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### The expression of modifiers and arguments in the noun phrase and beyond

*A typological study*

van Rijn, M.A.

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# 5

## Conclusions and outlook

In this final chapter, I will review the findings obtained in the preceding chapters, which provide an answer to the following central research question: *To what extent does the modifier/argument distinction constrain the cross-linguistic expression of dependency relations?* Four dimensions of expression were investigated, for different dependency relations: (i) locus of marking in possessive NPs (Chapter 2), (ii) the referentiality of person marking in possessive NPs, (iii) the formal realization of person marking in possessive NPs (both in Chapter 3), and, finally, (iv) the identity of marking across possessive NPs, adpositional phrases, and one- and two-participant verbal main clauses (Chapter 4). Each domain of inquiry will be discussed in turn in Section 5.1, where I will summarize the main findings, draw conclusions, and discuss the contribution that each study makes to the fields of locus of marking, grammaticalization and alignment. In Section 5.2, I will examine some potentially fruitful topics for future research.

### 5.1 Conclusions

The general prediction that follows from the opposition between modifiers and arguments is that modifiers, as functionally optional enrichments of the head, are in greater need of (more expressive means of) morphosyntactic coding than arguments, which are inherent to the head's lexical semantics. This asymmetry would be in keeping with the relationship between functional markedness and morphosyntactic coding. The data presented in this thesis confirm this prediction, both with respect to locus of marking in possessive NPs (Chapter 2) and with respect to the referentiality and formal realization of possessive person markers (Chapter 3). The findings obtained in each chapter are discussed below.

Focusing first on locus of marking, the prediction resulting from the marked status of modifiers as functionally optional enrichments of the head is that they are more likely to be the locus of morphosyntactic coding than arguments. This prediction is borne out by the data; the findings are schematically outlined in Table 1 below.

Table 1: Cross-linguistic tendencies of locus of marking

	Possessor		Possessum
Alienable possession	Modifier	>	Head
	$\cap$		$\cup$
Inalienable possession	Argument	<	Head

As indicated by angled brackets in the table, there is a preference for modifier-marking in possessive head-modifier relations (“alienable possession”), and a preference for head-marking in possessive head-argument relations (“inalienable possession”). These preferences yield two generalizations for locus of marking in languages with an adnominal alienability split, as represented by implication signs in Table 1: (i) if a language marks the head in head-modifier relations, it also marks the head in head-argument relations, and (ii) if a language marks the argument, it also marks the modifier. These findings corroborate earlier findings by Nichols (1986, 1988, 1992), but go beyond her work in two ways.

First, they reflect a universal, semantic opposition between modifiers and arguments. Nichols does not base her argumentation on the semantic underpinning of the asymmetries in (in)alienable coding, but argues instead that they are due to differences in frequency: inalienable possessums simply co-occur with a possessor more often than alienable possessums (see also Haspelmath 2008a, 2008b). However, as pointed out in Chapter 2, this need not always be the case: in many languages, such as Tidore (West Papuan, Indonesia), all kinds of dependents may be freely dropped – be they alienable or inalienable possessors – due to the low degree of referential density of these languages. In fact, it may well be that, in individual languages, inalienable possessors are dropped more often than alienable possessors, because they tend to be highly contextually salient: kinship terms tend to have 1<sup>st</sup> or 2<sup>nd</sup> person possessors, and possessors of body parts are typically mentioned in previous discourse. It remains unclear how these facts relate to a frequency-based account of alienability splits.

Second, I depart from work by Nichols in systematically separating function (referentiality) and form (morpho-phonological realization) in the analysis of person forms in terms of locus. It is shown that bound person forms need not express agreement, but may be referential expressions of the dependent themselves, while freestanding person forms need not be referential (i.e. pronouns), but may express agreement. Following work by Hengeveld (2012), the distinction between referential markers and agreement markers is made by

considering the distribution of grammatical feature information – specifically, possessor role information – in the possessive NP: while referential markers expand on the possessor role information provided by the possessor noun, agreement markers are mere copying devices, and as such can only express those features provided by the possessor NP. Accordingly, bound referential markers, which are shown to be cross-linguistically common, are not only head-marking, but mark (the possessor role of) the dependent as well. This demonstrates that, from a semantic perspective, dependent-marking may – and indeed frequently does – occur on heads. This observation in turn challenges the clear-cut distinction between head-marking and dependent-marking made in traditional locus of marking typology. Moreover, by looking at the distribution of feature information in possessive NPs in individual languages, this study provides a more detailed analysis of person markers in terms of agreement/(cross-)reference than in Nichols’ work and other literature (e.g. Siewierska 1999, 2004). Finally, on a more general level, this study highlights the importance of the typology of referential/agreement marking for locus of (person) marking.

In Chapter 2, I show that, cross-linguistically, modifiers are not only more likely to be the locus of morphosyntactic marking, they are also more likely to be expressed by referential markers than arguments. This finding is captured in Table 2 below:

Table 2: Cross-linguistic tendencies of referentiality of possessive person marking

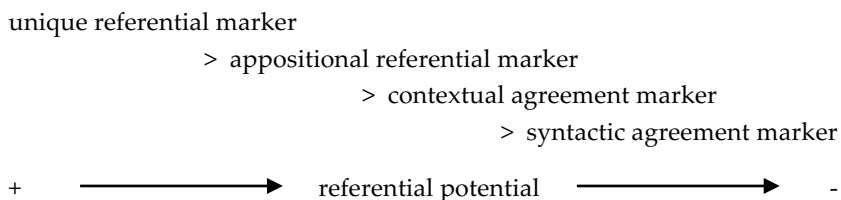
Head-modifier relations (alienable possession)	Referential marker	>	Agreement marker
	$\cap$		$\cup$
Head-argument relations (inalienable possession)	Referential marker	>	Agreement marker

The implication signs in the table reflect the following generalization: (iii) if possessive head-argument relations are expressed by referential markers, possessive head-modifier relations are expressed by referential markers as well, and, conversely, if possessive head-modifier relations are expressed by agreement markers, possessive head-argument relations are expressed by agreement markers as well. This finding supports the functional markedness of modifiers compared to arguments, as a result of which modifiers are more often expressed by referential markers than arguments. As indicated with the angled brackets, both types of relations prefer referential marking when considered on

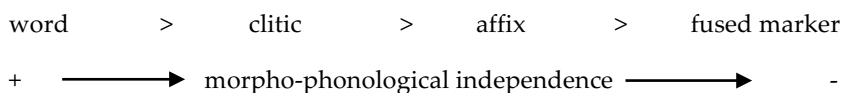
their own. A possible explanation, offered in this chapter, is the low-level saliency of possessors in discourse compared to other dependents, such as verbal arguments in main clauses.

The generalizations summarized in Table 2 are corroborated in Chapter 3, which studies a larger sample of languages with an alienability split. The prediction tested in this chapter is that modifiers are in greater need of a more referential and a more formally independent expression type than arguments. The diachronic implication of this prediction is that the possessive coding of arguments (“inalienable” possessive coding) is more grammaticalized than that of modifiers (“alienable” possessive coding). While many traditional approaches to grammaticalization collapse form and function, the study in Chapter 3 separates the dimensions of referentiality (function) and morpho-phonological expression type (form). Each dimension is assumed to follow a distinct grammaticalization cline, repeated in (1) below. The functional cline captures the marker’s gradual loss of referential potential, following the typology of referential markers and agreement markers already partly introduced in Chapter 2. The formal cline captures the marker’s gradual loss of morpho-phonological independence, via cliticization, affixation and fusion.

(1) *The functional grammaticalization cline:*



*The formal grammaticalization cline:*



The data confirm the prediction formulated above; it is shown that possessive person marking in head-modifier relations is (i) never less referential and (ii) never less formally independent, i.e. never located further rightwards on each cline, than possessive person marking in head-argument relations. Hence, the expression of head-modifier relations tends to be more referential and more formally independent than the expression of head-argument relations, which can again be attributed to the functional status of modifiers as optional additions

to the head. This finding furthermore supports the claim that inalienable possessive marking shows a higher degree of grammaticalization than alienable possessive marking, but for function and form independently.

In Chapter 3, I also investigate the relationship between the two clines in (1), independently of the modifier/argument opposition. The results suggest that the development of a marker along the functional cline is independent of its development along the formal cline: while referential markers are often realized as words, they are also often realized as affixes; similarly, while agreement markers prefer to be realized as affixes, they may also be realized as clitics. From a diachronic perspective, this means that a given marker need not wait for a loss in formal independence before it may lose referential potential, and vice versa. Hence, the relationship between the two clines is not absolute – in fact, it is relative: the data show that, in individual languages, lower referential markers are never more formally independent (i.e. located further leftwards on the formal cline) than higher referential markers. This finding supports the unidirectionality of grammaticalization processes, since it suggests that a decrease in referential potential never goes hand in hand with an increase in formal independence. Moreover, it provides a refinement to the common assumption that function and form develop in parallel, as it suggests that functional and formal changes proceed in the same direction, but need not proceed at the same pace. As such, this study sheds new light on a widely investigated topic – the grammaticalization of free pronouns into bound markers of agreement – stressing the importance of a careful separation of function and form in studying this diachronic process.

In sum, the findings obtained in Chapters 2 and 3 demonstrate a robust relationship between the modifier/argument opposition and three types of typological parameters: locus of marking, the referentiality of possessive person marking, and the formal expression of possessive person marking. It is shown that, in comparison to arguments, modifiers are in greater need of (a) morphosyntactic marking of the dependency relation, (b) a more referential expression type and (c) a more formally independent expression type. Hence, this thesis shows that, both within and across individual languages, more functional and formal substance is used in the expression of modifiers than in the expression of arguments. As such, it provides strong support for the typological relevance of the semantic opposition between modifiers and arguments in the expression of possessive NPs, both in terms of function and in terms of form.

Chapter 4 considers the typological relevance of the modifier/argument opposition beyond the domain of the NP. In this chapter, I investigate yet

another typological parameter: identity of morphosyntactic coding, or, as it is referred to in this study, *alignment*, in correspondence to its use for argument coding in verbal main clauses. Specifically, I investigate the degree to which languages use the same morphosyntactic forms to mark three types of dependency relations: modifiers in phrases (head-modifier relations in possessive NPs), arguments in phrases (head-argument relations in possessive NPs, adpositional phrases) and arguments in clauses (the core arguments of one- and two-participant verbs in main clauses). The possible range of variation in alignment patterns is captured by the six-way typology in Table 3 below.

Table 3: Typology of alignment types

	1	2	1&2	3	4	5
<b>Modifier in phrase</b>	A	A	A	A	A	A
<b>Argument in phrase</b>		B	B		B	B
<b>Argument in clause</b>	B				B	C

The prediction tested in this study is that patterns of type 5 are cross-linguistically rare; in such a pattern, modifiers in phrases receive the same morphosyntactic coding as arguments in clauses, while arguments in phrases are coded differently. This prediction is fully borne out by the data, yielding the following cross-linguistic tendency: if modifiers in phrases are coded in the same way as arguments in phrases, arguments in clauses receive this morphosyntactic coding as well. This tendency shows that alignment is constrained by the opposition between modifiers and arguments, as well as by the phrasal vs. clausal nature of the dependency relation. As such, it demonstrates the typological importance of alignment as a phenomenon that pertains not only to clauses but to phrases as well.

The cross-linguistic relevance of the phrasal vs. clausal nature of dependency relations also surfaces in a second generalization obtained in this study: if arguments in possessive phrases are expressed in the same way as arguments in main clauses, arguments in adpositional phrases receive the same morphosyntactic treatment. This finding can be attributed to the shared phrasal nature of possessive NPs and adpositional phrases, on the one hand, and to the diachronic link between adpositional phrases and both possessive NPs and verbal main clauses, on the other.

Finally, Chapter 4 addresses the topic of alignment splits, known from work on clausal alignment typology, by taking into account alignment splits governed by referential properties of dependents, such as humanness, person

and anaphoricity. Moreover, it highlights the important role that referential properties play in the coding of (possessive and adpositional) phrases – a phenomenon that has received relatively little attention in the literature so far.

This section concludes the discussion of the main findings obtained in this thesis; in the next, and final, subsection I will suggest directions that future research may take.

## 5.2 Outlook

The results of this thesis may be expanded on in future research in a number of different ways, discussed in turn below.

First, future research may add to the findings obtained in this thesis by including more languages. This may prove especially fruitful for the generalizations on the referentiality of possessive person marking (Chapter 3) and the identity of morphosyntactic marking across different dependency relations (Chapter 4). These parameters were investigated from a novel perspective for the first time in the present work.

A second topic for future research is to determine to what extent the modifier/argument distinction works together with other factors in accounting for alienability splits in individual languages. As is well known, and also pointed out in this thesis, semantically relational nouns need not also be formally relational (i.e. marked as inalienable) in individual languages. As a consequence, it is likely that other factors, in addition to the modifier/argument opposition, play a role in alienability splits, and consequently in the findings obtained in Chapters 2 and 3. It is quite common, for instance, for only a subset of kinship terms and/or body part terms to receive inalienable possessive coding in a given language. Moreover, it has been proposed that alienability is not a property of nouns, but of possessive constructions, since many languages show some degree of flexibility in that they can use both the alienable and the inalienable construction for the same (set of) nouns. The choice of one or the other construction is often attributed to the degree of control that the possessor has over the possessum (cf. Lichtenberk 1983; Seiler 1983a: 22; Wilson 1982: 123–130). Other factors invoked to explain alienability splits are differences in the frequency with which certain nouns are used in possessive constructions (cf. Nichols 1988, 1992; Haspelmath 2008a, 2008b) or differences in the items perceived as more important for the speaker or the hearer (the ‘personal domain’ in Bally’s 1996: 33 terminology). Language-specific, culturally-determined factors may also play a role (cf. Chappell & McGregor 1996). This has been



noted, for instance, by Crowley (1996: 385) for Paamese (Austronesian, Vanuatu):

*Body parts which would be life-threatening (or at least unbearably painful) if removed (under non-medical conditions) are possessed inalienably (...), as well as a variety of body products that are exuded as part of normal rather than transient bodily functions (even though these all eventually become separated from our bodies). Internal body parts are generally treated as inalienable when they are perceived to be central to our emotions and our sense of individuality and to the maintenance of life itself. However, when an internal organ is one that is typically removed separately when butchering or cooking an animal for eating, it is considered to be alienable.*

This semantic generalization accounts for subtle contrasts such as *vulingasi-n* 'his/her nose' (inalienable body part) versus *heipus one-n* 'his/her wart' (alienable body part) and *ahā-n* 'his/her brain' (inalienable internal organ) versus *heias one-n* 'his/her kidney' (alienable internal organ) (Crowley 1996: 392, 396, 398). It would be interesting to determine how, and to what extent, different factors shape the category of (in)alienability in individual languages, and consequently the role that such factors play in cross-linguistic tendencies of (in)alienable coding in terms of locus and referentiality. Fortunately, there is a growing number of studies investigating the distribution of (in)alienable constructions in individual languages, and the relevant factors behind the use of such constructions, putting this topic high on the research agenda (e.g. Chappell & McGregor 1996; Aikhenvald & Dixon 2013; Von Prince 2016).

Importantly, languages may also differentiate formally between modifiers and arguments in possessive NPs without an alienability split. Partee & Borschev (2003: 188-189), for instance, argue that in Russian (Indo-European, Russia) the distinction is made via word order: while postnominal possessors can only be interpreted as arguments (e.g. 'the murderer of Petja'), prenominal possessors can only be interpreted as modifiers (e.g. 'the murderer that Petja hired'). Moreover, prenominal possessors, i.e. modifiers, agree in gender and number with the possessum, while postnominal possessors, i.e. arguments, do not. Similarly, some languages only allow relational nouns to receive a non-relational reading, i.e. to take a modifier, when accompanied by a specialized marker – a process sometimes referred to as 'derelationalization' (cf. Lehmann 2002: 123-124). Yet other languages require non-relational nouns to be formally 'relationalized' in order to take their possessor as an argument (see Von Prince

2016 on Daakaka (Austronesian, Vanuatu)). As with alienability splits, which items are formally treated as modifiers and arguments varies cross-linguistically, and they may deviate to a greater or lesser extent from semantic relationality. Further study on the modifier/argument distinction in individual languages without an alienability split is an interesting future enterprise.

A third topic for future research is to determine locus of marking and referentiality of person marking in other grammatical domains than the possessive NP, e.g. in adpositional phrases, and one- and two-participant verbal main clauses, and to compare it with locus of marking and referentiality of person marking in possessive NPs. As demonstrated by Nichols (1992: 76-77, see also Cysouw 2002), there is a general tendency for languages to be consistently head-marking or consistently dependent-marking. Moreover, she finds that while clauses favor head-marking, NPs (including nouns modified by adjectives) favor dependent-marking. These correlations yield the following implicational universal: if in a language NPs are head-marked, clauses are head-marked as well – a finding replicated by Siewierska (2004: 127-128), who shows that person marking on possessed nouns implies person marking on verbal predicates (and that person marking on adpositions implies person marking on both possessed nouns and verbal predicates). It would be interesting to see how these findings relate to the locus of marking typology introduced in Chapter 2, in which person forms are given a novel analysis in terms of referentiality, and consequently, in terms of locus of marking. In order to do so, we would need to determine how the typology of referential/agreement marking can be applied to other dependency relations than the possessive NP, especially to clauses. Here lies a potential challenge, which can be illustrated by Lango (Eastern Sudanic, Uganda). As shown in Chapter 4, Lango employs a nominative index-set and an accusative index-set that is additionally used on postpositions and possessed nouns. On the one hand, it can be argued that the accusative index-set expresses role information, since it marks a specific set of verbal arguments (Ps) and as such contrasts with the nominative index-set (for Ss and As). This is the approach adopted by Hengeveld (2012). However, following the criterion used for possessive person markers in Chapters 2 and 3, the accusative index-set does not express role information, since it is also used outside the clausal domain. Thus, in order to further investigate the relationship between traditional locus of marking typology and the locus of marking typology applied in this thesis, we first need to determine what it means for a verbal person form to express role information. In doing so, we may also take into account other criteria of referential potential. A suggestion made by Hengeveld (2012: 473) is to consider whether or not the person marker co-occurs with a pivotal argument

(nominative/absolute); he argues that if a marker is a contextual agreement marker, it is more likely to co-occur with a pivotal argument than with others, since it agrees with a contextually given and activated argument. Future research may further explore these and other diagnostics of referential potential. Ideally, such research would also take into account other types of information, such as number and gender information, which was excluded from consideration in this thesis.

It is also worth investigating to what extent the typology of referential/agreement marking applied in this thesis correlates with other domains of morphosyntactic coding. For instance, the distinction between referential markers and agreement markers, as made by Hengeveld (2012) on the basis of a number of case studies, correlates with the order of person forms relative to tense/aspect/mood markers on the verbal stem: referential markers occur closer to the verb stem, since they express arguments directly, while agreement markers take more peripheral positions, since they are the result of a late copying mechanism. This finding could be substantiated by research on a balanced sample of languages. Further research could also investigate whether the same correlation applies to other grammatical domains, such as possessive NPs; perhaps referential potential also correlates with the order of possessive person forms relative to other markers on the possessum noun, such as invariant possessive markers, gender/noun class markers, number markers and bound determiners.

Finally, future research could further explore alignment as a typological parameter that applies across phrases and clauses, by including additional constituent types, such as different types of nominal modifiers, and action nominal constructions, which are semantically and formally 'in between' possessive NPs and verbal main clauses. Such research could also shed more light on the relevance of referential properties for coding in different types of phrases and the extent to which it correlates with referential conditions on argument coding in main clauses. Thus, we may arrive at a clearer picture of how referential properties affect the overall alignment of phrases and clauses in the world's languages.