-kan* and *-san* (Josephson 1995, 1997 and this volume). Differently from *-kan*, which occurs with *locative* and *ablative*, *-san* can be combined with *allative* or *dative* (Josephson 1995 and this volume). In later diachronic levels of Hittite, *-san* was gradually replaced by *-kan*. The opposite development occurred in Latin where the preverb *con-* in its aktionsart meaning was replaced by *ad-* (and *in-*), as observed by Haverling (2000). Umbrian *ad* had a meaning close to that of *com* (cf. Untermann 2000: 409).

The Hittite clitic "sentence particles" indicate direction and location and also affect the actionality of the verb and possibly aspect (Josephson 1972 and later publications).

The fact that these clitics are mostly found in Wackernagel's position adds one more typological dimension which has been discussed intensively in several recently published studies of Wackernagel clitics in Romance, Slavic and other languages (Gerlach 2002, Beukema & den Dikken 2000, Heggie & Ordóñez 2005). The great majority of the Wackernagel clitics in Slavic and Romance are pronouns whereas in Hittite several Wackernagel clitics have other functions (cf. Josephson this volume).

The behaviour of Wackernagel clitics in Vedic, Avestan and Hittite was described by Hale (1987a, 1987b) who suggested that those that function as *sentence clitics* were the first to be placed in Wackernagel position and that *pronominal clitics* were moved into that position by a later process.

Regarding the order of Wackernagel clitics in ancient IE languages Garrett (1996) observed that the system of Wackernagel Location clitics (WL) in Hittite is different from that of Greek and Sanskrit, which have syntactic clitics, and that it may have developed into a system of *second position affixation*. He says that there are phrasal affix systems in which second-position affixation could be sensitive to lexical featuring of their verb. Syntactically projected elements were diachronically reinterpreted as morphological affixes (Garrett 1996: 123). In Hittite WL was transformed into a phrasal affixation system, in which second-position affixation of that kind was sensitive to lexical features of their verb (Garrett 1996: 126).

Garrett (1996: 102) made the important observation that "Wackernagel's Law in Hittite targets direct objects, certain oblique elements, and unaccusative subjects but not unergative or transitive subjects". Unaccusative subjects are underlying objects. In Hittite there was *grammaticalization* of WL. Grammaticalization allowed subject clitics to mark a distinction that otherwise surfaced only in the perfect construction with *es-* 'be' and *har(k)-* 'have'.

According to Legendre (2000: 219–220), who cites Klavans (1985), verbal clitics are best analyzed as phrasal affixes. The Romanian verbal clitics show clustering and rigid order which "results from the same violable alignment constraints that operate in South Slavic Wackernagel languages". The approach of Legendre (2000), who favors Optimality Theory as do several other scholars in recent literature on clitics in Romance and Slavic languages, seems to be appropriate for explaining the behaviour of those Hittite clitics that belong to verbs, have a rigid order and are moved into a well-ordered chain in Wackernagel position (cf. Josephson this volume).

The necessity to know the order of elements in order to determine meaning was recently stressed by Heggie & Ordóñez (2005: 1–2). They refer to Hopper & Traugott (1993: 7) in regard to "clines" such as *content item > grammatical word > clitic > inflectional affix*. It should be observed that the Hittite clitics *-kan*, *-san*, *-(a)sta* *-(a)pa* and *-an* occupy the final position in the Wackernagel chain and that the function of those clitics when combined with local adverbs and case forms give rise to a comparison with the role of etymologically related local adverbs/preverbs in Germanic, Slavic, Latin, Sabelian and Greek. Of the five Hittite clitics *-kan* and *-san* are especially relevant to

actionality and aspect and are obviously sensitive to the meaning of the verb. They are also found in positions outside of the Wackernagel chain (cf. Josephson this volume).

In an article in which the productivity of a combination of philology and linguistic analysis is demonstrated in a most convincing way, Ottosson (this volume) shows that what he understands as the “regrammation” of the Old Nordic middle voice is a very early phenomenon which falls within the Proto-Nordic period. He shows that the reflexive element was an affix in a period preceding Old Nordic and proposes that the cliticisation is connected with case syncretism. Diachrony and reconstructive method are important in his treatment of Middle Voice semantics and grammaticalisation. Ottosson’s study illustrates the problem of Reflexive and Middle in IE languages generally (cf. Josephson 2003 and this volume). The diachronic dimension of the problem of Clitic and Affix is treated by Ottosson with several references to earlier discussion. It should be added that this discussion was recently enriched by Heggie and Ordóñez (2005) in the introductory article to their volume in which they suggest a development *word* > *clitic* > *affix* and that diachronic development of a different kind was proposed by Garrett (1996) in his explanation of Wackernagel’s Law clitics in Hittite as a system of second-position affixation.

In a recent review of Hetzron (1997) Shlomo Izre’el (2002) treats the question of tense and aspect in Hebrew with reference to the views of various scholars and summarizes the difficulties of the problem by citing from a lecture by Chaim Rabin: “Semitic has either aspects that express tenses or tenses that express aspects”. In his review, Izre’el illustrates the aspectual view of the question by a citation from Dahl (1985: 79): “The marked feature of a form would be aspectual, yet this form may have a regular implicature of tense especially when a perfective form tends to be used for the past tense”. The tense dominant view was recently advocated by Fehri (2004). The text-linguistically oriented approach of Nyberg (1952) which was “based on action versus state and description” was brought to attention by Eskhult (2005) who states that Nyberg, in spite of giving preference to the *temporal* comprehension of the verbal system, nevertheless adopts the subjective, socio-psychological *aspectual* view of J. Pedersen (1926): “The temporal relation pointed out, then depends on the situation that is narrated, or the speaker’s mental attitude towards his utterance”.

The long and intense debate concerning tense and aspect in Hebrew and Arabic from its beginning to the present day is presented by Dahlgren in his contribution to the present volume. He suggests that Hebrew has a fundamental relative *tense* system based on foregrounding and backgrounding in preference to the commonly held opinion which advocates a fundamental *aspectual* system. Questions of markedness are discussed as well as deictic points of time reference in narrative prose.

Dahlgren’s discussion of foregrounding, backgrounding and narrative *tense switching* in Hebrew has an affinity to questions discussed by Gerö & Ruge and Josephson (this volume). As a *typological* parallel it can be added that Berman and Neeman (1994: 292–295) treated tense shifting in modern Hebrew narration and proposed (p. 292) “that switching back and forth between present and past tense forms provides Hebrew

narration with means for signalling aspectual distinctions of a more global, discourse-motivated nature". They observe (n.4) that "this differs markedly from reliance on formal distinctions of grammatical aspects marked in Biblical Hebrew between sequentially ordered foreground events in the developing narrative compared with background states or simultaneous and anterior events marked by different verb-forms".

The grammar of the Bantu language Kerebe was described by Hurel in 1909. The data of his work reflects the result of Catholic missionaries' experience of the language during a long period at the end of the 19th century. Thornell (this volume) has verified the data by consulting a present-day mother tongue speaker of standard Kerebe. The TAM system of the Kerebe verb includes five moods, three tenses, three aspects, immediate, recent and remote past and a definite and an indefinite past. The speaker's reference time and the order of events are taken into account as regards future time. There are subtle distinctions in the past perfective of conditionals. Subject concord markers and TAM markers precede the verbal base and a final vowel expresses aspect and mood. Aspect is intertwined with tense and the present tense expresses the narrative or the habitual. The three past tenses distinguish between recent and remote events. The complicated morphological features form the focus of the description. The lack of data in the earlier descriptions has been remedied by Thornell who promises further fieldwork that will take into account semantic aspects of the TAM system and have a focus on tones.

In his article on the comparative TAM morphology of Niger-Congo languages Maho (this volume) treats of *Persistent* markers in Bantu. His treatment of "frequentative-progressive-persistent" actions is akin to the discussion of similar habitual and continuative functions of the IE *-sk'e/o-* suffix in Latin and Hittite in other contributions to the volume. Maho's article has an important diachronic dimension, which is not uncommon in Bantu studies. He shows that present-day persistives were not originally an inflectional category, but an auxiliary construction coding imperfectives and/or progressives. Maho compares different Bantu languages in order to show structural similarities in the field of Persistent markers. The paper also contains a discussion of problems of cognacy.

McGregor, in his contribution to this volume, proposes a diachronic explanation for case markers in Australian languages. He understands them as having originated from indexical elements in apposition with a NP. They subsequently lost their independent status and deictic value. However, there are no proofs that the indexicals have ever passed through an intermediate state as definite articles, which in many languages is considered as a common grammaticalization target. Another interesting development in several Australian languages is that these indexicals (pronominal or spatial-deictic) developed into genitive and ergative and not accusative, although there are some languages where this happened. There is also a pragmatic element incorporated in the new case-markers, i.e. the status of the referent as definitite. The cognitive process involved is called *semiotisation*. Even if the indexical component is lost, the grammaticalization of the case-markers has led to the establishment of a new morphological,

semantic and pragmatic component. From a typological point of view this shows an alternative to more widespread linguistic changes which opens a universal perspective of the consequences of grammaticalization. In order to discuss these changes McGregor deals with many problems of prehistoric reconstruction of Australian languages.

Differential object marking in Sahidic Coptic is the subject of the contribution by Engsheden. The main factors that govern the distribution of forms are referentiality and thematicity in agreement with patterns that are attested cross-linguistically. Definiteness alone does not trigger the use of the marker *n* but referentiality by itself does not account for cases without it. No noun or pronoun without thematic weight has access to the marker. There is no link to animacy. An historical explanation is attempted which implies that the word order change to SVO that took place in the Old Kingdom in the case of the progressive was followed by the disappearance of the copula, which made the present underspecified. *n*- subsequently spread to other tenses and SVO became the only possible word order. Differential object marking arose in response to word order changes in order to ensure a correct distinction between thematic object and thematic subject. Differential object marking operates only where there is an opposition *ref/non-ref* or *them/non-them* and where there is a connection with high transitivity. Where transitivity is low a pronominal infinitive is used with the object directly attached.

In this volume the comparative analysis of IE languages gives rise to universal typological questions, which are further illustrated by studies on similar problems in Semitic, Hamitic, Bantu, Australian and Creole languages. The book shows the value of a diachronic dimension in providing a better comprehension of linguistic similarities.

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Synchronic and diachronic evidence for parallels between noun phrases and sentences

Jan Rijkhoff

It has been shown that, up to a point, noun phrases and clauses have the same underlying structure: they share the same kind of 'layered' organization and accommodate the same kind of semantic modifier categories (Rijkhoff 2008a). This article presents synchronic and diachronic evidence to substantiate the claim that there are parallels between the layered analysis of the noun phrase and the clause. It will be argued that the layered NP/clause model is supported by two largely unidirectional historical developments in language, one metaphorical in nature ('*from space to time*') the other metonymic ('*from inner to outer layer*').

1. Introduction¹

Both formal and functional linguists have developed models in which clauses and noun phrases (henceforth NPs) can at least partly be analyzed in a similar fashion. But whereas purely formal approaches to grammar have concentrated on similarities between the (underlying) *syntactic* structure of the NP and the clause (e.g. Jackendoff 1977, Abney 1987), functional theories such as *Functional Grammar* or *Functional Discourse Grammar* have investigated parallels between the underlying *semantic* structure of the NP and clause (e.g. Rijkhoff 1988, 1992, 2002, 2008a-b). This article has two main goals: [a] to present a revised and expanded version of the layered (semantic) NP/clause model presented in Rijkhoff (2002), and [b] to give synchronic and diachronic evidence in favour of this particular model.

1. Abbreviations: 1 = first person, 3 = third person, A = adjective, ABS = absolutive, ASP = aspect, C1 = noun class 1, CLF = classifier, CN = connector, DEF = definite, dem = demonstrative, DET = determiner, DS = different subject, ES = ergative suffix, ERG = ergative, EXH = exhortative, F = feminine, FUT = future tense, GENR = general aspect-tense-mood marker, IMP = imperative, IMPF = imperfective, INDEF = indefinite, INF = infinitive, INGR = ingressive, IRR = irrealis, LOC = locative, N = noun, NEG = negative, NP = noun phrase, num = numeral, PAST = past tense, PL = plural, POSS = possessive, PROH = prohibitive, PRT = participle, Rel. cl = relative clause, SG = singular, SIM = simultaneous, SS = same subject, SUPP = support verb, V = verb.

2. Parallels between the semantic (layered) representation of the NP and the clause

There are at least three functional approaches to grammar that make use of so-called layered structures in the representation of linguistic constructions: Halliday's *Systemic Functional Grammar* (Halliday 2004), Van Valin's *Role and Reference Grammar* (Van Valin and LaPolla 1997), and Dik's *Functional Grammar* (Dik 1997) as well as its successor *Functional Discourse Grammar* (Hengeveld and Mackenzie 2006, 2008). Here I will only be concerned with the layering in *Functional Grammar* and *Functional Discourse Grammar*, henceforth collectively referred to as F(D)G.²

Layering was introduced in 'standard' FG in 1989, when Dik adopted Hengeveld's (1988) ideas concerning the scoping of categories such as illocution (interrogative, declarative etc.), mood, tense, and aspect. Inspired by work in other functional approaches to grammar, Hengeveld (1989) proposed a new model of the clause, which consisted of hierarchically ordered layers, each accommodating its own set of grammatical and lexical modifiers, called *operators* and *satellites* (i.e. non-arguments or adjuncts) respectively in F[D]G. His model only applied to clauses, but subsequently Rijkhoff (1988, 1990) also proposed a layered model of the NP, arguing that – up to a point – the underlying semantic structure of NPs and sentences is basically identical. The most recent version of this NP/clause model (Rijkhoff 2008 a-b) is represented in *Figure 1* below, in which operators and satellites are distributed over two levels in the FDG model: the Interpersonal Level and the Representational Level.

Grammatical modifier categories of the NP (e.g. definiteness, number) are symbolized by ω/Ω ; grammatical modifier categories of the clause (e.g. mood, tense, aspect) are symbolized by π/Π . Lexical modifiers in the NP are represented by the symbol τ/T (adjectives, relative clauses, etc.) and in the clause by σ/Σ (adverbs, adverbials); subscripts 0 to 6 indicate the layer at which modifiers are specified.

The layers are organized hierarchically, which means that modifiers that are specified in the highest layer of the clause (illocutionary modifiers Π_6, Σ_6) have the widest scope (the whole message), whereas the scope of clausal modifiers represented at the lowest layer (classifying modifiers π_0, σ_0), which indicate what *kind* of event is being referred to, is restricted to the main predicate (typically a verb). By definition, members of a grammatical modifier category (i.e. *operators*) constitute a smallish, closed set of items, capturing only a limited number of crucial, absolute distinctions (Dik 1997: 160). For example, if Definiteness is a grammatical category in a language, the only two available choices are +Definite or –Definite (Indefinite). Qualifying operators (ω_1, π_1) are not deemed to exist (Rijkhoff 2008a). Since qualities are typically gradable rather than absolute properties, they can only be expressed through lexical modifiers: a house can be 'rather big_A' but not 'rather singular' or 'rather definite'.

2. See Butler (2003: 239-246) for a comparison of layering in *Systemic Functional Grammar*, *Role and Reference Grammar* and *Functional (Discourse) Grammar*.

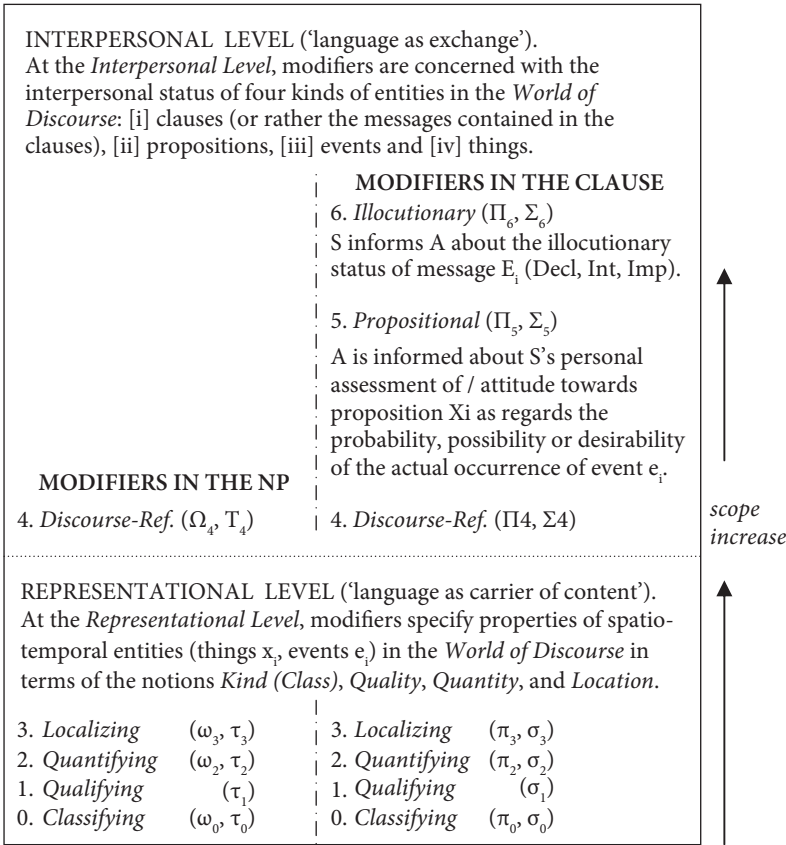


Figure 1. Layers of modification in the NP and in the clause
 (Discourse-Ref. = Discourse-Referential)

The *classifying layer* ('Kind') contains the head of the construction (noun, verb) and accommodates modifiers (*classifying modifiers*) that only relate to the property that is designated by the head, such as nominal or verbal aspect markers. The *quality layer* accommodates *qualifying modifiers*, which specify more or less inherent properties of the entity as designated by material in the *kind layer*, typically qualifying adjectives (if a language has them), and adverb(ial)s of manner, speed or duration. The *quantity layer* contains the quality layer and accommodates *quantifying modifiers*, which express number distinctions (SINGULAR, PLURAL) or specify the cardinality of the referent. In its turn the quantity layer is contained by the *location layer*, which accommodates *localizing modifiers* such as demonstratives, tense markers, or adverb(ial)s such as 'in the garden' or 'yesterday'.

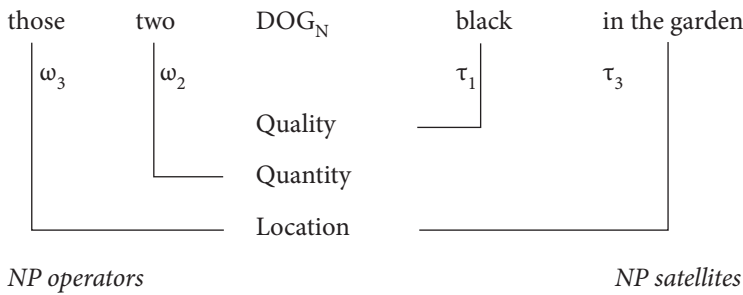


Figure 2. Simplified representation layers of modification in the NP ‘*those two black dogs in the garden*’.

In the NP ‘*those two black dogs in the garden*’ the qualifying modifier ‘black’ only relates to the noun ‘dog’, not the quantity or the location. The quantifying modifier ‘two’ specifies the number of black dog entities, not the number of locations; and both ‘those’ and ‘in the garden’ specify the location of the dog entities with all their qualitative and quantitative properties (Figure 2; notice that this example has no classifying or discourse-referential modifiers).³

It is important to emphasize there is no one-to-one correlation between the form and the function of a modifier; this holds in particular for lexical modifiers (σ/Σ , τ/T). For example, an adnominal prepositional phrase (PP) can occur as a localizing satellite (τ_3), a quantifying satellite (τ_2), or as a qualifying satellite (τ_1) in the NP (Rijkhoff forthcoming).

2.1 Two levels: Interpersonal and representational

Figure 1 shows that modifiers in the NP and in the clause can be divided into two major subcategories: interpersonal and representational (or descriptive) modifiers (Hengeveld and Mackenzie 2008). This division reflects the double function of NPs and clauses (Rijkhoff 2002: 231): they provide a physical description of a thing or an event and at the same time they are the constructions used to refer to entities in the world of discourse created by the interlocutors. The two levels are briefly discussed in turn below.

3. The reader is referred to Dik (1997) and Hengeveld and Mackenzie (2008) for an account of the way the layered underlying structure is turned into an actual linguistic expression in FG and FDG respectively.

2.1.1 *Modifiers at the Interpersonal Level*

The Interpersonal Level is regarded as that part of the grammar that is concerned with 'language as exchange' or 'language as communicational process' (Butler 2003: 111; Halliday 2004: 61) and has three layers of modification, accommodating

- discourse-referential modifiers for things or events (i.e. first and second order entities), which are specified at the fourth layer;
- proposition modifiers for propositions (i.e. third order entities), which are specified at the fifth layer;
- illocutionary modifiers for clauses (or rather: the message contained in the clause, a fourth order entity), which are specified at the sixth layer.

Grammatical and lexical modifiers (*operators* and *satellites*, resp.) at the Interpersonal Level in Figure 1 inform the Addressee about

- a. the *existential status* of a spatial or temporal entity (thing x_i and event e_i) in the world of discourse (more on this below);
- b. the *modal status* of proposition X_p , in particular the speaker's mental or cognitive attitude towards the proposition; at this level we find, for example, grammatical and lexical expressions of subjective modality and evidentiality (Dik 1997: 295–299);
- c. the *illocutionary status* of the clause; some relevant *operator* categories are Declarative, Interrogative, Imperative, Exclamative (on illocutionary satellites, see Dik 1997: 300–307).

Since this paper is concerned with parallels between NP and clauses, I will only be concerned with modifiers at the Interpersonal level that are specified at the fourth layer, the so-called 'discourse-referential modifiers' in Figure 1 (notice that I confine myself to NPs used to refer to concrete objects or 'things', so NPs such as 'last week's meeting', 'her true love' or 'your bad answer' will be ignored here; see also footnote 5).

Discourse-referential modifiers relate to the status of the referent (thing, event) in the world of discourse (Rijkhoff and Seibt 2005; Rijkhoff 2008 a-b) in that they specify whether or not an entity occupies a certain spatio-temporal region in the discourse world. The relevant *grammatical* modifier categories are Definite/Indefinite and Specific/Non-specific in the NP and Realis/Irrealis in the clause. Adverbs and adjectives such as 'actually' and 'same' are instances of discourse-referential *satellites*.

The relation between discourse-referential operators is particularly interesting because it is symmetrical in one way and anti-symmetrical in another (with a special role for Specificity).⁴ The grammatical categories Realis and Definite are similar because they both indicate that the entity, i.e. the event or thing referred to by the speaker,

4. In order to explain symmetrical and anti-symmetrical relations between (ir)realis and (in) definiteness, we need to distinguish between specific and non-specific indefinite reference. Consider the following examples, which show that there are two ways to continue 'Max wants a dog' (Karttunen 1976).

(already) has a certain location (is ‘grounded’) in the shared world of discourse. By contrast, Irrealis and (non-specific) Indefinite signal that the entity referred to by the speaker does *not* have a proper location (is not ‘grounded’) in the world of discourse – at least not yet. There are thus two symmetries, one linking the grammatical categories Realis and Definite, the other linking Irrealis and Non-specific Indefinite (Figure 3).

NOUN PHRASE (thing)	OCCURRENCE IN WORLD OF DISCOURSE	CLAUSE (event)
DEFINITE	<i>thing or event (already) has a location in the discourse world, i.e. the entity is ‘grounded’</i>	REALIS
NON-SPECIFIC INDEFINITE	<i>thing or event does not have a location in the discourse world (yet), i.e. the entity is not ‘grounded’</i>	IRREALIS

Figure 3. Symmetry between Definite/Realis and Non-specific Indefinite/Irrealis

The idea that irrealis and non-specific indefinite reference are closely related is supported by the fact that in some languages, such as Jacaltec (Mayan), the same marker is used to express these notions (variation is due to vowel harmony):⁵

- Jacaltec (Craig 1977: 93):
- (1)

Way-oj ab naj
sleep-OJ EXH CLF/he
‘Would that he slept!’ [-oj: exhortative mood]
- (2)

X-Ø-’oc heb ix say-a’ hun-uj munlabel
ASP-ABS.3-start PL woman look_for-FUT a-OJ pot
‘The women started looking for a pot.’ [-oj marks non-specific reference]

Anti-symmetry between (in)definiteness and (ir)realis has to do with the number of ways that an entity can be definite/indefinite (thing) or actual/non-actual (event). Here

a. Specific-indefinite reference: Max wants **a dog**. It is black

b. Nonspecific-indefinite reference: Max wants **a dog**. It must be black.

The difference is due to the fact that in a. reference is made to a specific dog (‘Max wants a certain dog, which is known to be black’), whereas in b. the speaker does not refer to any particular dog (English has no special article for specific or non-specific reference unlike, for example, many Polynesian or sub-Saharan African languages).

5. For another example, see Du Feu (1987, 1989, 1996) on Rapanui *he*, which used to mark both ‘indefinite action’ (–tense) and nonspecificity. Nordlinger and Sadler (2004) discuss aspect/tense/mood marking on nominals.

Definite aligns with Irrealis in that both definite things (referents of definite noun phrases) and non-actual events (referents of irrealis clauses) can occur in the world of discourse for many different reasons. Thus, the referent of an NP can be definite, for example, because

- it has been mentioned before (anaphoric use)
(3) *I just bought a book and a calendar. Surprisingly, **the book** was much cheaper than **the calendar**.*
- it is available in physical context (situational or deictic use)
(4) *Now tell me – what do you see on **the monitor**?*

Similarly, there are many reasons why an event is non-actual, as is shown in these examples from the Papuan language Amele (Roberts 1990: 371–372; see also Elliott 2000).

Amele

- (5) *Ho bu-busal-eb* *age qo-qag-an*
 pig SIM-run.out-3SG.DS.IRR 3PL hit-3PL-FUT
 ‘They will kill the pig as it runs out.’
- (6) *Ho bu-busal-eb* *age qu-ig-a*
 pig SIM-run.out-3SG.DS.IRR 3PL hit-3PL-IMP
 ‘Kill the pig as it runs out!’
- (7) *Ho bu-busal-eb* *cain qu-wain*
 pig SIM-run.out-3SG.DS.IRR PROH hit-NEG.F.3PL
 ‘Don’t kill the pig as it runs out!’

By contrast, there is basically one reason why an NP is (specific) indefinite: because the entity (thing) designated by the indefinite NP has not been properly introduced in the world of discourse – hence the speaker assumes that the addressee does not know (yet) what particular thing is being referred to. There is also only one reason why a sentence is in the realis mood: because the entity (event) designated by the sentence is real, i.e. it has happened (or is happening). Thus *anti-symmetry* between (in)definiteness and (ir)realis is due to the fact that

- referents of *definite NPs* and referents of *irrealis clauses* are part of the world of discourse for many different reasons;
- referents of *specific indefinite NPs* and referents of *realis clauses* exist in the world of discourse for one and the same reason: they 'ground themselves' in the world of discourse when being referred to for the first time (Figure 4).

NOUN PHRASE (thing)	NUMBER OF REASONS FOR AN ENTITY TO BE MARKED AS (IN)DEFINITE OR (IR)REAL		CLAUSE (event)
DEFINITE	<i>many</i>	<i>one</i> (grounds itself)	REALIS
SPECIFIC INDEFINITE	<i>one (grounds itself)</i>	<i>many</i>	IRREALIS

Figure 4. Anti-symmetry between Definite/Realis and Specific Indefinite/Irrealis

2.1.2 *Modifiers at the Representational Level*

The Representational Level deals with language ‘as carrier of content’ (Butler 2003: 111). Descriptive modifiers are concerned with properties of the referent of the NP (thing) or clause (event) in terms of the notions *Class* or *Kind* (what kind it is), *Quality* (how it is), *Quantity* (how much/many it is) and *Location* (where it is).

2.1.2.1 *Localizing modifiers*

Localizing modifiers specify locative properties of the entity (thing, event) as defined by material in the quantity layer. Grammatical expressions of the notion ‘location’ such as adnominal demonstratives are referred to as *localizing operators*; a lexical expression such as the adnominal NP ‘on the wall’ in ‘*the picture on the wall*’ is an example of a *localizing satellite*.

– *localizing operators* ω_3 and π_3

Adnominal demonstratives (ω_3) are grammatical manifestations of the notion *location* in the NP. As is the case with other modifier categories, they do not occur in all languages (see e.g. Derbyshire (1979: 131) on Hixkaryana), and in some languages they require the presence of a classifier or a definite article.

Mandarin Chinese (Li and Thompson 1989: 105)

- (8) *nèi-tiáo niú*
DEM-CLF cow
‘that cow’

Since tense is “[..] grammaticalised expression of location in time” (Comrie 1985: 9), inflectional tense markers (π_3) are obviously instances of localizing operators at the level of the clause.

– *localizing satellites* τ_3 and σ_3

Recall that there is no one-to-one relationship between the form of a modifier and its place in the layered representation of a linguistic construction. Thus, a localizing satellite in the NP can take the form of an adnominal prepositional phrase such as ‘on this carpet’, as in:

- (9) *The stain on this carpet was difficult to remove.*

Restrictive relative clauses and possessive modifiers ('genitives') are also typically used as localizing satellites (Rijkhoff 2002: 173–178, 194–211; on the relationship between possession and location, see e.g. Clark 1978 and Heine 1997).

- (10) *Could you give me the book that is lying on that table_{Rel.cl}?*

- (11) *I'd like to talk to the father of that boy_{Poss.NP}.*

It is essential for the localizing satellite to provide a referential anchor for the addressee, i.e. the localizing satellite must contain a reference to an entity that is easily identifiable for the addressee and which makes it possible to locate the referent of the matrix NP. In the examples above the referential anchors are: 'this carpet', 'that table' and 'that boy'. They enable the hearer to locate (and identify) the referents of the embedding matrix NPs: 'the stain', 'the book', and 'the father' respectively. Referential anchors also play an important role in presupposition (Rijkhoff 2002: 176, Rijkhoff forthcoming).

2.1.2.2 Quantifying modifiers

Quantifying modifiers specify quantitative properties of the referent (thing or event) and relate to all the material contained in the quality layer. Grammatical expressions of the notion 'quantity' are *quantifying operators*; lexical expressions are called *quantifying satellites* (Rijkhoff 2002: chapter 5).

- *quantifying operators* ω_2 and π_2

In many languages number distinctions are either optional or altogether absent in the NP (Rijkhoff 2002: 106–119, 146–155), but if nominal number is a relevant category in some language it is commonly expressed by some grammatical element like a nominal affix:

Dutch

- (12) *fiets-en*
bicycle-PL
'bicycles'

In the absence of clear lexical properties, adnominal cardinal numerals are often categorized as 'form words' rather than 'content words' in many languages (notice that the atoms of a numeral system constitute a closed class; Greenberg 1978b: 256):

Hungarian (Moravcsik 1994: 8)

- (13) *két lány*
two girl
'two girls'

Some languages also employ grammatical means to indicate how often an event takes place. When reference is made to a single occurrence this is called *semelfactive aspect*

and in the case of multiple occurrences this is called *iterative*, *repetitive*, or *frequentative aspect*. This example from Hidatsa (Amerind) contains such a number marker at the level of the clause (glossed as ‘iterative mood’ in the source grammar):

Hidatsa (Matthews 1965: 158)

- (14) *Wí i hírawe ksa c*
 woman she sleep INGR ITER.MOOD
 ‘The woman kept falling asleep.’

– *quantifying satellites* τ_2 and σ_2

In quite a few languages across the globe cardinal numerals are categorized as lexical elements or they appear as predicates (Rijkhoff 2002: 168–172). For example, in Krongo numerals are categorized as verbs, which appear in the imperfective when they modify a noun (τ_2):

Krongo (Reh 1985: 252)

- (15) *nóo-còorì nk-óotòonò*
 PL-house CN.PL-IMPF:be_three
 ‘three houses’

In Samoan the numeral appears as the head of a special kind of relative clause introduced by the general tense-aspect-mood marker [GENR] *e* if the NP has specific reference.

Samoan (Mosel and Hovdhaugen 1992: 318)

- (16) *Sa fau=sia e Tagaloaalagi fale e tolu ...*
 PAST build=ES ERG Tagaloaalagi house GENR three ...
 ‘Tagaloaalagi built three houses...’

Adverbs and adverbials are typically employed as lexical modifiers to specify how often an event occurs (σ_2), as in:

- (17) *Every once in a while/Sometimes/Rarely our cat catches a mouse.*

2.1.2.3 *Qualifying modifiers*

Qualifying modifiers specify more or less inherent properties (*qualities*) of the referent. Lexical expressions of the notion Quality are referred to as *qualifying satellites*; recall that there are no *qualifying operators* (section 2).

– *qualifying satellites* τ_1 and σ_1

Qualifying satellites are lexical modifiers specifying notions such as size, weight, color, age, and value in the case of things and manner, speed or duration in the case of events. They are typically expressed by adjectives (in the NP) or adverbs (in the clause) – if a language has these lexical categories.

(18) *a beautiful*_{Adj} *song*_N

(19) *She sang*_V *beautifully*_{Adv}

Adjectives and adverbs are, however, not attested in every language. If a language lacks a distinct class of adjectives, it will usually employ qualifying NPs or relative clauses instead, as in the English paraphrases ‘the man **with richness**’ or ‘the man **who is rich**’. Speakers of Galela, for example, use a kind of relative clause (headed by a stative verb) and Hausa speakers employ an adnominal NP (headed by an abstract noun). Notice that the first syllable of the attributive verbal predicate in question is reduplicated in Galela, yielding the participial form.

Galela (van Baarda 1908: 35)

(20) *awi dohu i lalamo*
his foot it be_big:PRT
‘his big foot’

Hausa (Schachter 1985: 15)

(21) *mutum mai alheri / arzaki / hankali*
person with kindness / prosperity / intelligence
‘a kind/prosperous/intelligent person’

Wambon is one of the languages that, apart from one or two exceptions, has no distinct class of adverbs. This language employs medial verb constructions to express qualitative notions at the level of the clause (the verb *matetmo* is derived from the adjective *matet* ‘good’).

Wambon (de Vries 1989: 49)

(22) *Jakhov-e matet-mo ka-lembo?*
they-CN good-SUPP.SS go-3PL.PAST
‘Did they travel well?’

2.1.2.4 *Classifying modifiers*

Classifying modifiers further specify the *kind* of entity denoted by the noun or verb and appear at the innermost layer of modification, i.e. between the head constituent and the layer that accommodates qualifying modifiers.

– *classifying operators* ω_0 and π_0

Classifying operators are grammatical modifiers that (further) specify what kind of spatial or temporal entity is being referred to. Just as verbs are coded for a particular *Aktionsart* (‘mode of action’: activity, achievement, state etc.), nouns are lexically coded for a particular *Seinsart* (‘mode of being’: singular object, mass, set, collective etc.; Rijkhoff 1992, 2002). And just as verbal aspects like ‘perfective’ and ‘imperfective’ modify the *Aktionsart* (or *lexicalized aspectuality*; Dik 1997: 224f.), nominal aspect

markers can change the *Seinsart* of a noun (Rijkhoff 2002: 100–121). For example, nouns in Oromo are lexically coded for a *Seinsart* that I have called ‘set’ (meaning that Oromo nouns are transnumeral and can be in a direct construction with a numeral), but when they are provided with a (what I call) collective or an individual aspect marker, they designate a special kind of set, viz. a *collective set* or a *singleton set* (with just one member) respectively:

Oromo (Stroomer 1987: 76–77, 84–85)

(23) *farda* ‘horse/horses’ (unmarked set) vs. *fardoollee* ‘horses’ (collective set)

(24) *nama* ‘man/men’ (unmarked set) vs. *namica* ‘a/the man’ (singleton set)

– classifying satellites τ_0 and σ_0

Classifying satellites in the NP are lexical items that further specify what kind of entity is being denoted by the head noun, for example: *annual* in ‘annual report’, *presidential* in ‘presidential election’, *electric* in ‘electric train’, *social* in ‘social security’, *of sin* in ‘house of sin’ (Rijkhoff forthcoming). They typically appear adjacent to the head noun and differ from qualifying satellites in that they do not specify an objective property of the entity (*round table*, *red car*) or the speaker’s subjective attitude towards the entity (*interesting dissertation*, *beautiful picture*), but rather a particular subclass of the entity in question. In English classifying adjectives differ from qualifying adjectives in that they usually do not admit intensifiers, comparison, or predicative position (Quirk et al. 1985: 1339; on non-predicative adjectives, cf. also e.g. Farsi 1968, Levi 1973; see also Giegerich 2005 on associative adjectives):

(25) *an electric train* vs. * *a very electric train* [intensifier]

(26) *a medical examination* vs. * *a more medical examination* [comparison]

(27) *the presidential election* vs. * *the election is presidential* [predicative position]

At the level of the clause, so-called ‘stripped nouns’ are good examples of classifying satellites (Miner 1986, 1989; Gerds 1998). Stripped nouns are rather similar to incorporated nouns, but the crucial difference is that a stripped noun is a separate word (according to phonological criteria such as stress placement), which must appear next to the verb. Thus, in Kusaiean adverbs can appear between verb and object (28a) but not between verb and stripped noun (28b).

Kusaiean (Gerds 1998: 94; original example in K. Lee 1975)

(28) a. *Sah el twem upac mitmit sac*
 Sah he sharpen diligently knife the
 ‘Sah is sharpening the knife diligently.’

With stripped noun *mitmit* 'knife':

- (28) b. *Sah el twetwe mitmit upac*
 Sah he sharpen knife diligently
 'Sah is diligently knife-sharpening.'

In these examples a distinction is made between sharpening in general (28a) and a certain kind of sharpening, namely knife-sharpening (28b).

3. Synchronic and diachronic evidence for parallels between the layered structure of NPs and clauses

Some synchronic and diachronic evidence for the layered analysis of clausal structures was presented in Hengeveld (1989) and several subsequent publications.⁶ This section is specifically concerned with evidence in support of parallels between the layered organization of NPs and clauses, the most recent version of which is shown in Figure 1.

3.1 Synchronic evidence

3.1.1 *Morpho-syntactic parallels*

When we consider the relative order of demonstrative (dem), numeral (num), qualifying adjective (A) and noun (N) in languages across the globe, we find that ordering patterns typically reflect the layered (semantic) organization of the noun phrase presented above (Rijkhoff 2004).⁷

- (29) dem num A N Alablak, Dutch, Georgian, Hungarian, Kayardild, Ket,
 Nama Hottentot, Imbabura Quechua, Pipil, Tamil, Turkish
 dem num N A Burushaski, Guaraní (also e.g. French and other Romance
 languages)

6. For evidence in favour of the layered model of the clause, see Dik et al. (1990) and other articles in Nuyts et al. (eds.) 1990; see also e.g. Dik and Hengeveld (1991), Cuvalay-Haak (1997), Crevels (1999). For an early discussion of variables and scoping in FG, see Vet (1986).

7. Notice that we are only concerned with integral, non-complex NPs that are used to refer to concrete objects (see also section 2.1.1). This excludes, for example

- complex NPs, containing embedded modifiers such as relative clauses (recall that in many languages adjectival or numerical notions are expressed in the form of an embedded modifier);
- NPs containing bound modifiers (sometimes modifiers are expressed as clitics, affixes, incorporated forms or part of a compound);
- appositional forms of modification (in certain languages some or all modifiers may or must be in an appositional relation with the structure containing the head noun; Rijkhoff 2002: 19–23).

dem A N num	Zande
dem N A num	Bambara
num A N dem	Berbice Dutch Creole, Bislama, Sranan
num N A dem	Basque, Hmong Njua
A N num dem	Sango
N A num dem	Oromo, Fa d'Ambu, Nubi

In all patterns the localizing modifier (dem) is in the periphery and the qualifying adjective (A) immediately precedes or follows the noun, as in the following abstract schema:

(30) dem num A N A num dem

From a logical point of view there are 16 additional ordering possibilities (N dem A num, num A dem N, etc.), but very few of these patterns have been attested so far. Languages that are deemed to use such 'non-iconic' NP internal ordering patterns are discussed in Rijkhoff (2002: 19–23, 273–276, 324–332; 2004), where it is argued that in none of these cases we are actually dealing with simple, integral NPs in which modifiers are expressed as free forms. For example, if adjectives do not appear next to the noun in some language, this is probably because they are actually verbs or nouns heading an embedded phrasal modifier (relative clause or noun phrase; cf. Heine 1980: 182, Dryer 1992: 96). It may be hypothesized that at least one of the following statements is true for the handful of languages that are assumed to display a 'non-iconic' word order pattern in the NP with respect to the ordering of demonstrative, numeral, adjective and noun.

- so-called adjectives are better categorized as verbs or nouns, i.e. adnominal relative clauses or NPs, turning the NP into a non-simplex construction (examples (20) and (21));⁸
- numerals are expressed as phrasal modifiers, also turning the NP into a syntactically complex construction (examples (15) and (16));
- modifiers are expressed as bound rather than free elements, which means their expression is a matter of morphology rather than syntax;
- modifiers are in apposition (rather than fully integrated constituents). For example, in the Australian language Kalkatungu "there are in fact no noun phrases, but [...] where an argument is represented by more than one word we have nominals in parallel or in apposition. [...] Each word is a constituent of the clause [...]" (Blake 1983: 145; see also Blake 2001);
- modifiers are assigned a special pragmatic function like Focus, indicating we are dealing with a marked pattern (Rijkhoff 2002: 272–273).

A similar tendency to iconically adhere to the layered organization (albeit less strictly) is attested in ordering patterns at the level of the clause. In English, for example,

8. Apart from languages without modifying adjectives, there are also languages without adnominal demonstratives or numerals as well as languages in which a certain adnominal modifiers never seem to co-occur in the same NP (Rijkhoff 2002: 329f.; Derbyshire 1979: 132; Everett 2005).

different kinds of temporal satellites tend to occur in the order time duration ('for a short while' = *qualifying satellite*), time frequency ('every day or so' = *quantifying satellite*) and time position ('in January' = *localizing satellite*), as in this example (Quirk et al. 1985: 551):

- (31) *I was there for a short while every day or so in January*
Quality (duration) Quantity (frequency) Location (in time)

In her study on morphology, Bybee (1985: 196) investigated the ordering of inflectional morphemes relative to the verb in a sample of fifty languages. She found that aspect (π_0) occurs closest to the stem, followed by tense (π_3), and then by mood (Π_4/Π_5). The only exception to this ordering she found in her 50-language sample is in Ojibwa, where the dubitative suffix precedes the preterit suffix.

3.1.2 *Isomorphism I: NPs and clauses sharing the same lexical modifier*

Languages across the globe employ various kinds of parts-of-speech systems (Rijkhoff 2007). Figure 5 shows that there are both qualitative and quantitative differences between the parts-of-speech systems. Languages not only differ in the *number* of major word classes they employ, but also with respect to the *degree of flexibility* displayed by the members of a certain word class. For example, Samoan is deemed to have a single, extremely flexible class of *contentives* (Mosel and Hovdhaugen 1992: 73–74, 77), whereas Hungarian has four distinct lexical word classes: verbs, noun, adjectives and adverbs. For a detailed discussion of parts-of-speech systems, including the intermediate types (not indicated in Figure 5), the reader is referred to Hengeveld et al. (2004) and Hengeveld and Rijkhoff (2005).

Flexible	Type 1	Contentive				
	Type 2	Verb		Non-verb		
	Type 3	Verb	Noun		Modifier	
Rigid	Type 4	Verb	Noun	Adjective		Adverb
	Type 5	Verb		Noun		Adjective
	Type 6	Verb			Noun	
	Type 7	Verb				

Figure 5. Parts-of-speech systems (based on Hengeveld 1992; adverb = manner adverb).

In the present context, languages of Type 3 are of special interest, as in these languages nouns and verbs are modified by members of the same word class (called *Modifier* in

Figure 5). Let us first consider an example from English, where manner adverbs are often derived from adjectives by adding the derivational suffix *-ly*.

(32) *She recorded a beautiful_A song_N*

(33) *She sang beautiful -ly_{Adverb}*

By contrast, languages of Type 3 such as Ngiti have a single word class (*Modifier*) whose members are all flexible in that they can all be used to modify nouns as well as verbs (Kutsch Lojenga 1994: 336):

[In Ngiti] there is no morphological nor a clear syntactic distinction between a class of adjectives and a class of adverbs in Ngiti. The functional term *modifiers* is therefore used [...] to cover a fairly large grammatical class of words, containing about 150 items, which are neither nouns nor verbs and which all have a modifying function in relation to different constituents.

In other words, in Ngiti and other languages of Type 3 we find that the same element is used as a *quality satellite* (σ_1, τ_1) in the NP and in the clause. The same true for Dutch:

Dutch

(34) *Ze zong een mooi _{τ_1} lied*
 she sang a beautiful song
 'She sang a beautiful song.'

(35) *Ze zong mooi _{σ_1}*
 she sang beautiful(ly)
 'She sang beautifully.'

3.1.3 Isomorphism II: NPs and clauses sharing the same grammatical modifier

In quite a few languages, we also find the same *grammatical* modifier being used in the clause and in the NP. For example, several studies have remarked on phonological similarities between markers of nominal and verbal plurality, both quantifying operators (Frajzyngier 1977, 1997; Mithun 1988; Newman 1990; Gil 1993). More will be said about this in section on 3.2 on diachronic evidence for layering.

It was already mentioned in section 2.1.1 that in Jacaltec discourse-referential operators in the clause (Irrealis) and in the NP (Non-specific Indefinite) are formally identical. Fongbe (a Kwa language mainly spoken in Benin) is an example of a language