Olga Krasnoukhova

# The Noun Phrase in the Languages of South America

This dissertation presents the first cross-linguistic study of the Noun Phrase in the indigenous languages of South America. It builds upon a considerable amount of data that have recently become available for languages in this continent. Based on a sample of 55 languages, this study gives a novel account of the syntactic, morphosyntactic, and semantic properties of the NP. For example, the analysis shows that personal pronouns commonly receive the same possessive markers as nominal possessors, which implies that a fully grammaticalized category of possessive pronouns is rare in South American languages. In addition, the new South American data only partly confirm typological claims for tendencies in the NP domain. For instance, a morphologically distinct class of adjectives is found in many languages of the sample; however, this class is often small, and the dominant way to encode property concepts is with verbs. Finally, this study also includes a discussion of the geographic patterning of structural features in the NP, evaluating the assumption that there is a major typological split between so-called Andean and Amazonian languages. The analysis shows that most of the features cannot be attributed to either of these larger areas. It also demonstrates, however, that there is some evidence for a broad structural division of languages into the western part of the continent (corresponding to the Andean sphere) and the rest of the continent. One of the features that define this split is the parameter of alienability.

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Netherlands Graduate School of Linguistics

ISBN 978-94-6093-084-3

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Landelijke Onderzoekschool Taalwetenschap

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Proefschrift

ter verkrijging van de graad van doctor
aan de Radboud Universiteit Nijmegen
op gezag van de rector magnificus prof. mr. S.C.J.J. Kortmann,
volgens besluit van het college van decanen
in het openbaar te verdedigen op woensdag 4 juli 2012
om 13:30 uur precies

door

Olga Vladimirovna Krasnoukhova
geboren op 19 april 1978
te Moskou, Rusland

to my parents: Vladimir, Valentina, Lucien, Anna and Janne

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Acknowledgements

First of all, my gratitude goes to my supervisors, Pieter Muysken and Mily Crevels, who gave me the chance to explore this topic, and who have been my mentors during many years. I would like to thank Pieter for always being generous with his knowledge and ideas, for all his insights on the topics discussed in this dissertation, and for his unfailing positive-thinking and encouragement. Pieter's role in my academic development started with the inspiring classes he taught, and I have been grateful ever since for the possibility to learn from him. Pieter, thank you for all the opportunities that you have given me! I would like to thank Mily for her huge contribution to my training, which also started long before this dissertation. Mily's expertise and advice at every step were invaluable, and I am grateful for her dedication, support, friendship and trust, and for her guidance throughout the whole project. Mily's incredible eye for detail, and her careful comments on many versions of each page of this work were crucial to avoid many pitfalls.

Pieter and Mily, it was an honor, and a great pleasure, to be able to work in your team!

I am indebted to many colleagues and friends who have been so generous with their time, in sharing their expertise, discussing data with me, providing examples or references, and reading and commenting on drafts of chapters.

I am most grateful to the members of my reading committee, Leon Stassen, Ana Vilacy Galucio and Jan Rijkhoff, for agreeing to take on this task. I thank Jan for sharing his expertise on the noun phrase, and for providing very instructive feedback and incisive comments on the manuscript. I am grateful to Vilacy for sharing her knowledge of the Tupian languages, for all her insightful comments on the manuscript, and for her suggestions and advice. I thank Leon for our enlightening discussions, which greatly contributed to this study, and for introducing me to typology more generally. I am honored to have all of them on my reading committee.

This work owes a lot to Sérgio Meira, who has been an unlimited source of inspiration, ideas and wisdom. I am thankful for his encouragement, constructive criticism and many instructive discussions, which always gave me momentum.

Deepest thanks go to Jean-Christophe Verstraete for providing numerous insightful comments on the whole manuscript, which have been invaluable in shaping its final version. I would also like to thank him for all of his help with various technical matters.

I am grateful to Simon van de Kerke for most useful comments and advice on drafts of the chapters, and for always taking the time to discuss things with me.

Abbreviations

Example sentences generally use the abbreviations provided in the sources, except in a few cases where they had to be standardized. Glosses for grammatical categories are in small caps, except for specific semantic features for classifiers and demonstratives.

1d	1-dimensional
2d	2-dimensional
ABL	ablative
AB	absential
ABS	absolutive
ACC	accusative
ADV	adverb
ADVZ	adverbializer
ADJ	adjective
ADJZ	adjectivizer
AFM	affirmative
AGT	agent
AN	animate
AND	andative
ANT	anterior
ANAPH	anaphoric
APPL	applicative
ART	article
ASF	adjective suffix
ASSR	assertive
ASSOC	associative
AT	attested
ATTR	attributive marker
AUD	audible
AUX	auxiliary
BEN	beneficiary
BE	bound element
BR	bound root
CAUS	causative
CERT	certainty
CF	constant feature
CIRC	circumstantial mode
C.NMZ	circumstance nominalizer

CL	class marker
CLF	classifier
CMPL	completive aspect
CNT	continuative
COL	collective
COMIT	comitative
COND	conditional
CONJ	conjunction
COP	copula
DAT	dative
DBT	doubt
DECL	declarative
DEM	demonstrative
DESID	desiderative
DET	determiner
DETR	detrimental
DIM	diminutive
DIST	distal
DISTR	distributive
DM	discourse marker
DR	bivalent direct
DT	associated motion marker
DU	dual
DUR	durative
DV	dummy vowel
DVBZ	deverbalizer
DYNM	dynamic
DYNZ	dynamicizer
EL	elative
el	elevation
EMPH	emphatic
ERG	ergative
EV	direct evidential
EVI	evidential
EX	existential
F	feminine
FF	full form
FILL	filler
FM	formative
FNS	final nominal suffix
FOC	focus

FOC/TENS	focus/tense
FUT	future
FUT.CERT	certain future
GCM	general class marker
GEN	genitive
gen	general
HON	honorific
horiz.ext	horizontally extended
HRSY	hearsay
hum	human
HYP	hypothetical
IMP	imperative
IMPFV	imperfective
INAN	inanimate
INCH	inchoative
INCL	inclusive
IND	indicative
INDF	indefinite
INES	inessive
INFL	inflection
INFR	inferential
INST	instrumental object
INT	interrogative
INTENS	intensifier
I.PST	immediate past
ITE	iterative
itg	intangible
IVN	instrumental verbal noun
L	linker
LK	linker
LOC	locative
LOCUT	locutor person marker
LV	linking vowel
M	masculine
MED	medial
MI	middle
MOD	modal
N	neuter
NARR	narrative
NEG	negative
NEUT	neutral

N/H	nonrecent past
NMZ	nominalizer
NOM	nominative
NON3	non-third person
non.ext	non-extended
NONLOCUT	non-locutor person marker
NONVIS	nonvisual evidential
NPF	noun prefix
NPST	non-past
NUC	nuclear case
O	object
OBJ	object
OBL	oblique
PAUC	paucal
PERF	perfect
PERI	peripheral
PERL	perlative
PFV	perfective
PL	plural
POS	possessive
POSSD	possessed
POSTP	postposition
PRD	predicative marker
PRIV	privative
PRO	pronoun
PROF	proform
PROP	proprietive
PROX	proximal
PRS	present
PRT	participle
PST	past
PX	proximity
Q	question
RED	reduplication
REF	referential
REFL	reflexive
REL	relative
RLT	relational
R.PST	remote past
REP	reportive
RP/P	realis past/present

R/R	reflexive-reciprocal
S	subject
SBJ	subject
SCM	specific class marker
SG	singular
SIM	similarity
SMBL	semblative
SOU	source
SP	Spanish
SPEC	specifier
SPC	speculative
SR	same referent
SS	same subject
ST	stative
SUB	subordinating
TEL	telic
TEMP	temporal
THEM	thematic vowel
THEME	theme
TOP	topic
TR	transitive
TRC	truncated element
VBLZ	verbalizer
VCL	verb class marker
vert	vertical
vert.ext	vertically extended
VSM	verbal stem marker

Chapter 1. Introduction

This dissertation deals with the structure of the Noun Phrase (henceforth: NP) in a sample of 55 indigenous languages of South America. This chapter gives a concise introduction to the topic of the study. In section 1.1, I formulate the main aims of the study. In section 1.2, I briefly introduce some of the typological issues that are most relevant for the study of the NP, and the works that contributed most to the discussion in this domain. In section 1.3, I describe the method used in this study, and the composition of the sample on which it is based. In section 1.4, I provide an overview of the chapters in this dissertation.

1.1. Aims of the study

This study deals with the structure of the NP in a sample of indigenous languages of South America. One aim of the study is to provide an account of the semantic and morphosyntactic properties of the NP and its constituents. Examining South America data leads to some interesting generalizations in this domain. To give just one example here, a study of adnominal demonstratives in the languages in the sample shows that the range of semantic features reported in Diessel (1999), the major cross-linguistic study of demonstratives, needs to be broadened if we look at the South American data. Specifically, we can add semantic features like: (i) physical properties (shape, consistency, structure, etc.), (ii) posture (standing, sitting, lying, hanging), (iii) possession (possession or control over the referent), and (iv) temporal features (presence vs. absence, ceased existence). The first two features were mentioned in Dixon (2003), but did not surface much in his discussion. The last two features have not received any attention in typological studies, as far as I know. Further, my analysis suggests that although the languages in the sample vary considerably in the richness of their demonstrative systems, this variation seems to be highly structured. Semantic features encoded by demonstratives represent a continuum running from prototypically nominal categories (number, gender, shape, animacy) to prototypically verbal categories (visibility, temporal distinctions, posture, movement, possession).

Languages from South America have, until recently, played a rather marginal role in typological studies, mainly because of the scarcity of available descriptions of adequate quality. Recent years have seen the appearance of top-quality descriptive materials of many under-documented languages from this part of the world. Hence, the second aim of this study is to evaluate whether typological claims and tendencies are confirmed when confronted with South American data. For instance, this study offers a new perspective on the cross-

linguistic analysis of the expression of possession presented in Dryer (2007a). South American languages are typologically unusual in that constructions used for pronominal possessors are generally identical to those for nominal (lexical) possessors. Very few of the languages considered here appear to have a fully grammaticalized category of possessive pronouns, unlike what Dryer (2007a) predicts on the basis of a global survey. This may suggest that these patterns are characteristic of South America as a continent.

The enormous genetic diversity of languages spoken on this continent (over one hundred language families plus a strikingly large number of unclassified languages) offers a unique opportunity to explore the existence of areally determined structural patterns. The third aim of this study is to examine the geographic distribution and patterning of structural features in the NP domain, keeping in mind, of course, that a full-scale areal study would require a larger sample and a higher areal concentration of languages. To illustrate this, we can mention just one finding. The data considered in this study do not give any support to the assertion by Dixon & Aikhenvald (1999:9) that the locus of possession marking is one of the features contrasting Amazonian languages with Andean languages. Dixon & Aikhenvald (1999:8,10) argue that possession is typically marked on the possessed noun and not on the possessor in Amazonian languages, while in Andean languages both the possessed and the possessor nouns are marked. This sample shows that there is no evidence for such a pattern. Among the Amazonian languages in the sample, head-marking and dependent-marking possessive strategies are equally common, thus giving us no ground for regarding Amazonian languages as head-marking with respect to possession. Likewise, the languages in the sample from the Andean region show various types of possession marking, including but not restricted to the double-marking pattern. By contrast, a geographic pattern that does stand out is the distribution of languages that do not have a class of inalienable nouns. In the present sample, such languages are mainly found along the western edge of South America, roughly corresponding to the Andes mountain range.

1.2. Background

In this section I present a brief overview of some of the major questions and debates in typological studies of the NP, as they are relevant for this study.

The issue of configurationality relates to the internal structure of the NP and the behavior of NP constituents as a unit. By the principle of iconicity, what one expects is that constituents which belong together semantically tend to occur together syntactically (compare Rijkhoff's (2002) Principle of Domain Integrity). Thus, constituents which function as modifiers of the head noun in the NP tend to occur continuously with their semantic head. However, in some languages this

is not always the case, as will also be shown for this sample. Modifiers and their semantic head may be split by a predicate or an adverb, without entailing any obvious semantic change. The issue of configurationality has been the focus of studies like Hale (1983), McGregor (1989), Marácz & Muysken (1989), among many others.

The issue of word classes, specifically the verb / noun / adjective distinction, is another topic that is relevant here. The morphology used for the basic modifier categories in the NP depends on the word class they belong to. For instance, demonstratives in some languages require a relative clause construction before they can be used as modifiers, which suggests that they are basically verbal. One of the different approaches to the classification of parts-of-speech systems is Hengeveld (1992), who proposes to determine classes on the basis of the function a lexical item has without special grammatical measures (like derivation) being taken. Based on this strategy, Hengeveld distinguishes between two types of languages: flexible languages, which have a class of multifunctional lexemes, and rigid languages, which exclusively have distinct classes of specialized lexemes. Croft (1990, 1991, 2000) advocates an approach to word classes from a different perspective. Croft (2000:88) proposes that the distinction should be based on "unmarked combinations of pragmatic function and lexical semantic class", viz. noun as reference to an object, adjective as modification by a property, and verb as predication of an action. He argues that nouns, verbs and adjectives are not categories of particular languages, but are language universals (Croft 2000:65).

A specific issue within this domain, which has received much attention in the typological literature, is the status of adjectives. Dixon's (1977) study (revised 1982) launched a discussion on the universality of adjectives as a morphologically distinct class, arguing that not every language has a class of adjectives. Dixon (2004b:1, 2010), on the other hand, takes a different view on this question by arguing that "a distinct word class 'adjectives' can be recognized for every human language. […] there are always some grammatical criteria – sometimes very subtle – for distinguishing the adjective class from other word classes". In this study, I will show that quite a few South American languages provide evidence against this generalization, and I will investigate how 'adjectival' modification works in languages that do not have a distinct adjective class. The issue of adjectives as a separate class is closely related to some other issues in NP structure. For instance, Rijkhoff (2002:141, 2003) argues for the languages in his sample that "[i]f a language has classifiers then it usually has no adjectives (or: as a rule a language only has adjectives if nouns are in a direct construction with a numeral)". I will also reflect on this question, to see whether the languages in the present sample confirm the dependency suggested in Rijkhoff (2002, 2003).

The question how a referent of the NP is anchored in the here-and-now brings us to the domain of demonstratives and articles. Himmelmann (2001) and Dryer (2007a, 2011a,b) provide a cross-linguistic account of definite and indefinite articles in the world's languages. Whereas languages may lack definite or indefinite articles, demonstratives seem to be found in all languages. Demonstratives are treated comprehensively from a synchronic and diachronic perspective in Diessel (1999). Dixon (2003) also offers a discussion of the syntactic and morphological behavior of demonstratives, the types of reference they realize and the functions they have in the clause. The question of (in)definite articles will be discussed only briefly in the study, but demonstratives will be studied in detail. I will analyze the morphosyntactic properties of demonstratives functioning as modifiers of nouns, and I will examine the semantic properties of demonstratives as a separate case study.

In addition to the different individual categories of modifiers, their relative order within the NP has also been a topic of intense typological research. One of the reasons is that a fixed linear order of constituents is a criterion for NP configurationality. In addition, as first proposed in Greenberg (1963), languages show a correlation between the order of verb and object, and constituent order at the level of the NP. Dryer (1988, 1992), who tests Greenberg's constituent order correlations on a large number of languages, confirms that there is a correlation between verb-object order and the order of genitive and noun, or relative clause and noun. At the same time, he argues that there is no evidence for a correlation of verb-object order and the order of demonstrative and noun, or adjective and noun ('adjective' is used as a semantic category by Dryer).

Another phenomenon that is important for the question of NP constituency, amongst other things, is agreement. Morphologically realized agreement between the head noun and a modifying constituent overtly establishes a dependency relationship, and thus shows that two constituents are part of one NP. An excellent account of agreement from a cross-linguistic perspective is given in Corbett (2006). In this study I adopt the basic elements of agreement established by Corbett in order to see to what extent agreement is used in the languages of the sample, and what role it plays in determining syntactic constituency, along with evidence from ordering tendencies within NPs.

A further topic that is often studied in the NP domain is nominal categorization, an intricate issue in many South American languages. Nominal classification devices have been an explicit focus of analysis in Allan (1977), Dixon (1982, 1986), Craig (1986), Senft (1996, 2007), Grinevald (2000), Aikhenvald (2000), Seifart (2005, 2007, 2010), among others. Dixon (1982, 1986) presents a list of parameters which distinguish between gender systems and classifier systems. Grinevald (2000) proposes a typology of nominal classification devices in terms of a continuum running form purely lexical means

of noun categorization to purely grammatical means. South American languages are particularly interesting for this question, as shown by the work of Payne (1987), Grinevald & Seifart (2004), and Seifart & Payne (2007), who draw attention to nominal classification systems in some languages of the Western Amazon, which pose a challenge to the well-accepted accounts in Dixon (1982, 1986) and Grinevald (2000).

The occurrence of classifiers is related to the question of numerals and nominal number. In some languages a noun cannot occur in direct construction with a numeral, and requires the use of a classifier. Nouns in such languages have been analyzed as referring to a concept (e.g. 'bookness') rather than to discrete entity (e.g. a 'book') (Lyons 1977:462, referred to in Rijkhoff 2002:50). In such cases, a classifier functions as an individualizer that creates a discrete entity out of a concept. It has also been observed that when a noun combines with a true classifier the noun does not take number marking (see Sanches and Slobin 1973, referred to in Rijkhoff 2002:29). In this study I will examine the morphosyntactic properties of numerals in the languages of the sample, and the role that classifiers play. I will also see to what extent nominal number occurs in the languages of the sample, and what the conditions are on its realization.

The final issue I want to mention in this overview is the expression of possession. A possessive relationship can be expressed at the level of the NP (attributive possession), by a predicate (predicative possession), or at the level of the clause (external possession) (cf. McGregor 2009:2). Although the expression of predicative and external possession is beyond the scope of this dissertation, I refer the reader to Stassen (2009) for a comprehensive typology of predicative possession, and to Heine (1997), König & Haspelmath (1998), and Payne & Barshi (1999) for analyses of external possession. This study will focus on the expression of attributive possession, more specifically, on the interrelation of such parameters as (in)alienability, the locus of possession marking, and the lexical or pronominal expression of possessors. As an example of such interrelations, Nichols (1992:118) notes that "[m]ost languages with head-marked possession have inalienable possession, and no language in my sample with exclusively dependent-marked possession has inalienable possession." I will show that this observation does not hold for the present sample. In addition to Nichols (1992:118), the question of attributive possession has also been dealt with in Nichols (1988), Heine (1997), and Koptjevskaja Tamm (2003), among others. Aspects like (in)alienability are a specific focus in Chappell & McGregor (1989, 1996), Haspelmath (2006), and Stolz et al. (2008). However, South America has played a very modest role in these discussions.

So far I have listed some of the most important questions that surface in the discussion of the NP. A volume on NP structure edited by Frans Plank (2003) addresses many of these issues for languages spoken on the European continent.

However, the major comprehensive cross-linguistic study that integrates these questions into a more general theoretical model of NP structure is Rijkhoff (2002).[1] Specifically, in this model Rijkhoff presents a layered structure for the NP in parallel with the layered structure of the clause in Functional Grammar (Dik 1997). Each of the classic modifier categories discussed here is assigned to a specific functional layer in the NP. For instance, the *quality layer* contains the head noun and modifier categories "that only relate to the property that is designated by the noun" (Rijkhoff 2002:104), viz. adjectives and what Rijkhoff calls nominal aspect markers. A second layer, the *quantity layer*, encloses the quality layer and contains modifier categories expressing nominal number and cardinality. This, in turn, is enclosed by the *location layer*, which further contains modifier categories that specify "properties concerning the location of the referent, such as demonstratives, possessive modifiers, and relative clauses" (2002:337). The *'referential'* or *'discourse' layer*, finally, encloses the location layer and itself contains modifiers that "provide the addressee with information about the referent of the NP as a discourse entity" (e.g. a definite article) (2002:337). It should be noted that Rijkhoff limits his layered model to languages with a clearly articulated configurational structure.

Some further theoretical issues discussed in Rijkhoff (2002) are word order and the semantics of nouns. Rijkhoff provides an account of NP word order in terms of three general word order principles: the *Principle of Domain Integrity,* the *Principle of Head Proximity,* and the *Principle of Scope*. The first principle is a general iconic principle, which states that constituents which belong together semantically tend to occur together syntactically. The second one, the *Principle of Head Proximity,* was first formulated in Rijkhoff (1986). The strong version of this principle, which deals with the relation between heads in complex constructions, is formulated as "[i]n a subordinate domain, the preferred position of the head constituent is as close as possible to the head of the superordinate domain" (Rijkhoff 2002:264). With this principle Rijkhoff accounts for tendencies like (i) a preference for short lexical modifiers (demonstratives, adjectives, and numerals) to occur before long modifiers (possessor NP and relative clauses) in VO languages, and a preference for long modifiers before short modifiers in OV languages (Rijkhoff 2002:299, referring to Hawkins 1994:118), and (ii) "a strong tendency to avoid the occurrence of adnominal modifiers (notably the possessor NP and the relative clause) between the head of the clause and the head of the NP" (Rijkhoff 2002:299). Finally, the third principle that Rijkhoff (2002:313) uses in explaining order patterns is the *Principle of Scope,* which says that "[m]odifiers tend to occur next to the part of the expression that they have in their scope".

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[1] For an expanded version of this model, with one additional layer, see Rijkhoff (2008).

1.3. Approach and sample

The analysis of NP structure in this study will be mainly exploratory, making use of the range of data that have recently become available. This implies that I will not try to integrate my findings into any theoretical model. Instead, I will primarily aim at presenting descriptive and typological generalizations as they apply to South American data. At some points, however, I will try to evaluate what my data can say about some of the theoretical issues discussed in Rijkhoff (2002).

The analysis of NP structure in this study will focus on the following four categories of noun modifiers: demonstratives, lexical possessors, numerals, and property words. All of these modifier categories will be approached as semantic categories. This implies that their realization is not restricted to simple constructions: it also includes complex constructions, for instance relative clauses in the case of property words, numerals or demonstratives. Given the variety of formal realizations, it is not easy to find an overall label for each category. In this study, I use the prototypical formal class (i.e. numerals, demonstratives, possessors) to label the semantic category, except in the case of 'adjectives'. Since this label is so controversial in the literature, I will use the term 'property word' as a more neutral alternative. For each of the modifier categories, I will examine both their morphosyntactic properties and the internal syntax of the modifier-noun unit.

Technically, the basis for the analysis is a questionnaire that was set up in order to profile the structure of NPs. This questionnaire was filled in for 55 languages in the sample, using descriptive materials and, whenever possible or necessary, information provided by specialists working on a specific language. The questionnaire resulted in a large database containing information on structural features within the NP domain, with references for every entry. Chapter 2 provides a detailed discussion of the aspects covered in the questionnaire and the database, and the way the data were entered.

The sample used in the body of this study consists of 55 languages. Table 1.1 shows the languages included in the sample, with their genetic affiliation and location. This table also includes information about the main source that was used for each language. Three factors played a role in composing the sample. (i) The languages were chosen to maximally satisfy the requirement of *genetic* diversity. (ii) The choice of language was also influenced by the need to satisfy the requirement of *areal* diversity in the sample. Specifically, we tried to ensure that representatives of larger language families were distributed geographically, whenever possible. (iii) The third factor taken into account was the existence of

adequate grammatical descriptions for a language at the moment of research. I briefly address these factors next.

According to Hammarström (2009), the most recent world-wide compilation of information about genetic relations, there are 111 language families in South America.[2] This count includes 71 language families with just one member. Of the other 40 families, relatively few actually comprise more than ten members. The largest families are provided below, with the number of members shown in brackets. These numbers are taken from Hammarström (2009:10-12):

> Tupian (76), Arawakan (62), Quechuan (46), Cariban (32), Panoan (28), Tucanoan (25), Chibchan (21), Ge (16), Chocoan (12), Arawan (8), Matacoan (7).

The sample used in this study contains representatives of each of these major language families in South America. Very large families, like Tupian and Arawakan, are represented by more languages than other families. Small language families are represented by one or two languages. Of the 55 languages that are in this sample, 12 languages are single members of a family (Mapuche and Mosetén, together with 10 unclassified languages given in the table).

The areal distribution of languages also played an important role while compiling the sample. I will exemplify this briefly for the two families with the largest number of languages, Tupian and Arawakan.

The three languages of the Tupí-Guaraní branch of the Tupian family in the sample (Emérillon, Kamaiurá and Tapiete) are spoken in three different geographic regions: Coastal Guiana, the Brazilian Amazon, and the Argentinean Chaco, respectively. The other three Tupian languages in the sample (Gavião, Karo and Mekens) are spoken not far away from each other, but they are included for reasons of genetic diversity, because they belong to different branches of the Tupian family (Mondé, Ramaráma, and Tuparí, respectively).

Similarly, the Arawakan languages in the sample are geographically dispersed. The three South Arawakan languages in the sample, Yanesha', Baure, and Apurinã are spoken in the Andean foothills in Peru, the Bolivian lowlands, and the western Amazon region of Brazil, respectively. The location of all sample languages is shown on Map 1 in appendix 4. It should be mentioned that this map, like the others, reflects the reported geographical distribution of

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[2] A family is defined in Hammarström (2009:107) as "(i) a set of languages (possibly a one-member set), (ii) with at least one sufficiently attested member language, (iii) that has been demonstrated in publication, (iv) to stem from a common ancestor, (v) by orthodox comparative methodology (Campbell & Poser 2008), (vi) for which there are no convincing published attempts to demonstrate a wider affiliation."

language groups around the time of first contact (see Eriksen 2011:12 for references to locations of the languages).

The third factor, the availability of grammatical descriptions of adequate quality, also influenced the choice to include particular languages. This is also the most important reason why I do not use the sampling procedure proposed in Rijkhoff et al. (1993). Rijkhoff (2002:8), for instance, notes that his actual sample contains 49 languages (instead of the expected 52), because hardly any information is available on three languages as assigned by the sampling method. Besides, as stated earlier, one of the aims of this study is to exploit a large chunk of newly available data on South American languages for typological and descriptive purposes. Therefore, the sample for this study is constructed so that it attempts to find a balance between the three criteria outlined above.

Language	Affiliation	Country	Main source of information
Apurinã	Arawakan	BR	Facundes 2000
Baure	Arawakan	BO	Danielsen 2006
Tariana	Arawakan	BR	Aikhenvald 2003
YANESHA'	Arawakan	PE	Duff-Tripp 1997
Jarawara	Arawan	BR	Dixon 2004a
AYMARA	Aymaran	BO/PE/CH	Cerrón-Palomino & Carvajal Carvajal 2009
AWA PIT	Barbacoan	CO/EC	Curnow 1997
TSAFIKI	Barbacoan	EC	Dickinson 2002
Miraña	Boran	CO/PE	Seifart 2005
Hixkaryana	Cariban	BR	Derbyshire 1985
Panare	Cariban	VE	Meira (p.c.), Payne & Payne (p.c.)
Tiriyó (or Trio)	Cariban	SU/BR	Meira 2006, Carlin 2004
Wari'	Chapacuran	BR	Everett & Kern 1997
Ika	Chibchan	CO	Frank 1990
Northern Embera	Chocoan	CO	Mortensen 1999, Aguirre Licht 1999
Tehuelche	Chonan	AR	Fernández Garay 1998
Mocoví	Guaycuruan	AR	Grondona 1998
Pilagá	Guaycuruan	AR	Vidal 2001
Aguaruna	Jivaroan	PE	Overall 2007
Bororo	Macro-Ge	BR	Nonato 2008, Crowell 1979
Timbira	Macro-Ge	BR	Alves 2004
Dâw	Nadahup	BR	Martins 2004
Hup	Nadahup	BR	Epps 2005
MAPUCHE	Mapadungun	CH/AR	Smeets 2008
Wichí	Matacoan	AR	Terraza 2009
MOSETÉN	Mosetenan	BO	Sakel 2004
Mamaindê	Nambikwaran	BR	Eberhard 2009
Sabanê	Nambikwaran	BR	Araujo 2004
NASA YUWE	Paezan	CO	Jung 2008
Matsés	Panoan	PE	Fleck 2003
Shipibo-Konibo	Panoan	PE	Valenzuela 2003
Yaminahua	Panoan	PE/BO	Faust & Loos 2002
HUALLAGA QUECHUA	Quechuan	PE	Weber 1996
IMBABURA QUECHUA	Quechuan	EC	Cole 1982
Cavineña	Tacanan	BO	Guillaume 2004, 2008
Cubeo	Tucanoan	CO	Morse & Maxwell 1999
Desano	Tucanoan	CO	Miller 1999
Gavião	Tupian	BR	Moore 1984
Karo	Tupian	BR	Gabas Jr. 1999
Mekens	Tupian	BR	Galucio 2001
Emérillon	Tupian	FG	Rose 2003
Kamaiurá	Tupian	BR	Seki 2000
Tapiete	Tupian	AR/BO	González 2005
Ninam	Yanomaman	BR/VE	Goodwin Gómez 1990
Chamacoco	Zamucoan	PA	Ciucci (in prep)
Itonama	unclassified	BO	Crevels 2012
LEKO	unclassified	BO	Van de Kerke 2009

Movima	unclassified	BO	Haude 2006
YURAKARÉ	unclassified	BO	Van Gijn 2006
Kanoê	unclassified	BR	Bacelar 2004
Kwaza	unclassified	BR	Van der Voort 2004
Trumai	unclassified	BR	Guirardello 1999
Puinave	unclassified	CO/VE	Girón 2008
Urarina	unclassified	PE	Olawsky 2006
Warao	unclassified	VE	Romero-Figueroa 1997

Table 1.1: Language sample (ordered by language family).

Key: Languages spoken in the Andes or adjacent to the Andes are given in small caps.

1.4. Overview of the following chapters

The main purpose of this chapter was to state the aims of this study, to provide some background to the major questions in the domain of the NP, and to introduce the approach followed here and the sample used. The rest of this study will be organized as follows.

Chapter 2 offers a detailed introduction to the topics which are included in the questionnaire (database) illustrated by examples from the data. Furthermore, the chapter explains the architecture of the questionnaire.

Chapters *3 – 6* discuss each of the four noun modifier categories separately. Specifically, *Chapter 3* considers NPs with demonstratives as modifiers. *Chapter 4* deals with adnominal possession. *Chapter 5* examines the NP with numerals as modifiers and the expression of nominal number. *Chapter 6* deals with noun modification by property words.

Chapter 7 is concerned with the NP as a unit. Specifically, it looks at the question of relative ordering of the different modifiers, and the overall question of NP constituency.

Chapter 8 deals with grammatical phenomena related to nominal categorization.

Chapter 9 takes up the topic of demonstratives again, but also includes uses beyond the noun phrase, like pronominal and adverbial types. This broader range is then used to study the distinctive semantic features of South American demonstrative systems more generally.

Finally, the concluding *Chapter 10* summarizes the main findings of the study, and presents a discussion of areal patterns found in the data.

Chapter 2. The NP questionnaire

The aims of this chapter are (i) to introduce the different aspects of the NP that will be investigated in this study, (ii) to discuss the most important parameters for the analysis, from the perspective of South American data and as known from the typological literature and (iii) to provide a technical explanation for the questionnaire on which the study is based.

Building upon the definition of phrases given in Fleck (2003:751), I use the following working definition of a prototypical NP: an NP is a series of words with a noun as its central constituent, which behaves as a single syntactic unit, and functions as an argument in a sentence. In addition to the head noun, which is the central constituent and determines what an NP refers to, NPs can also contain a range of modifiers, like adjectives, numerals, and demonstratives. The questionnaire deals both with questions that relate to the NP as a whole, like word order and agreement within the NP, and with questions that relate to specific classes of modifiers. In this chapter, I will present the structure of the questionnaire and I will discuss the basic parameters for the different topics. Each of these topics will then be treated in more detail in separate chapters. In addition, the study will also devote a separate chapter to the more general question of NP unity, i.e. whether the elements that semantically look like a nominal head and its modifiers really constitute an NP unit in the languages of the sample.

The questions dealt with in the questionnaire are listed below, and are elaborated in the corresponding sections of this chapter:

> NP structure:
>   -Constituent order within the NP (section 2.1.1)
>   -Agreement within the NP (section 2.1.2)
> Modifiers within the NP:
>   -Articles, demonstratives (section 2.2.1)
>   -Attributive possession (section 2.2.2)
>   -Property words (section 2.2.3)
>   -Numerals (section 2.2.4)
> NP related issues:
>   -Grammatical expression of quantity within the NP (section 2.3.1)
>   -Noun categorization devices (section 2.3.2)

2.1. Questions related to NP structure

2.1.1. Constituent order within the NP

The questions in this part of the questionnaire aim to collect data on constituent order patterns within the NP. Four modifier categories are taken into account (defined further in section 2.2): demonstratives, numerals, property words, and nouns in a possessive relationship. The order of these categories is of interest for a variety of reasons, including morphosyntactic reasons (e.g. subclasses with different order patterns), semantic-pragmatic reasons (e.g. the use of ordering patterns to mark semantic or pragmatic categories) and typological reasons (e.g. the existence of correlations with order patterns at clause level (e.g. Greenberg 1966, Dryer 1992).

The questionnaire only deals with the position of each modifier relative to the nominal head. Combinatorial possibilities and the relative order of the different modifiers are discussed in chapter 7 (on NP unity). Questions in this part of the questionnaire are formulated in the following way:

(1.1) What is the most frequent order of demonstrative and noun?
(1.2) What is the most frequent order of numeral and noun?
(1.3) What is the most frequent order of possessor and possessed?
(1.4) What is the most frequent order of property word (adjective) and noun?
(1.5) What is the most frequent order of relative clause and noun?

Thus, the focus is not on the possibility of occurrence of a certain modifier before or after the noun, but rather on the frequency of occurrence in a certain order. The following six answer options (exemplified for noun and demonstrative) reflect the structures that were encountered:

a=[dem-N]
b=[N-dem]
c=[both orders with neither order dominant]
d=[both but for specific forms]
e=[both but depend on the characteristics of the referent of the NP]
f=[neither, demonstratives are not used adnominally]

The first two options, *a=[dem-N]* and *b=[N-dem]*, will work for languages where (i) a dominant word order can be identified, and (ii) the order does not seem to be dictated by other factors. A formulation focusing on the frequency or dominance of a particular order was chosen in order to pinpoint constructions that are pragmatically most unmarked. A potential drawback could be that it

conflates two possibilities: (i) a modifier *must* occur before or after the head noun, with any alternative order being ungrammatical; or (ii) a modifier *preferably occurs* before or after the head noun, with any alternative order being pragmatically marked. Although this distinction could be of interest for this study, it was not always possible to obtain this information reliably for all languages in the sample. This is why I chose to focus on the frequency of occurrence.

For languages that do not have a clearly dominant order of modifier and noun within the NP, or where the order is determined by other factors, options *c*, *d* or *f* are available. Option *c=[both orders with neither order dominant]* works for languages that show no clear preference in the order of noun and a modifier. Examples of this could be the position of the nominal possessor or adjective relative to the noun in Mocoví (cf. Grondona 1998:66,86).

Option *d=[both but for specific forms]* is included for languages where the relative order of modifier and noun varies for different members within a specific category of modifiers. For instance, in Baure, one class of property words (referred to as 'absolute class II') is predominantly prenominal, whereas another class of property words (referred to as 'class III: derived forms') is mainly post-nominal (Danielsen 2007:168). In Shipibo-Konibo, numerals beyond 'two', which are of Quechua origin, obligatorily precede the noun (as in Quechua), while the numerals 'one' and especially 'two', both of Panoan origin, may precede or follow the noun without any obvious semantic change (Valenzuela 2003:235). This is illustrated by the following examples.

(1)   Shipibo-Konibo (Panoan; Valenzuela 2003:239)
(a)   *jawen   bene-n-ra*   **shino**   **rabé**   *rete-ke*
       3POS   husband-ERG-EV   capuchin.monkey   two:ABS   kill-CMPL
       'Her husband killed two capuchin monkeys.'

(b)   *jawen   bene-n-ra*   **rabé**   **shino**   *rete-ke*
       3POS   husband-ERG-EV   two   capuchin.monkey:ABS   kill-CMPL
       'Her husband killed two capuchin monkeys.'

(c)   **jawen   bene-n-ra*   **shino**   **kimisha**   *rete-ke*
       3POS   husband-ERG-EV   capuchin.monkey   three:ABS   kill-CMPL
       'Her husband killed three capuchin monkeys.'

(d)   *jawen   bene-n-ra*   **kimisha shino**   *rete-ke*
       3POS   husband-ERG-EV   three   capuchin.monkey:ABS   kill-CMPL
       'Her husband killed three capuchin monkeys.'

Option *e=[both but depends on the characteristics of the referent of the NP]* is included for languages where the position of the modifier is determined by factors other than characteristics of the modifier itself. For instance, a number of languages in the sample show a different order within the noun phrase depending on the pragmatic status of the referent. In a number of languages property word and numeral may precede or follow the head depending on whether the reference is definite or indefinite: Cubeo (Morse & Maxwell 1999:92), Tariana (Aikhenvald 2003:562), and Ika and some other Chibchan languages of Costa Rica (Frank 1990:31). This is exemplified with the structure in (2), for Ika, where numerals precede the head noun for indefinite reference and follow it for definite reference.

(2)   Ika (Chibchan; Frank 1990:32)
(a)   **mouga**   **tšeirua-ri**   *meina*   *ri-zori-eʔ-ri*
         two   man-TOP   stream   3SBJ-go-then-TOP
         'Two men went along the stream, …'

(b)   *tigri*   **perɨ**   **mouga**   *nʌ-kʌ-gga*   *au-ʔ*   *no*
         jaguar   dog   two   1OBJ-PERI-eat   AUX-NEG   Q
         'The jaguar ate my two dogs, didn't it?'

In Mosetén, there is a tendency for modifiers to appear after the head with animate referents, and before the head with inanimate referents (Sakel 2004:102). In Dâw, with alienably possessed nouns both orders occur, whereas with inalienably possessed nouns the order is strictly possessor preceding the possessed (Martins 2004:547).

    Option *f=[neither, demonstratives are not used adnominally]* reflects the possibility that a specific type of modifier cannot occur adnominally. In Hixkaryana, Tiriyó and Panare, the Cariban languages of the sample, only the nominal possessor can be regarded as a constituent of the NP. Demonstratives, numerals, and property words are syntactically independent and are treated instead as NPs in apposition to the head noun. They are linked to the noun only semantically (Sérgio Meira, p.c. for Tiriyó and Hixkaryana; Tom and Doris Payne, p.c. for Panare).

    The following example from Hixkaryana illustrates the use of a numeral as a sentential adverb.

(3)   Hixkaryana (Cariban; Derbyshire 1979:44)
         kanawa   *wenyo,*   **asako**
         canoe   1-saw-3   two
         'I saw two canoes.'

2.1.2. Agreement within the NP

The aim of this part of the questionnaire is to gain insight into the presence and realization of agreement within the NP: to what degree does it exist in the languages of the sample, and what are its properties and conditions? Morphologically realized agreement in the NP overtly illustrates the dependency relationship between the noun and its modifier, and thus can be informative about the hierarchical structure of the NP.

As a working definition of agreement I adopt the definition proposed by Steele (1978:610), cited in Corbett (2006:4): "The term agreement commonly refers to some *systematic covariance* between a semantic or formal property of one element and a formal property of another" (italics are mine). Another way to put it: "agreement is essentially a matter of 'displaced' information" (Corbett 2006:20).

Corbett (2006) describes agreement in terms of five basic elements:
(i) an agreement controller, i.e. "the element which determines the agreement",
(ii) a target, i.e. "the element whose form is determined by agreement",
(iii) an agreement domain, i.e. "the syntactic configuration in which agreement occurs",
(iv) agreement features, i.e. "the category in which the controller and target agree",
(v) (additional) conditions on agreement, i.e. "agreement may depend on conditions other than agreement rules themselves".

The phenomenon of agreement can be found at the level of the phrase and / or the clause. In the current study, I focus exclusively on the realization of agreement within the noun phrase. Using the terminology just introduced, the questions in the questionnaire deal with the following elements:

Agreement domain: *noun phrase.*
Agreement controller: *noun.*
Target: *(i) property word (adjective), (ii) numeral,* and *(iii) demonstrative.*
Agreement features: *(i) number, (ii) gender,* and *(iii) physical properties.*
Conditions on agreement: *(i) animacy, (ii) position of the modifier (target) relative to the head noun (controller).*

Gender and number are agreement features that are commonly expressed on targets (e.g. nominal modifiers) within the domain of the NP. The feature of physical properties may be more specific to the South American data, as it involves the highly grammaticalized systems of classifiers.

Case has not been included as an agreement feature because "it is not an inherent feature of the noun: it is imposed on the NP for semantic reasons or governed by some other syntactic element" (Corbett 2006:133).

Questions in this section of the questionnaire are presented in the following way. Each question introduces a target of potential agreement (property word, numeral, or demonstrative), and four sub-questions specify potential agreement features (number, gender, or physical properties). The architecture of the questionnaire requires the main question to be answered with any of the three values: 'yes', 'no', or 'not applicable'. The value 'not applicable' is intended for the languages with little or no evidence that the modifiers (demonstrative / numeral / property word) and the noun form one integral NP.

In cases where the main question is answered with 'yes', the sub-questions are to be answered with either 'yes', 'no', or 'not applicable'. This last value is intended for those languages which do not have features of gender, number or classifying morphemes encoding physical properties in their system. In cases where the main question is answered with 'no' or 'not applicable', the four sub-questions are left blank. The questions are formulated in the following way, illustrated here with a demonstrative as a modifier:

> *(2.3) Is there agreement between demonstrative and noun in the NP?*
> > *(2.3.1) Is there agreement in number between demonstrative and noun?*
> > *(2.3.2) Is there agreement in gender between demonstrative and noun?*
> > *(2.3.3) Is there agreement in physical properties between demonstrative and noun?*

The following examples show a few cases of agreement in the current database. Example (4) comes from Puinave, an unclassified language spoken in Colombia and Venezuela. In Puinave, both the head noun and its modifiers are marked for plural. This includes demonstratives, numerals and property words, the latter two expressed by verbal roots which receive the attributive (nominalizing) prefix *i-* (cf. Girón 2008:167,233).

(4)   Puinave (unclassified; Girón 2008:297)

   naɪ̃   *yót-**ot***   *i-pík-**ot***

   DEM.PROX.PL dog-PL   ATTR-black-PL

   'these black dogs'

Example (5) comes from Mosetén, where property words agree in gender with the noun.

(5)   Mosetén (Mosetenan; Sakel 2004:115)

(a)   *jaem'-si'*   *shiish*

     good-L.F   meat[F]

     'good meat'

(b)   *jaem'-tyi'*   *tyärä'*

     good-L.M   maize[M]

     'good maize'

Examples (6), from Karo, and (7), from Miraña, illustrate agreement in physical property by means of classifiers. Classifiers in Karo are not obligatory, but if they occur on a noun that is modified by a property word, the classifier is obligatorily used after the noun and after the property word.

(6)   Karo (Tupian; Gabas 1999:224-225)

(a)   *i=peon*   *peʔ*   *kĩn*   *peʔ*

     3IMP=skin   CLF:flat   hard   CLF:flat

     'hard skin'

(b)   *wayo*   *pap*   *cú*   *pap*

     alligator   CLF:cylindric.big   big   CLF:cylindric.big

     'big alligator'

Classifying morphemes in Miraña are used on nouns for derivational purposes and as agreement markers "in virtually all […] nominal expressions, such as pronouns, numerals, demonstratives, and relative clauses, as well as in verbs" (Seifart 2005:3).

(7)   Miraña (Boran; Seifart 2005:130)

     mí-ʔi-:ku   *(úhɨ-ʔí-:ku)*

     two-SCM:bunch-DU   (banana-SCM:bunch-DU)

     'two banana bunches'

2.2. Questions on modifiers within the NP

2.2.1. Articles, demonstratives

The questions in this section of the questionnaire deal with articles and demonstratives. As a definition of definite and indefinite articles I adopt the ones proposed by Dryer (2011a, b): "[a] morpheme is considered here to be an indefinite article if it accompanies a noun and signals that the noun phrase is

pragmatically indefinite in the sense that it denotes something not known to the hearer" (Dryer 2011a). If a language has such a device, it may consistently employ the numeral for 'one' in that language (e.g. German *eine/ein*), or it may have a specialized free or bound morpheme that is distinct from the numeral 'one' (but may be diachronically related to it, as with the Dutch indefinite article *een* and the numeral *één*).

A definite article is defined as "a morpheme which accompanies nouns and which codes definiteness or specificity" (Dryer 2011b). Definiteness indicates "whether or not a referent is considered to be identifiable by the hearer", while specificity indicates "whether the speaker refers to a particular token" (Rijkhoff 2001:529).

Whereas languages may lack (in)definite articles, demonstratives seem to be found in all languages. Rijkhoff (2002:174) mentions that "[i]n many languages there is a synchronic or diachronic relationship between demonstratives on the one hand and definite articles and third person pronouns on the other". In some languages there are no separate forms for third person pronouns; instead one of the demonstratives is used for this function. Following Diessel (1999:2) demonstratives are defined here as "deictic expressions which are used to orient and focus the hearer's attention on objects or locations in the speech situation". Depending on the syntactic context, Diessel proposes to distinguish:

> (i) pronominal demonstratives; these are used as independent pronouns, i.e. as arguments of verbs and adpositions and as full NPs on their own;
> (ii) adnominal demonstratives; these occur with nouns in a noun phrase and are used as modifiers of nouns;
> (iii) adverbial demonstratives; these function as verb modifiers and are used for the specification of location.

There is great variation in the semantic features that can be encoded by demonstratives. The primary feature is a distance contrast, invariably encoded in adverbial demonstratives but not always in pronominal or adnominal forms (Diessel 1999:50). This is also true for the South American data considered in this study. For languages that distinguish distance in their demonstrative system, two types of system have been described: *distance-oriented* systems (proximal, medial, distal) and *person-oriented* systems (near the speaker, near the hearer, near the speaker + hearer, away from the speaker + hearer) (Diessel 1999:39, referring to Anderson & Keenan 1985:282-286). In addition to distance, there are other semantic features that can be encoded by demonstratives. The features found in the sample languages include visibility, movement, posture, animacy, gender, number, shape, and the expression of tense. Morphologically, some of the features are encoded in the demonstrative root, others in obligatory or

optional morphemes that occur on demonstrative roots. The following three examples illustrate the encoding of posture distinctions.

(8)   Mekens (Tupian; Galucio 2001:45)
         arob   a=ẽp   ***tee***
         what   fruit=really.indeed   DEM:suspended
         'What fruit is that?' (hanging on the tree branch)

(9)   Movima (unclassified; Haude 2006:141)
         *u'ko   ulchał-a=**kine'e**=s*   *kwe:ya*
         PRO.M   in.law-LV=DEM:stand.F=DET   woman
         'He is the son-in-law of that (standing) woman.'

(10)   Itonama (unclassified; Crevels 2001)
         nik'o-di   *umu-ke   nik'abï*   *chilipihcha'ke*
         DEM:DIST-CLF:sitting.PL   man-PL   DEM:ADV:DIST   machetero
         'Those men seated over there are macheteros.'

The parameters discussed in this section are reflected in the questionnaire. For the study of the semantic features encoded by demonstratives, I focus exclusively on adnominal demonstratives, i.e. demonstratives that function as modifiers within the NP. A selection of the questions, with their corresponding set of answers, is presented below.

   (3.1) Are there indefinite markers/articles in use?
   a=[no],
   b=[numeral 'one' is used as an indefinite article],
   c=[indefinite article in use distinct in realization from numeral for 'one']

   (3.3) Are third person pronouns and demonstratives related?
   a=[unrelated],
   b=[related to proximal form of the demonstrative],
   c=[related to medial form],
   d=[related to distal form],
   e=[3ʳᵈ person pronouns are indicated by demonstratives]

For the next three questions, the option *n/a=[not applicable]* does not refer to the semantic feature encoded, but to the whole question, since some languages are reported not to have adnominally used demonstrative forms.

(3.5) How many distance contrasts do adnominal demonstratives encode?
0,2,3,4, n/a=[not applicable]

(3.6) Can adnominal demonstratives encode visibility? (encoded, not implied)
1=[yes], 0=[no], n/a=[not applicable]

(3.9) Can adnominal demonstratives encode movement?
1=[yes], 0=[no], n/a=[not applicable]

The following question is relevant for languages in which demonstratives are underived roots that require additional morphology in order to occur as free forms.

(3.14) Do adnominal demonstratives roots require further derivation?
a=[no],
b=[only proximal demonstrative],
c=[only distal demonstrative],
d=[all demonstratives],
n/a=[not applicable]

2.2.2. Attributive possession

This section of the questionnaire focuses on the structural characteristics of attributive possessive constructions. The parameters under investigation include: head vs. dependent marking of possession, the possessive strategies used by the sample languages, and the presence and formal realization of the alienable-inalienable distinction.

As shown by Nichols (1986) head- vs. dependent-marking is an important parameter with a number of significant implications for the grammar of a language, and for cross-linguistic studies. In addition, Nichols (1992, 1995:343) argues that head- vs. dependent-marking is a genetically stable structural feature. This entails a high probability for the feature to be inherited and a low probability for it to be borrowed (Nichols 1995:354). Thus, this feature can potentially be indicative for deeper relations, along with other parameters that are suggested to be stable over time.

In possessive constructions, the relation of possession can be marked (i) only on the head noun (the noun denoting the possessed), (ii) only on the dependent noun (the noun denoting the possessor), (iii) on both the head and the dependent, or (iv) on neither. Thus, languages can be divided into several types based on the

locus of possession marking. Within each type there is some variation as to the construction that is used.

For instance, the following examples illustrate the head-marking strategy, where the head noun is marked for possession. While in Apurinã the head noun occurs with the suffix denoting that the referent is possessed, in Yurakaré the head noun occurs with a prefix that contains information about the person and number of the possessor.

(11)   Apurinã (Arawakan; Facundes 2000:236)
         tokatxi   *xika-**re***
         Tokatxi   sing-POSSD
         'Tokatxi's song'

(12)   Yurakaré (unclassified; Van Gijn 2006:116)
         shunñe   ***a**-sibë*
         man   3SG-house
         'the man's house'

Another parameter of typological variation within the domain of attributive possession is the availability and formal manifestation of the alienable-inalienable distinction. Alienably possessed nouns (or 'alienable nouns' for short) are nouns that can stand on their own without the obligatory specification of a possessor. On the other hand, inalienably possessed nouns (or 'inalienable nouns') are those that cannot occur by themselves and require an overt statement of who the possessor is. Alternative terms widely used for alienably and inalienably possessed nouns are *optionally* and *obligatorily* possessed nouns, respectively. In addition to these two classes of nouns, there is a class of 'non-possessible' nouns: the use of markers of possession is ungrammatical with such nouns. Finally, another class of nouns that can be distinguished with respect to possession is the class of 'indirectly possessed' nouns, i.e. those which cannot occur directly with the possessor but require an additional grammatical element joining the two constituents.

What falls under each class varies from language to language. The class of inalienably possessed nouns tends to include the semantic categories of kinship and part-whole relationship. Alienable possession, on the other hand, tends to involve ownership or a more abstract relation, where the possessor and the possessed are related conventionally (cf. Chappell & McGregor 1996:4, Dixon 2010:262). Non-possessible nouns often involve the real life 'impossibility' of possessing an entity referred to by the noun. This class is not considered further in the study. The class of indirectly possessed nouns is highly language specific.

For the languages in the sample, this class often involves domestic animals and food items.

Example (11) above is an illustration of a possessive construction involving an alienably possessed noun ('song') in Apurinã, while (13) below is an example of a construction with an inalienably possessed noun ('head') in the same language. The two examples demonstrate the presence of a formal difference between alienable and inalienable possession in Apurinã: the use of morphological markers with alienable nouns, and unmarked juxtaposition of lexical constituents with inalienable nouns. This difference confirms the observation that inalienable possession structurally often involves less "morpho-syntactic material" than alienable possession (Payne 1997:105).

(13)   Apurinã (Arawakan; Facundes 2000:152)
         kema   kuwu   *mipa*   *atama-ta*
         tapir   head   Mipa   look-VBLZ
         'Mipa looked at the tapir's head.'

While Apurinã has a two-fold contrast, other languages can have a three-fold contrast. In such cases, a different construction is used for all three central types of semantic relationship, viz. kinship, part-whole relationship, and ownership (cf. Dixon 2010:264). For this study, I decided to look at the expression of possession in terms of the two-fold division of nouns into alienable and inalienable. A more fine-grained approach to the topic would be suitable when focusing only on languages that have a class of inalienable nouns.

Indirectly possessed nouns can be illustrated with an example from Wichí, in which the classifier *qa* occurs between the lexical possessor and the possessed.

(14)   Wichí (Matacoan; Terraza 2009:98)
         xwan   *i-kʸox*   [*maltin*   ***qa***   *lapis*]
         Juan   3-buy   Martin   CLF:gen   pencil
         'Juan bought Martin's pencil.'

The questionnaire on attributive possessive constructions reflects the different parameters introduced in this section. I present some of the questions next.

The first questions deal with the locus of possession marking, i.e. whether possession is marked on the head or/and on the dependent. For these questions, as for similar ones in the rest of the questionnaire, I focus on the most frequent construction. Thus, if there are alternative strategies for marking possession within the NP, the most frequently used construction will be given. In cases where marking depends on alienability, I will use the construction with alienably possessed nouns to discuss locus of marking. Expressions of alienable possession

can be regarded as more prototypical instances of possession (cf. Stassen
2009:16). Furthermore, constructions with inalienably possessed nouns are
cross-linguistically less marked than those with alienable nouns (Haiman
1985:130, Payne 1997:105), which means that one can expect more formal
variation in alienable than in inalienable possession. A 'comment' field can be
used for comments on constructions used with inalienable nouns.

> *(4.1) In possessive constructions with a nominal possessor, is the
> POSSESSOR usually marked?*
> *a=[no],*
> *b=[yes: POSR-pos.marker],*
> *c=[yes: POSR pos.marker],*
> *d=[yes: POSR-agr/w/posd],*

> *(4.2) In possessive constructions with a nominal possessor, is the
> POSSESSED noun usually marked?*
> *a=[no],*
> *b=[yes: pers.pos.pref-POSSD],*
> *c=[yes: POSSD-pers.pos.suf / clitic],*
> *d=[yes: pers.pos.pref-POSSD-possessed],*
> *e=[yes: pers.pos.pref-rlt-POSSD],*
> *f=[yes: POSSD-possessed],*
> *g=[yes: rlt-POSSD],*
> *h=[yes: rlt-POSSD-possessed], [3]*
> *i=[yes: pers.pos.pref-classifier POSSD]*

The abbreviations used in the answers encode the following concepts, which will
be explained in more detail in the chapter on possessive constructions (chapter
4):

(i) Markers found on the possessor (POSR):

pos.marker stands for 'possessive marker'. This term is used for a free or a
bound form which indicates possession, and which is morphosyntactically
associated with a noun denoting the possessor.

pos.marker:agr/w/posd stands for 'possessive marker: agreement with
possessed'. This term is used to refer to a possessive marker that shows
agreement with the possessed. This type of possession marking occurs only
in one language of the sample (Mosetén).

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[3] This construction is found in Hixkaryana. In descriptions of this language the term 'linker' is used
(Derbyshire 1979:97) instead of 'relational morpheme'.

(ii) Markers found on the possessed (POSSD):

pers.pos.pref / *pers.pos.suf* / *pers.pos.clitic* stands for 'personal possessive prefix/suffix/clitic'. This term is used for affixes which encode person, number, and/or gender of a possessor, and which appear on the possessed noun.

possessed stands for 'possessed marker'. The term is used for either a free or a bound form which indicates that an item is possessed, and is associated morphosyntactically with the possessed.

rlt stands for 'relational morpheme' / 'linker' / 'relativizer'. Such markers occur on the possessed noun and have a function to signal unity between possessor and possessed as elements of one NP. In some languages such markers occur in constructions with alienably possessed nouns only, whereas in others they can occur both with alienable and inalienable nouns. It is often the case that the presence of these markers is phonologically conditioned. It is not clear at the moment whether constructions with such relational morpheme should be considered separately (as answer options *e, g, h* in question 8.2 indicate).

The questionnaire systematically distinguishes possessive NPs with an overt nominal possessor (e.g. brother's house) and possessive NPs with a pronominal possessor (e.g. his house). I treat the following non-lexical indications of the possessor as 'pronominal possessor': free personal pronouns, free possessive pronouns, and personal possessive affixes that occur on the head-noun.

The next two questions deal with possessive NPs with a pronominal possessor.

> *(4.3) In possessive constructions with a pronominal possessor, is the POSSESSOR usually marked?*
> *a=[no],*
> *b=[yes: possessive.pronoun],*
> *c=[yes: personal.pronoun-pos.marker],*
> *d=[yes: personal.pronoun-agr/w/posd]*

> *(4.4) In possessive constructions with a pronominal possessor, is the POSSESSED noun usually marked?*
> *a=[no],*
> *b=[yes: pers.pos.pref-POSSD],*
> *c=[yes: POSSD-pers.pos.suf/clitic],*
> *d=[yes: pers.pos.pref-POSSD-possessed],*
> *e=[yes: pers.pos.pref-rlt-POSSD],*
> *f=[yes: POSSD-possessed],*

g=[yes: pers.pos.pref-classifier POSSD]

The following questions in the questionnaire focus on the alienable-inalienable distinction and related questions.

(4.5) Are there nouns denoting obligatorily possessed items?
1=[yes], 0=[no]

(4.6) Do possessive constructions with optionally possessed nouns differ from those with obligatorily possessed nouns? (i.e. is alienable and inalienable possession formally distinguished?)
1=[yes], 0=[no], n/a=[not applicable]

The next question is highly specific for the South American data. Quite a few sample languages have just one or two classifiers that are obligatory in possessive constructions involving (domesticated) animals or food. It is difficult to call such a system a classifier system, because of its limited inventory and restricted occurrence.

(4.7) Is a word/morpheme meaning 'pet' (or similar) required in possessive constructions involving nouns which denote (domesticated) animals, and/or food?
1=[yes], 0=[no]

This can be illustrated with examples from Yurakaré and Mekens, which require additional morphemes exclusively with this type of nouns.

(15)   Yurakaré (unclassified; Van Gijn 2006:117)
         ti-tiba   talipa   (* *ti-talipa*)
         1SG-pet chicken
         'my chicken'

(16)   Mekens (Tupian; Galucio 2001:33)
         o-iko   apara   (**o-apara*)
         1SG-food   banana
         'my banana'

2.2.3. Property words

Questions in this section of the questionnaire deal with the typologically controversial question whether all languages have a separate class of adjectives.

They also focus on related aspects, such as their morphosyntactic and semantic characteristics.

It is necessary to agree on terminology first. I occasionally use the term 'adjective' exclusively for a grammatical category of descriptive words that denote properties or qualities and that are morphologically, syntactically and semantically distinct from nouns and verbs in the language. In parallel, I will use the term 'property word' for a category of descriptive constructions that denote properties or qualities, irrespective of their morphosyntactic characteristics. Therefore, the term 'property word' also functions as a cover term in this study.

The grammatical status of property words is an issue that has received a lot of attention in cross-linguistic studies. While most languages show a straightforward morphosyntactic distinction between verbs and nouns, property words in many languages are far from easy to distinguish as a formal category. Numerous studies focusing on particular languages or language families show that there is often no evidence for separating them as a class of their own (Dixon 1977 revised 1982, Meira & Gildea 2009, Enfield 2004, among others). On the other hand, Dixon (2004b:1) claims that "a distinct word class 'adjectives' can be recognized for every human language. […] there are always some grammatical criteria – sometimes very subtle – for distinguishing the adjective class from other word classes".

The languages in the present sample fall into two groups: languages that have no morphosyntactic evidence for property words as a distinct class, and those which have such a class, even if it is small and limited to a few members. Hup, for instance, is an example of a language with a separate class of property words (adjectives). Despite the fact that adjectives in Hup share properties with both verbs and nouns, they differ from these classes on certain important criteria. When used predicatively (17a), adjectives take verbal negation or aspectual inflection like verbs; however, unlike verbs, they do not require in specific morphology like the Boundary Suffix. When used as noun modifiers (17b), adjectives structurally resemble obligatorily bound nouns, but, unlike such nouns, adjectival modifiers can occur as independent stems and as predicates (Epps 2008:331).

(17)   Hup (Nadahup; Epps 2008:444,326)
(a)   *yúp*   *tegd'uh*   *póg-óy*
        that.ITG   tree   big-DYNM
        'That tree is getting bigger.'

(b)   *…tod*   *pǒg*
        …hollow.tree   big
        '…a big hollow tree'

Kwaza, on the other hand, is an example of a language where the class of adjectives is not distinguished. "Adjectival concepts" are expressed by verb roots which take verbal inflections (Van der Voort 2004:94). When used predicatively (18a), a verb root takes the declarative suffix *-ki*, and when used as modifier (18b), a root is nominalized by a semantically neutral or specific classifier and juxtaposed to the head noun which it modifies:

(18)   Kwaza (unclassified; Van der Voort 2004:190,94)

(a)   *ho'ho-ki*   (b)   *'manka   'ki-hỹ   ja-da-ki*

         dirty-DECL   mango   ripe-NMZ eat-1SG-DECL

         'It is dirty.'   'I ate a ripe mango.'

The examples from Hup and Kwaza also illustrate two main functions that property words have in a language. One is *to state* a certain property of the referent, as in examples (17a) and (18a), while the other function is *to specify* the referent (Dixon 2004b:10), as in examples (17b) and (18b). Statement of a property is formally done with an intransitive predicate, or with a copular complement construction. Specifying a referent is done by means of modification within the NP. This study focuses exclusively on the second function of property words, namely to further specify the referent of the NP. The morphosyntactic characteristics of property words used as modifiers are directly dependent on the word class to which they belong in that language. This can be seen in example (18b) from Kwaza, in which derivational morphology is applied to property words in order to occur attributively.

   If a separate adjective class can be distinguished in a language, the adjectives of this class are very likely to include the following semantic features, as shown in Dixon (2004b:3): *dimension* ('big', 'small', 'long', 'deep', etc.), *age* ('new', young', 'old', etc.), *value* ('good', 'bad', 'strange', etc.), and *color* ('black', 'white', 'red', etc.).

   These questions about property words are reflected in the questionnaire. The first question deals with the availability of adjectives as a separate class. The answer options allow us to account for (a) languages in which the adjective class is not distinguished, (b) languages with a small adjective class, and (c) languages with a larger adjective class. Since many languages in the sample have a small class of adjectives, the threshold of approximately 10 adjective lexemes is taken as most suitable.

   (5.1) Is there a class of synchronically underived adjectival elements (lexemes)?
   a=[no],
   b=[yes, but less than 10],

c=[yes, more than 10]

The other questions in the questionnaire deal with the distribution of the semantic classes of property words over word classes. The questions are formulated in the following way.

(5.2) Which word class do (the majority of) words denoting dimension belong to?
a=[adjectives],
b=[verbs],
c=[nouns],
d=[adverbs]

(5.3.) Which word class do (the majority of) words denoting age belong to?
a=[adjectives],
b=[verbs],
c=[nouns],
d=[adverbs]

(5.4) Which word class do (the majority of) words denoting value belong to?
...etc.

2.2.4. Numerals

The two questions in this short section of the questionnaire deal with cardinal numerals in the languages of the sample. They are of interest for the following typological reasons. Like property words, cardinal numerals can be expressed by lexemes belonging to formally different word classes, e.g. nouns, verbs, or adverbs. Therefore, numerals can show different morphosyntactic behavior when used as noun modifiers.

For instance, as already mentioned earlier, numerals in Hixkaryana have the same morphological and syntactic properties as adverbs. As shown in example (3) above, repeated here as (19a), numerals in this language mainly occur as sentential adverbs. Their use as modifiers is also attested, but it seems to be very rare (19b):

(19)   Hixkaryana (Cariban; Derbyshire 1979:44)
(a)   *kanawa   wenyo,   **asako***
         canoe   1-saw-3   two
         'I saw two canoes.'

(b)   ***asak***   *kanawa*   *wenyo*
     two   canoe   1-saw-3
     'I saw two canoes.'

In addition to the class and morphosyntactic status of numerals, another highly relevant issue is the native or borrowed nature of the form. Data from the sample show that in some languages native numerals have properties of one class, while borrowed numerals have properties of another class and therefore show different morphosyntactic behavior within the NP.

For instance, Derbyshire (1979:44) notes for Hixkaryana that numerals borrowed from Portuguese are incorporated in the language as nouns, which receive the denominalizing morpheme *me* and are used further as adverbs. In Movima, the four native numerals and most quantifiers belong to a class of verb-like adjectives, the numerals borrowed from Spanish are treated as members of a class of noun-like adjectives (Haude 2006:114).

The native vs. borrowed nature of numerals can also influence other aspects of the grammar. For instance, a native numeral form may occur in one order relative to the head noun, while a borrowed form can show a different order with respect to the same head noun. This issue is not dealt with in this section of the questionnaire, but is integrated in the discussion of constituent orders within the NP (see section 2.1.1).

The section on numerals in the questionnaire consists of two dependent questions. The aim of the first question is to gain insight in the word class of the native numerals. The second question depends to a certain degree on the first one, and looks into the morphological properties of native numerals when used as modifiers in the NP. The questions are formulated in the following way:

(6.1) Which class do native numerals belong to?
a=[adjectives],
b=[verbs],
c=[nouns],
d=[both nouns and verbs],
e=[adverbs],
f=[not applicable]

(6.1.1) Do numerals receive any special (class-changing) morphology in order to function as an attributive modifier within an NP?
1=[yes], 0=[no], n/a=[not applicable]

2.3. Other issues

2.3.1. Nominal number

The questions in this section of the questionnaire deal with the grammatical expression of number within the NP. If it is present in a language, number can be realized overtly in different domains: an argument and / or the predicate can be marked for number. This implies that if an argument is plural, number may not be marked on the NP itself, but with cross-reference on the verb. Such cases are the topic of a separate study and will not be considered here. What I will be looking at is the possibility to mark number within the NP. Data from the sample show that languages differ substantially with respect to the following parameters:

  (a) availability of number marking within the NP;
  (b) obligatoriness / optionality of number marking;
  (c) degree of detail in number distinctions (e.g. plural, dual, paucal);
  (d) type of marking used for number, if the language marks number;
  (e) semantic distinctions which can be included in number (e.g. collectivity).

If a language marks number in the NP, there can be variation in its use. This can be conditioned by a number of factors: (i) the animacy of the referent of the NP: the higher on the Animacy Hierarchy, the more likely to be marked for number (Corbett 2000:90); (ii) the topicality of the referent: the more 'topical', the more likely to be marked for number (Smith-Stark 1974, referred to in Epps 2008:192), or (iii) the presence of a numeral modifier, which in itself marks the non-singular character of the referent of the NP.

   The following example from Movima illustrates the case of a language in which plural marking is necessary with all nouns (animate or inanimate) and independent of the presence of a numeral higher than one. Such obligatory marking of number on all nouns is relatively uncommon for the languages in the sample (see section 5.1.1 in chapter 5). Number in Movima is marked by so-called referential elements.

(20)   Movima (unclassified; Haude 2006:150,208)
(a)   *is*   *kwe:ya*
         ART.PL   woman
         '(the) women'

(b)   *tas-poy*   *is*   *paj'i*
         three-BR:animal   ART.PL   dolphin
         'There are three dolphins.'

Further, languages vary in the range of number distinctions that can be formally marked. The singular vs. plural distinction is most common, whereas values like dual, trial or paucal seem to be found less often in a number system. The presence of such number distinctions in a language generally follows the Number Hierarchy: *singular > plural > dual > trial* (cf. Corbett 2000:38). As briefly addressed later in this section, however, for some languages in the sample this is not always the case.

The formal type of marking used for specifying number distinctions may partially depend on the morphological profile of a language. Very different means can be used: affixes, clitics, free forms, tone variations, or changes in the noun stem (cf. Corbett 2000:138-159).

A particularly complex issue in this domain is the range of meanings that can be included into the notion of number in a language. This is especially difficult for the distinction between plural and collective. Corbett (2000:118-119) argues that collectives should not be regarded on a par with basic number values, like singular, dual and plural, nor as subdivisions of these. He gives the following evidence for this:

(a)   the occurrence of collective markers does not follow the Animacy Hierarchy: collectives are typically formed from nouns low on the hierarchy and not with pronouns;

(b)   the co-occurrence with number markers: collectives may co-occur with number markers within the same word;

(c)   obligatoriness: collectives are never obligatory.

These criteria were largely followed in the questionnaire, and whenever it was necessary to make a decision on plural vs. collective. They are especially helpful with languages which have more than one morpheme to indicate plurality. For instance, in Wichí, there is a collective marker that is morphologically different from a plural marker, and the two markers can co-occur (Terraza 2009:88). However, the criteria can be problematic in cases when a language has only one morpheme that encodes a range of number meanings. This is the case, for instance, for Matsés. In this language the enclitic =*bo*, which is optional with all nouns, can indicate 'more of the same kind' or 'different kinds' of particular objects.

However, the same enclitic also occurs on the 3rd person pronoun to form the plural form of the pronoun. Thus, the optional use of this marker and its occurrence with pronouns do not conform to the typical behavior of collectives reported in Corbett (2000:118-119).

(21)   Matsés (Panoan; Fleck 2003:272-273)
(a)   *chido=**bo***   *cho-e-c*
         woman=PL   come-NPST-IND
         'A group of women are coming.' / 'Women (always) come.' / 'Women
         are coming (one by one).'

(b)   *poshto=**bo***
         woolly.monkey=PL
         'woolly monkeys and other types of monkeys'

(c)   *chompian=**bo***
         shotgun=PL
         'different types of shotguns' / 'shotguns, etc.'

The aspects of the grammatical expression of number discussed in this section
are reflected in the following questions in the questionnaire.

   The first question concerns the formal presence of the main 'singular vs.
plural' distinction. The answer options relate to the availability of plural marking
within the NP, and its formal type:

   (7.1) Do nouns have a morphologically marked singular vs. plural
   distinction?
   a=[no plural marking],
   b=[marked by a prefix],
   c=[marked by a suffix],
   d=[marked by a clitic],
   e=[marked by a free (not bound) marker],
   f=[by referential elements[4]]

The next question is a dependent question and concerns the condition under
which nominal number can occur. In cases for which the main question (7.1) is
answered with *a=[no plural marking]*, the dependent question (7.1.1.) is left
blank.

   The answer options in (7.1.1.) are based on the tendency of languages to
mark number according to the Animacy Hierarchy (see Corbett 2000:55):

   (7.1.1) What is the occurrence of nominal plural?
   a=[obligatory only on human nouns],

---

[4] Referential elements, which are regarded as a morphological class on their own in Movima, include
pronouns, articles, and demonstratives (Haude 2006:128).

b=[obligatory only on animates (i.e. humans and non-human animates)],
c=[optional on all nouns],
d=[obligatory on all nouns]

The following two questions aim to get insight in the number values which can be expressed. The answers for both questions are binary.

(7.2) Do nouns have a morphologically marked dual?
1=[yes], 0=[no]

(7.3) Do nouns have a morphologically marked paucal?
1=[yes], 0=[no]

Another question in this section is on collectives:

(7.4.) Is there a morphologically marked collective marker?
1=[yes], 0=[no]

As can be seen, questions (7.2) and (7.3) on number values are independent questions, and not sub-questions of (7.1). In theory, this goes against the Number Hierarchy: *singular > plural > dual > paucal/trial* (Corbett 2000:39, referring to Foley 1986:133 and Croft 1990:96-97). According to this hierarchy, no language has a paucal or trial unless it has a dual, and no language has a dual unless it has a plural. However, I have included these as independent questions to account for cases such as Mocoví and Pilagá. These two Guaycuruan languages have a morphologically marked paucal, and Pilagá is reported also to have a dual (Vidal 2001:91). In addition, there is a number marker of the plural / collective character, which can be used on all nouns but seems to be optional. In Mocoví, the plural marker (which is used in reference to four or more entities) is added to the paucal form of the noun (Grondona 1998:61). In principle, if we call such a marker 'plural', it should not co-occur with other number values, as this is a property of collectives. On the other hand, if we call such a marker 'collective', then having morphological markers for dual and paucal in the language but no marker for plural would go against the Number Hierarchy.

2.3.2. Noun categorization devices

This section of the questionnaire deals with noun categorization devices, like gender and noun class systems, or classifiers. South American languages are particularly interesting for the study of nominal classification, because numerous languages have systems of classification that fall in between the classic

typological categories as distinguished by Dixon (1982, 1986) and Grinevald (2000).

I will first briefly introduce some classic terminological distinctions in this domain. The term 'gender' was originally used to refer to the three classes in Greek, viz. 'masculine', 'feminine', and 'inanimate', nowadays called 'neuter' (Aikhenvald 2004:1031). This system is found in many Indo-European languages, where nouns are divided into three or two classes. The assignment of gender to nouns denoting humans is often based on the biological sex of the referent, whereas the rest of the nouns are assigned to masculine, feminine, or neuter gender based on semantic properties (transparent or more opaque) and / or formal properties. Gender distinctions can be shown in the form of a noun ('overt' gender), or they can be realized exclusively on other constituents within the NP and / or in the clause ('covert' gender) (Corbett 1991:117).

For instance, in Movima, gender is encoded by referential elements morphologically realized as free forms. Nouns referring to humans are marked as either masculine or feminine according to sex, while nouns referring to non-human referents are marked as neuter (Haude 2006:148). In Jarawara, gender is not shown in the form of a noun, and is realized on other constituents inside the NP. Nouns referring to humans have gender according to the biological sex of the referent, while the majority of non-human animates have a fixed, masculine, gender (~85% are masculine). Most of the nouns referring to inanimates are treated as feminine, which is the unmarked form in Jarawara (Dixon 2004a:284). The following example is from Mosetén, where all nouns are divided into two classes. Humans are assigned a gender according to sex, and all other nouns (like the word for 'house') are either masculine or feminine.

(22)   Mosetén (Mosetenan; Sakel 2004:102)
         bae'-i-tsin   *öi-khan*   *aka'*   *mäei'-sï'*
         live-VSM.M.S-1PL   DEM.F-INES   house   new-L.F
         'We live in this new house.'

The term 'noun class' has traditionally been used for languages that have larger systems of noun classification than gender systems, but are otherwise functionally similar (Grinevald 2000:57). For instance, in many African languages, nouns fall into eight or more classes (the number depends on whether one counts singular / plural alternations as one class), manifested in agreement patterns within the NP and on the predicate. The basis for assigning nouns to classes can include biological sex for human referents, but this is not always the case. Nouns can be assigned on semantic, or formal morphological or phonological properties, or a combination of these. This type of nominal

classification device is illustrated by an example from a Bantu language for which the term noun class has been traditionally used.

(23)   Swahili (Niger-Congo; Katamba 2003:111, A. Abdalla, p.c., cited in
         Seifart 2010:721)
         vi*-kapu*   ***vi****-dogo*   ***vi****-lianguka*
         CL8-basket   CL8-little   CL8-fell.down
         'The little basket fell down.'

Gender and noun classes are treated as one type of noun categorization device, because both systems (i) obligatorily divide all (or nearly all) nouns into rigid classes, and (ii) are realized on other constituents in the form of agreement (Dixon 1982, 1986, Grinevald 2000:56, Corbett 1991:5). Here I reserve the term *gender* for smallish systems which distinguish two or three classes, like masculine vs. feminine vs. neuter, or masculine vs. feminine, or common vs. neuter, while I use *noun class* as a cover term for both gender and noun classes.[5]

   The term 'classifier' refers to a free or bound morpheme that classifies and categorizes a nominal referent according to its specific characteristics (Dixon 1982, 1986, Grinevald 2000). While both gender and noun class systems are grammaticalized agreement systems, classifiers are characterized by their incomplete grammaticalization and are considered by Grinevald (2000:61) to be a 'lexico-grammatical' device of noun categorization. The main properties of classifiers are: (i) non-obligatory use; (ii) membership in an open system; (iii) the potential to add semantic content to the noun phrase in which they occur, and (iv) the flexibility to assign a noun to various semantic classes according to the speaker's intention (Grinevald 2000:62, referring to Dixon 1982, 1986). Classifiers are subdivided into several types: numeral, noun, possessive, verbal, deictic and locative classifiers, labeled according to the construction in which they are used. The classes into which classifiers divide the nouns are often formed on such semantic parameters like shape, consistency, size or boundedness, posture, animacy, humanness, and social status (Aikhenvald 2000, Grinevald 2000). The following example from Tsafiki demonstrates the use of classifiers in constructions with numerals. These numeral classifiers categorize the referent in terms of its physical properties: *-de* 'long, rigid' and *-ki* 'flexible':

---

[5] 'Gender' is used as a cover term for both systems in Corbett (1991) and Aikhenvald (2004:1031), while 'noun class' is used as a cover term in Aikhenvald (2000:19), Grinevald (2000) and Seifart (2010).

(24)   Tsafiki (Barbacoan; Dickinson 2002:57)
(a)   *palu-**de**   *ano*
         two-CLF:long.rigid   banana
         'two single bananas'

(b)   *palu-**ki**   *ano*
         two-CLF:flexible   banana
         'two banana leaves'

As mentioned, South America has a large number of languages with quite diverse and intricate systems of nominal classification. Seifart & Payne (2007) show that languages spoken in the Northwestern Amazon region have classifying morphemes with a rich blend of properties of several types of nominal classification. The classifiers in question function in the productive derivation of new nouns, they can occur on nouns, verbs, adjectival elements, numerals, demonstrative and interrogative pronouns, and they "appear to have agreement-like functions, albeit to different degrees in the different languages" (Seifart & Payne 2007:383). For instance, in the following example from Tariana, classifying morphemes show an agreement function.

(25)   Tariana (Arawakan; Aikhenvald 2003:85)
         [heku-na   [pana-phe   mat͡a-phe]-na]
         tree-CLF:vert   [leaf-CLF:leaf.like good-CLF:leaf.like]-CLF:vert]
         'a tree which has beautiful leaves'

These issues in the typology of nominal classification guide the questions in the questionnaire. A selection of the questions is given next.
    The aim of the first question is to gain insight into the presence of gender distinctions in the sample languages. As noted above, the term *gender* is reserved for smallish systems which distinguish two or three classes, like masculine vs. feminine vs. neuter, or masculine vs. feminine, or common vs. neuter.

    (8.1) How many gender distinctions are realized within the NP?
    a=[none], b=[two], c=[three]

The next question deals with a parameter that is specific for the South American data in the sample. The term sex-marker in question (8.2) refers to a marker that *optionally* specifies the gender of its referent. These always occur on the noun itself. Derivationally, such markers are often related to lexemes denoting 'male' or 'female' in a language.

(8.2) Are there any (grammaticalized) sex-markers?
1=[yes], 0=[no]

The following questions focus on the occurrence of classifiers and their functions.

(8.3) Are there classifiers?
1=[yes], 0=[no]

> *(8.3.1) Are there classifiers used with numerals?*
> *a=[no],*
> *b=[realized as prefixes],*
> *c=[realized as suffixes],*
> *d=[realized as circumfixes],*
> *e=[realized as free morphemes],*
> *f=[realization depends on numeral].*
>
> *(8.3.2) Are there classifiers used with nouns?*
> *a=[no],*
> *b=[yes, realized as prefixes],*
> *c=[yes, realized as suffixes],*
> *d=[realized as free morphemes],*
> *e=[yes, realization depends on noun].*
>
> *....etc.*
> *(8.3.8) Do classifiers have a derivational function?*
> *1=[yes], 0=[no]*
>
> *(8.3.9) Do classifiers have an anaphoric function?*
> *1=[yes], 0=[no]*

2.4. Summary

In this chapter I introduced the basic structure of the questionnaire used for this study, which establishes the basic parameters related to the NP. These parameters will be dealt with in more detail in the following chapters. Specifically, articles and demonstratives used as modifiers are considered in chapter 3, while semantic features encoded by demonstratives more generally are dealt with separately in chapter 9. Attributive possessive constructions are discussed in chapter 4. Numerals and grammatical expression of quantity within the NP are treated in chapter 5. Property words used within the NP are discussed

in chapter 6. Based on the syntactic behavior of the four modifier categories, the question of NP constituency is addressed in chapter 7. Noun categorization devices, finally, are the topic of chapter 8.

The questions of constituent order and agreement are not discussed in a separate chapter, but integrated into the chapters dealing with corresponding modifier categories. For instance, the order of property word and noun, and the realization of agreement, are discussed in chapter 6.

Chapter 3. Demonstratives as noun modifiers

This chapter deals with the use of demonstratives as noun modifiers in the languages of the sample. In addition, it also briefly touches upon the use of definite / indefinite articles in the sample.

Following Diessel (1999:2) demonstratives are defined in this study as "deictic expressions which are used to orient and focus the hearer's attention on objects or locations in the speech situation". Dixon (2003:61-2) notes that a demonstrative can be "any item, other than 1st and 2nd person pronouns, which can have pointing (or deictic) reference". In syntactic terms, Diessel (1999:57) identifies the following four contexts in which demonstratives can occur:

(i) Demonstratives can be used as independent pronouns in argument position of verbs and adpositions, in which case they make full NPs.

(ii) Demonstratives can co-occur with a noun in a noun phrase, i.e. as modifiers on nouns.

(iii) Demonstratives can function as a verb modifier, i.e. for the specification of location.

(iv) Demonstratives can occur in copular and nonverbal clauses, i.e. for identification.

In addition, Diessel (1999:36) also provides a semantic generalization: at least two deictically contrastive demonstratives are found in all languages: there is always a demonstrative that refers to an entity close to the deictic center (proximal demonstrative) and one that refers to an entity far from the deictic center (distal demonstrative). However, as observed by Diessel (1999:50) and also confirmed by the data from my sample, the distance contrast is always present in adverbial demonstratives, but not necessarily in pronominal or adnominal ones. For some forms which do not show a distance contrast it may be problematic to determine whether these can be treated as demonstratives or not, as it is not always easy to determine from the grammars whether such forms "are used to orient and focus the hearer's attention" in a speech situation. In the present sample, Mamaindê, Sabanê and Mosetén lack a distance contrast in pronominal and adnominal forms. However, the description of the potential demonstrative in Mamaindê suggests that it can be treated as such (see Eberhard 2009:343). For Mosetén the situation is less certain, as potential demonstrative forms (regarded as such in the grammar) encode only the gender distinction (see Sakel 2004:119).

In this chapter, I consider exclusively the occurrence of demonstratives functioning as noun modifiers (demonstratives in the other syntactic contexts are dealt with in chapter 9). Section 3.1 examines in how far demonstratives can

modify a noun directly or not. In the majority of the languages in the sample, demonstratives syntactically belong to their head nouns in a single NP, but several languages also have demonstratives that are not part of a single NP with their semantic 'head'. One of the options found in such cases is the use of a relative clause construction, in which a demonstrative has to be relativized before it can be construed with its head noun.

In addition to the basic question of construal of demonstratives, this chapter also deals with NP-internal issues like constituent order (section 3.2) and the presence of agreement between demonstrative and noun (section 3.3). Section 3.4 provides some observations on the occurrence of definite / indefinite articles in the languages of the sample.

3.1. Syntactic possibilities of demonstratives as modifiers

The first question to be examined in this chapter is to what extent a demonstrative and its semantic 'head' are in a direct construction to form one single NP. In the sample, we encounter the following three possibilities for modification of a noun by demonstratives:

(i) Demonstrative and noun form a tight constituent (NP), with the demonstrative modifying the noun directly, as in the English equivalent 'this man'.

(ii) Demonstrative and noun form a tight constituent (NP), with the demonstrative modifying the noun via a relative clause construction, as in the English equivalent 'man which is this'.

(iii) Demonstrative and noun are bound only semantically, but they are not constituents of one NP, i.e. they constitute referring phrases in their own right, as in the English equivalent 'this one, the man'.

Each of the cases is considered next.

3.1.1. Direct modification

Demonstratives that directly modify their head noun can either be morphologically bound, as clitics or affixes, or free forms, as roots or derived stems. The first option is found in two languages of the sample, Mamaindê and Wichí, where demonstratives are morphologically realized as suffixes and clitics, respectively (see Eberhard 2009:343, Terraza 2009:72).

In Wichí, a relative clause marker is used with demonstratives that are used pronominally and adverbially (see chapter 9, example 9). Adnominal demonstratives, by contrast, are clitics that occur on the head noun. This is illustrated by the examples in (1) below.

(1)   Wichí (Matacoan; Terraza 2009:74,73)
(a)   *n-p'u-ɬam-hu*   *wahat-a*
          1-grill-REFL-APPL   fish-DEM:PROX
          'I roast this fish for myself.'

(b)   *halo-tsi*   *Ø-watsan*
          tree-DEM:MED   3-be.green
          'That tree is green.'

Adnominal demonstratives in Wichí encode five distance degrees and can also
encode movement (Terraza 2009:73), as shown in (2).

(2)   Wichí (Matacoan; Terraza 2009:73)
          sinox-xim
          dog-DEM:coming
          'that dog (that approaches)'

Demonstratives realized by a bound morpheme are also encountered in
Mamaindê, in which the suffix *-ijah* is reported as a demonstrative (translated as
'that' in the corresponding grammar). Mamaindê, and possibly other
Nambikwaran languages, seems to lack a distance-contrasting set of adnominal
demonstratives.[6] The decision to treat the suffix *-ijah* as a demonstrative here is
motivated by two facts:
    (i) the suffix is used with nominal elements to specify or single out a referent
from the rest;
    (ii) semantically, the suffix has a tendency to be used for reference to people
or objects which are "somewhat removed in time or place from the location of
the speaker" (Eberhard 2009:343). Example (3) shows this use.

(3)   Mamaindê (Nambikwaran; Eberhard 2009:344)[7]
(a)   *mãnʔ-ijah*
          mountain-DEM
          'that mountain'

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[6] There are distance-contrastive adverbial demonstratives in the language. Some of the non-proximal
forms contain the suffix */-ijah/*, which is treated here as the only available adnominal demonstrative
(see Eberhard 2009:510).

[7] A look at Lakondê/Latundê, a closely related to Mamaindê language, shows that a reduced form of
a 3rd person pronoun is used as a demonstrative: *'hãj*. This form does not encode any distance contrast
either (Telles 2002:195). There is, however, a morpheme *-te-*, which occurs suffixed on nouns to
express 'distance of the referent', as shown in the following example: *'sih-te-'te* [house-DIST-REF]
'house (which is far away)' (Telles 2002:205).

(b)   *hukʔ-**ijah**-ãni*
           bow-DEM-FNS
           'that bow'

For Sabanê, another Nambikwaran language included in the sample, the grammatical description by Araujo (2004:101, 127) offers three examples with the morphologically free form *ina*, annotated as 'demonstrative' and translated into English as 'this' and 'the'. It is not clear whether a distance contrast can be encoded by this form, or by separate morphological markers.[8] In general, it is not clear yet whether the scarce information on demonstratives in the Nambikwaran languages should be attributed to gaps in the description of demonstratives in these languages, or whether these languages show a system without a deictically contrastive demonstrative set (instead using a specialized form encoding a pragmatically more marked distance degree, or deictic adverbs to specify the distance when necessary).

Diessel (1999:24) notes that "[w]hile demonstratives may cliticize to an element in their environment, they are probably never bound to a specific word", thus suggesting that "all bound demonstratives are clitics and that demonstrative affixes do not exist" (1999:25). It is difficult to determine whether demonstratives in Wichí are indeed enclitics as they are labeled in Terraza (2009), as no examples are available with intervening modifiers (numerals and lexical possessors as modifiers precede the noun, whereas property words are relativized stative verbs, which follow the head noun). For Mamaindê, if the bound form *-ijah* is correctly analyzed as a demonstrative here, then this form may illustrate that demonstrative suffixes do exist. As can be seen from (3b) the form *-ijah* can also be followed by other morphological markers, e.g. the Final Nominal Suffix *-ãni*.[9]

While there are only two languages in the sample in which demonstratives are bound to the head noun, the other languages have demonstratives as free forms. From a morphological point of view, these can be either free demonstrative roots (which do not need derivational markers to stand on their own), or they can be derived demonstrative stems (demonstrative roots occurring

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[8] For location deictics, there are adverbs *hiaka* 'near' and *holipa* 'far' in the language, which probably function as an adverbial demonstrative set (see Araujo 2004:195-196). The stems expressing the notions 'near' and 'far' in Sabanê seem unrelated either to the stems expressing the same notions in Mamaindê or to the stems in Mamaindê which express the notions 'here' and 'there' (see Eberhard 2009:510).

[9] Final Nominal Suffixes consist of two members, *-ãni* /*-ã* and *-tu*, which can appear on every nominal (see Eberhard 2009:347). Eberhard (2009:348) notes that in actual speech only the *-ãni* form will appear on a noun carrying the demonstrative *-ijah*. While the function of the two Final Nominal Suffixes is not completely clear, there are indications that the form *-ãni* is used in the current system of Mamaindê "when the high specificity of a nominal is in focus" (Eberhard 2009:349).

with derivational morphology). In approximately half of the sample languages demonstratives are free roots. These can occur with inflectional morphology, for instance marking agreement in gender or number with the head noun. The issue of agreement is dealt with in section 3.3 below. Finally, in the other half of the sample languages demonstratives are derived stems, which are considered next.

The derivational markers found on modifying demonstratives in the sample languages include 1st, 2nd, 3rd person pronouns (Mekens, Yaminahua, Timbira) and classifiers (e.g. Kwaza, Itonama, Pilagá).

In Yaminahua and Mekens demonstrative roots combine with the 3rd person singular pronoun (Faust & Loos 2002:49, Galucio 2001:44). While in Yaminahua this is obligatory, in Mekens demonstratives can also occur without the pronoun.

(4)   Mekens (Tupian; Galucio 2001:45)
peyarõ   *pogab-ek-pit*   *te*   ***te-ʔẽ***   *ek*
first   door–house–part   FOC   3SG-DEM:PROX:vertical   house
‘First they opened this house.’

In Timbira, demonstrative roots occur with either a 1st or a 2nd person prefix which signals proximity or distance, respectively (Alves 2004:78).[10]

(5)   Timbira (Macro-Ge; Alves 2004:84)
kahãj   ***i-ta**=je*
woman   1-DEM=COL
‘these women’

The use of classifiers to derive demonstrative stems is found in several languages in the sample, specifically Kwaza, Itonama, Pilagá, Mocoví, Miraña, Cubeo and Desano.

For instance, in Itonama, there are 17 classifiers used with demonstrative roots, whose use depends on the number (singular or plural), animacy, position and shape of a referent object (Crevels 2012).[11] In the following example the classifier -*ba* categorizes the referent object as ‘long, winding’.

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[10] It can be mentioned that the latter pattern was also encountered in Apinajé, another Macro-Ge language (see Oliveira 2005:165). Apinajé is not included in the sample.

[11] The same set of classifiers is used also on verbs (Mily Crevels, p.c.)

(6)   Itonama (unclassified; Crevels 2012)
         k-a'-ki-tya-ne   ***no'o-ba***   *makaya   kahana'-na*
         F-2SG-IMP-wash-NEUT   DEM:PROX-CLF:flexible clothes   old-NEUT
         'Wash these old clothes!'

In Kwaza, the semantically neutral classifier *hỹ* is used on the demonstrative
roots in order for them to be used attributively.

(7)   Kwaza (unclassified; Van der Voort 2004:223)
         ỹ-'hỹ   *a'xy*   *nỹ-'xy-ki*
         this-NMZ   house   big-CLF:house-DECL
         'This house is big.'

However, in Kwaza and some other languages in the sample, like Miraña, Cubeo
and Desano, classifiers used with demonstrative roots can also form an NP on
their own. This can depend on the type of classifying element, whether it is
semantically specific enough to make the head noun redundant. In addition, it is
often only possible in appropriate discourse conditions, for instance when the
referent has already been introduced. (This property of classifiers is considered
in detail in chapter 8.) It is also the case that classifiers in some of the sample
languages have both derivational and inflectional properties (with different
degrees in different languages). One of the examples is Miraña, where
classifying elements are required on demonstrative roots and occur on the head
noun, as shown in (8).

(8)   Miraña (Boran; Seifart 2007:422)
         e:-ko   *(piʰhú-ko)*
         DEM:DIST-CLF:pointed   fish.NMZ-CLF:pointed
         'that (fishing rod)'

Instances where attributively used demonstratives occur with classifiers can
potentially be instances of separate NPs in appositional relationship with the
head noun. However, I treat them here as forming an NP, since in most cases two
criteria for the phrase status suggest that the two belong together. In the majority
of the languages in question a relatively fixed (or preferred) constituent order is
reported for demonstrative and noun, and there is agreement between the two
(see further in chapter 7 for a discussion of criteria for NP unity).
     So far I discussed the typical derivational markers found on attributively used
demonstratives, which include 1st, 2nd, 3rd person pronouns and classifiers. In
Hup, demonstrative forms which are most often used adnominally and
pronominally (vs. adverbially) are derived with the morpheme *-p,* which has its

origin in the Dependent marker -*Vp* (Epps 2008:292). This dependent marker -*Vp* has a function of a clausal subordinator and can be associated with topic marking and emphasis (see Epps 2008:349, 686). Thus, Hup can be an example of a language in which a demonstrative that once modified a noun via a dependent clause has grammaticalized into a free form.

(9)   Hup (Nadahup; Epps 2008:292)
      núp   ***təg***   *ʔăn*   *péʔ-éy=hɔ̃*
      DEM.PROX   tooth   1SG.OBJ   hurt-DYNM=NONVIS
      'This tooth hurts.' (Lit. 'hurts me')

In the following section I consider two languages in the sample in which a relative clause construction is required for demonstratives to be used attributively.

3.1.2. Relative clause construction

In the previous section, I considered languages in which demonstratives are able to modify a noun directly. As already mentioned, in two languages in the sample, Cavineña and Bororo, a construction of a relative clause has to be employed for a demonstrative to be used attributively.

For Cavineña, Guillaume (2008:80) reports two types of demonstratives, adverbial demonstratives and so-called pointing demonstratives. Adverbial demonstratives have a deictic function, referring to locations, and an anaphoric function. Syntactically, they occupy specific postpositional slots (Guillaume 2004:618). Pointing demonstratives, on the other hand, also have a deictic function, referring to locations, but they do not have an anaphoric function.[12] Syntactically, they are peripheral elements that do not occupy any specific postpositional slot (Guillaume 2004:618). The pointing demonstratives can be used as noun modifiers, in which case they are marked by the relative clause marker *=ke* (Guillaume 2004:621). This attributive use is illustrated in (10a) with the distal demonstrative term *yume*. Example (10b) shows that such constructions can be used without an overt head noun, similar to the occurrence of pronominal demonstratives. In (10c) a standard relative clause[13] is provided to illustrate how the three constructions are parallel.

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[12] See Guillaume (2004:619) for more functions of pointing demonstratives.

[13] Verbal relative clauses occur most often posthead. Prehead position of a relative clause is obligatory for demonstrative relative clauses and interrogative relative clauses (Guillaume 2004:502).

(10)   Cavineña (Tacanan; Guillaume 2004:520,521,519)
(a)   ***yume=ke***   *jipamu*   *ji-u=piji*
         DEM:DIST=REL   papaya   good-ASF=DIM
         'That papaya (tree) over there (that we see in the distance) is nice.'

(b)   ***yume=ke=tu***   *"uru"*   *e-kwe*   *y-ana=ju*
         DEM:DIST=REL=3SG(-FM)   burgo.bird   1SG-GEN   NPF-tongue=LOC
         'That (burgo bird that you have in the corner of your house) is (called)
         "uru" in my language.'

(c)   *ejeeke=ri*   ***cavina=ju***   ***kwa-ya=ke***   ***e-diji?***
         INT:PERL=3PROX.SG(-FM)   Cavinas=LOC   go-IMPFV=REL   NPF-path
         'Where is the path that leads (lit. goes) to Cavinas?'

The other option for attributive modification noted by Guillaume (2004:622) is
to use a pointing demonstrative in apposition to an NP without any further
marking:

(11)   Cavineña (Tacanan; Guillaume 2004:622)
         ai=dya=di=tu   ***yume***   *ekwita?*
         INT=FOC=EMPH=3SG(-FM)   DEM:DIST   person
         'Who the heck is that person over there?'

A relative clause marker for attributive use of a demonstrative is also found in
Bororo. Example (12a) shows a noun modified by a demonstrative occurring
with the relative clause marker *-wɨ*. For comparison, example (12b) illustrates a
noun modified by a complex relative clause also introduced by the marker *-wɨ*.

(12)   Bororo (Macro-Ge; Crowell 1979:211,109)
(a)   ***a-wɨ***   *imedɨ*   *raka-re*
         DEM:PROX-REL   man   strong-NEUT
         'This man is strong.'

(b)   ***u-tu-re***   ***a-wai***   ***kae jawɨji-wɨ***   *aredɨ*   *motu-re*
         3SG-go-NEUT   2SG-house   to   yesterday-REL   woman   pretty-NEUT
         'The woman who went to your house yesterday is pretty.'

3.1.3. Non-integrated constituents

For the three Cariban languages of the sample, Tiriyó, Hixkaryana and Panare, it
is reported that demonstratives do not form one NP with their semantic head.

Demonstrative and noun represent two constituents bound semantically, but not syntactically (Sérgio Meira, p.c., Derbyshire 1979:131, Tom and Doris Payne, p.c.). Demonstratives can occur either preceding or following the semantic head (13a,b), or they can be separated from the 'head' noun by another constituent. Sérgio Meira (p.c.) notes for Tiriyó and Hixkaryana that another reason for treating them as separate constituents is the possibility to repeat the postposition after demonstrative and its semantic head noun (illustrated in 13c, which Meira notes is frequent).

(13)   Hixkaryna (Cariban; Derbyshire 1985:53, 1979:68,40, examples glossed by S. Meira)

(a)   ***ow-otɨ***   ***mosonɨ***   *Ø-ar-ko*   *ha*
         2-meat.food   DEM:PROX:AN   3-take-IMP   INTENS
         'Take this meat for you.'

(b)   *Kaywana y-omsɨ-r*   *y-oknɨ*   ***mokro***   ***kaykusu***
         Kaywana LK-daughter-POSSD   LK-pet:POSSD   DEM:MED:AN   dog
         'That dog is Kaywana's daughter's pet.'

(c)   *k-omok-no*   ***moson***   ***y-akoro***   ***ro-he-tx***   ***y-akoro***
         1SA-come-I.PST   DEM:PROX:AN   LK-COMIT   1-wife-POSSD   LK-COMIT
         'I have come with this one, with my wife.'

It should be noted that the analysis of demonstratives in Tiriyó (or Trio) by Carlin (2004) is somewhat different from the one by Meira (1999). Carlin (2004:151,152) reports that the inanimate demonstratives *serë* 'demonstrative proximal inanimate' and *ooni* 'demonstrative distal inanimate' can be used as nominal modifiers. Whereas Carlin gives an example for each, it is not completely clear if they are assigned phrasal status, or are treated as two appositional NPs. Here and in the rest of the study, I use Meira (1999) as the primary source for Tiriyó, and I will mention the differences between the two analyses whenever relevant.

In Matsés, a Panoan language, demonstratives are probably syntactically independent constituents as well. Fleck (2003:260) notes that demonstratives can be used in a modifying function, whereas no particular order relative to the semantic head is required, nor do they have to be adjacent to it. Thus, demonstratives can be found preceding or following the noun, or elsewhere in the clause. The following example includes a demonstrative *aid* 'that one'.

(14)   Matsés (Panoan; Fleck 2003:209)
        aid   *matses*   *uënësbud*   *uënës-bud-ac*
        DEM:DIST   matses   DISTR[14]   die-DUR-NARR.PST
        'Those Matses have all died off one by one.'

Demonstratives that can only modify a noun with a relative clause marker
(Cavineña and Bororo) are treated as adnominal demonstratives in this study: the
relativized demonstrative and the noun form a unit with a head and a dependent
constituent. This sets them apart from demonstratives that are not part of the NP,
as in the Cariban languages and in Matsés.

3.2. Constituent order

This section discusses constituent order of demonstrative and noun. This
question can be interesting for a number of reasons. One reason is typological, in
relation to the question whether any correlation exists between constituents at the
phrase level and those at the clause level (cf. Greenberg 1966, Lehmann 1973,
Vennemann 1974, Dryer 1992, among others). Another reason relates to the
constituency status of an NP involving the elements in question. Specifically, a
fixed linear order of constituents has been discussed as one of the criteria to
recognize an NP as a unit (Givón 1995:177, Meira 1999:493).

   The order of demonstrative and noun found in the languages of the sample is
summarized in table 3.1. As can be seen from the table, the prevailing order is
[Demonstrative-Noun], which occurs in 44 languages. In four languages, the
constituent order is reported to be [Noun-Demonstrative]. These languages are:
Warao, Wari', Sabanê and Timbira. Matsés and three Cariban languages,
Hixkaryana, Tiriyó and Panare, are given in the table as languages in which
demonstratives are not used adnominally. In Matsés demonstratives can be used
as modifiers of nouns, but they seem to be connected to the noun only
semantically but not syntactically (cf. Fleck 2003:260, and discussion above).
Mosetén is also included in this category, since it lacks demonstratives according
to the criteria used in this study (i.e. encoding distance). Finally, two languages,
Mamaindê and Wichí, in which demonstratives are suffixes / enclitics, are not
included in the count.

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[14] Reduplication of the verb carries a distributive meaning (see Fleck 2003:188).

Constituent order of noun and demonstrative	Constituent order in the clause	# of languages	Total # of languages
Demonstrative - NOUN	OV	28	44
	VO	10	
	OV/VO +free	6	
NOUN - Demonstrative	OV	3	4
	VO	1	
	OV/VO +free	-	
n/a: not part of the NP	OV	3	5
	VO	1	
	OV/VO +free	1	

Table 3.1: Order of demonstrative and noun and constituent order at the clause.

It has been assumed in the literature that the order of verb and object correlates with the order of noun and demonstrative (Lehmann 1973, Vennemann 1974), who argue that VO languages tend to have the order [Noun-Demonstrative], while OV languages tend to show the opposite order. Dryer (1992) examines word order properties in 625 languages and argues that there is no evidence for any correlation of the kind. Dryer (1992:96) shows that the order [Demonstrative-Noun] is more common than the opposite in OV languages, but that the same order [Demonstrative-Noun] is also preferred in VO languages, which suggests a general preference of languages for the order demonstrative preceding the noun (see Croft & Deligianni 2001:4). By examining the averages of the proportions of the orders [Demonstrative-Noun] vs. [Noun-Demonstrative] over the six geographic areas which he considered in his study, Dryer (1992:96) concludes that these are "almost identical for OV and VO languages". On basis of this, Dryer concludes that *noun* and *demonstrative* is not a correlation pair.[15]

As can be seen from table 3.1, the data from the sample confirm that the order [Demonstrative-Noun] is strongly preferred. However, we cannot speak of a correlation with the order at the clause level here, since Object-Verb is the dominant order in the sample languages (found in 35 of the 55 languages).

The survey on the geographical distribution of demonstrative and noun order conducted by Dryer (2011c) shows that South America, along with North America, Europe and Asia (except for Southeast Asia) has demonstrative-noun as the dominant order, while Africa and an area stretching from Southeast Asia

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[15] Dryer (1992:108) observes that a correlation pair involves a non-phrasal (i.e. non-branching, lexical) 'verb patterner' and a phrasal (i.e. branching) 'object patterner'. An example of a correlation pair can be noun and possessor, noun and a relative clause, noun and adposition, and others. A noncorrelation pair, on the other hand, involves two elements which are nonphrasal. Examples of noncorrelation pairs are noun and demonstrative, noun and property word, intensifier and property word, and others. Thus, while being in a head-dependent relationship, these are argued by Dryer (1992:95) to be noncorrelation pairs.

eastward into the Pacific show dominance in the order of demonstrative following the noun.

3.3. Agreement

In this section I consider the issue of morphologically realized agreement between demonstrative and noun in the sample languages. This is relevant to the question of NP unity in the languages in the sample, since overtly marked agreement in the NP shows the dependency relationship between the head and its modifier, and thus can be informative about hierarchical structure of the NP (see further in chapter 7).

The definition of agreement was given in 2.1.2 and is repeated here. "The term agreement commonly refers to some *systematic covariance* between a semantic or formal property of one element and a formal property of another" (italics mine) (Steele 1978:610, cited in Corbett 2006:4).

The presence of morphologically marked agreement between demonstrative and noun in the sample can be summarized as follows: 16 out of 55 sample languages show agreement in number, and 14 out of 55 languages show agreement in gender. Clear cases of agreement in physical properties by means of classifying morphemes are found in five sample languages.

Some of the languages have certain conditions on the realization of a particular agreement feature. For instance, presence of the number agreement can depend on animacy of the head noun. In Hup, for example, while agreement in number is present on the modifying demonstrative when the head noun is an animate referent (especially a human referent), with inanimate referents agreement is not realized. Agreement in gender is realized in the majority of the sample languages when the head noun is singular (i.e. non-plural), but this is not always the case. For instance, in Chamacoco, gender is also specified in the plural, as shown in example (17) below. Morphological agreement is realized either on the modifying constituent (e.g. Kamauirá, Movima, Hup, Itonama), or on both the modifying constituent and the head noun (e.g. Chamacoco, Miraña, Puinave).

Example (15) from Kamauirá illustrates agreement in number, which is marked only on the modifying constituent. Example (16) from Puinave shows agreement in number on both demonstrative and head noun.

(15)   Kamaiurá (Tupian; Seki 2000:118)

   ’aŋ=wan   *mokõj*   *akwama’e-a*   *o-yk-ama’e-her-a*
   DEM:PROX=PL   two   man-NUC   3-arrive-NMZ-PST-NUC
   'These two men who have arrived.'

(16)   Puinave (unclassified; Girón 2008:174)

    naɫ   *detpaɫ*

    DEM:PROX.PL   woman.PL

    'these women'

The following examples from Chamacoco show agreement in gender and number between demonstrative and noun. As mentioned above, gender (either masculine or feminine) is also specified in the plural.

(17)   Chamacoco (Zamucoan; Ciucci, p.c., in prep.)

(a)   *asɨm*   *yok*   **asa**   *hutɨ-ta*

    2SG.give   1SG   DEM:DIST.F.SG   book-F.SG

    'Give me that book!'

(b)   *t-ishew*   **ana**   *hutɨ-ta*

    1SG-grab   DEM:PROX.F.SG   book-F.SG

    'I grab this book.'

(c)   *ôhwa*   **ese**   *biromɨ-t*

    2SG.bring   DEM:DIST.M.SG   pen-M.SG

    'Bring that pen!'

(d)   **nahu**   *poyt-o*   *poor-o*

    DEM:PROX.M.PL   dog-M.PL   white-M.PL

    'These dogs are white.'

Agreement in physical properties is realized by means of classifiers. In quite a few languages in South America, classifier systems have a combination of derivational and inflectional functions, in addition to the function of semantic categorization (see chapter 8 for detailed discussion of this topic). The following examples from Cubeo and Miraña illustrate the statement.

(18)   Cubeo (Tucanoan; Morse & Maxwell 1999:93)

    *…di-**bɨ***   *kobo-**bɨ***   *korika-I*

    ...DEM:ANAPH-CLF:oblong   kind.of.fish.trap-CLF:oblong   middle-LOC

    '… in the middle of that fish trap…'

(19)   Miraña (Boran; Seifart 2005:169)
          *ɛ:-**hɨ***   *múhɯ-**hɨ***
          DEM:DIST-SCM:2d.round   be.big.SUB-SCM:2d.round

          *kúmɯ-**hɨ***
          turtle-SCM:2d.round
          'that big turtle'

3.4. Definite / indefinite articles

In this section I briefly discuss the use of definite and indefinite articles in the languages of the sample. As noted in Himmelmann (2001:831), there are at least two ways to approach the issue of (in)definiteness. One is to examine how definite / indefinite distinctions are made in a particular language. From this perspective, articles would be just one of means available, along with word order, verbal agreement, and other grammatical phenomena. The other approach, initiated by Greenberg (1978), looks at the diachronic origins of articles, specifically the categories of demonstratives and numerals, as these two are the most common and widespread sources for definite and indefinite articles respectively (Himmelmann 2001:832). Since the first approach would be a complex study in its own right, I opt here for the second one, i.e. the relation between articles, demonstratives and numerals.

Whereas demonstratives seem to be found in all languages, definite and indefinite articles are not a universal category. As a definition of definite and indefinite article I use the ones proposed by Dryer (2011a, b): "[a] morpheme is considered here to be an indefinite article if it accompanies a noun and signals that the noun phrase is pragmatically indefinite in the sense that it denotes something not known to the hearer" (Dryer 2011a). A definite article is defined as "a morpheme which accompanies nouns and which codes definiteness or specificity" (Dryer 2011b). Definiteness indicates "whether or not a referent is considered to be identifiable by the hearer", while specificity indicates "whether the speaker refers to a particular token" (Rijkhoff 2001:529).

The data from the sample languages suggest that the occurrence of both definite and indefinite articles is rare. However, there are several languages in the sample that have a specialized morpheme distinct from demonstratives to encode definiteness. For instance, in Movima, the particle *ney* has this function (Katharina Haude, p.c.). In Huallaga Quechua, there is a suffix *-kaq* that Weber (1996:271) notes has become a marker of (approximately) 'definiteness'. Weber mentions that it is sometimes realized as a suffix and sometimes as a separate word. In Yurakaré, a proclitic form *an*, which is a short form of the

demonstrative *ana* 'this', can express definiteness (Van Gijn 2006:60, p.c.). In Tariana, there are articles *diha / duha*, which are used when the referent is identifiable or has been established in the discourse (Aikhenvald 2003:204).[16] There are also syntactic conditions on the occurrence of articles: for instance, they do not occur when the noun is modified by a demonstrative or a quantifier (2003:204).

With respect to indefiniteness markers, the data show that a few languages of the sample consistently use the numeral 'one' to mark indefiniteness. For instance, this is the case in Aguaruna. In this language, the numeral 'one' must precede the head noun when it is used as indefinite article, whereas it may follow the noun when it is used to indicate quantity (Overall 2007:164). The numeral *pa:-* 'one' introduces referents into discourse in Tariana (Aikhenvald 2003:204). This is also the case for Warao, where the numeral *isaka* 'one' functions as an indefinite article (Romero-Figeroa 1997:53). In a number of languages, the numeral one may be used for this purpose but its use is not prevalent. For instance, Patience Epps (p.c.) notes for Hup that the numeral 'one' occasionally appears as an indefinite marker (e.g. when introducing a participant at the beginning of a story), but that this is infrequent and has not developed full 'article' status. In addition to the numeral 'one', some languages in the sample use indefinite pronouns as indefinite markers. This is the case, for instance, in Puinave (cf. Girón 2008:171) and Timbira (cf. Alves 2004:85).

Sérgio Meira (p.c.) observes that the presence of definite and indefinite markers (or articles) in these languages may be explained in terms of the degree of contact the speakers of the languages had with European languages like Spanish and Portuguese. For instance, Smeets (2008:81) notes an on-going change for Mapuche, in that the more Spanish words a speaker uses while speaking Mapuche, the more he or she will use *kiñe*, the numeral 'one', as an indefinite article.

3.5. Summary

In this chapter, it was shown that in the majority of the languages in the sample, demonstratives syntactically form a single unit with their head nouns. This covers both instances of direct modification and instances where the demonstrative modifies the noun via a relative clause construction. In a number of languages (Hixkaryana, Panare, Tiriyó and Matsés), demonstrative and noun

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[16] Aikhenvald (2003:204) notes that these articles are homonymous with free 3rd person pronouns, the only difference being that articles do not have double plural marking for feminine forms and can combine with classifiers.

are bound only semantically, but they are not constituents of one single NP. Instead, they form distinct referring phrases in their own right.

In addition, this chapter also discussed NP-internal issues like constituent order and the presence of agreement between demonstrative and noun. It was shown that the preferred constituent order is demonstrative preceding the noun, which is found in 44 out of 55 languages. With respect to the presence of agreement, it was shown that agreement is realized in about one third of the languages of the sample: 16 out of 55 languages show agreement in number, 14 out 55 show agreement in gender, and five out 55 have agreement in physical properties.

Definite and indefinite articles are rare in the languages of the sample. The consistent use of demonstratives, as well as forms distinct from demonstratives, in order to encode definiteness or specificity has been reported for a number of languages. Likewise, indefiniteness is consistently encoded by numeral 'one' or by indefinite pronouns in several languages.

Chapter 4. Attributive possession

This chapter deals with the structural characteristics of attributive possession in the languages of the sample. The parameters under investigation include: locus of possession marking, means of possession marking, presence and formal realization of (in)alienability, and constituent order in possessive NPs. These parameters have played an important role in a number of typological and areal studies. This study contributes to this literature in the following way.

First, this study reveals that the widespread assumption, proposed by Dixon & Aikhenvald (1999:9), that Amazonian languages are typically head-marked with respect to possession has little ground. A systematic examination of the locus of possession marking shows that dependent-marking and head-marking strategies are represented equally in the Amazonian languages of the sample. Consequently, there is little support for the claim by Dixon & Aikhenvald (1999:9) that the locus of possession marking is among the features contrasting Amazonian vs. Andean languages. Like Amazonian languages, Andean languages do not favor any particular possession marking strategy.

Second, the study shows that the presence of the class of inalienable nouns is very common in South America, as it is found in 42 out of 55 sample languages. Interestingly, the languages that do not have inalienable nouns are mainly (but not without exception) found in the highlands. Whereas more data are required, I put forward a suggestion here that the presence of an inalienable noun class can be among the features that contrast Andean languages with the rest of the continent.

Third, this study provides a new perspective on the cross-linguistic analysis of the expression of possession presented in Dryer (2007a). It demonstrates that South American languages are typologically unusual in that constructions used for pronominal possessors are generally identical to those for lexical possessors. Additionally, it also shows that a fully grammaticalized category of possessive pronouns is a rare phenomenon in South-American languages.

Before we go on to the analysis, some terminological distinctions should be discussed. The expression of possession falls into the following three general types, depending on where in the clause the possessive relationship is expressed (McGregor 2009:2).

(i) *Attributive possession*, i.e. constructions in which possessed and possessor expressions form an NP, as in *John's book* and *his car* (cf. Chappell & McGregor 1996, Koptjevskaja Tamm 2003).

(ii) *Predicative possession*, i.e. constructions in which the possessive relationship is expressed by a predicate, as in *John has a book* and *he has a car* (cf. Stassen 2009).

(iii) *External possession*, i.e. constructions in which the possessive relationship is expressed at the level of a clause, and not within an NP or by a lexical verb, for instance, *John cut himself in the finger* (cf. Payne & Barshi 1999, Heine 1997).

Although investigating and comparing all three types is extremely important to fully understand how possession works in a language, this chapter deals exclusively with attributive possession, i.e. possession within the NP. In fact, this is the first study of this type of possession that focuses on a large number of South American languages. The only previous comparative study on attributive possession in South America is Van der Voort (2009), which deals with eight unrelated languages spoken in the Southwestern Amazon region.

Throughout this chapter the term *possessed* (abbreviated as POSSD) is used for the entity that is possessed and the term *possessor* (abbreviated as POSSR) for the entity that possesses. In terms of headedness, the noun denoting the possessed in such constructions is considered to be the *head* of the NP, and the noun denoting the possessor is a *dependent* modifying the head.

As already mentioned, nouns can be grouped into classes depending on how they behave in possessive constructions: there are classes of obligatorily possessed nouns, optionally possessed nouns, indirectly possessed, and non-possessible nouns. The last type is not considered in this study. Obligatorily possessed nouns, or *inalienable nouns*, are those which cannot occur by themselves and require an overt statement of who the possessor is. For instance, *ear* and *sister* in ´*John's ear*´ or ´*his sister*´ can be examples of inalienable nouns in some languages. Optionally possessed nouns, or *alienable nouns*, are those which can stand on their own without specification of a possessor, for example, *book* in ´*(John's) book*´. Chappell & McGregor (1996:4) note that the notion of inalienability denotes an "indissoluble connection between two entities – a permanent and inherent association between the possessor and the possessed", while the notion of alienability "refers to a variety of rather freely made associations between two referents, that is, relationships of a less permanent and inherent type […], including transient possession and right to use or control an object." The term 'non-possessible' is sometimes used in the literature with regard to (i) nouns which cannot occur in possessive constructions, for which the real life 'impossibility' of possessing the entity referred to by the noun becomes a grammatical fact, or (ii) nouns which cannot occur with the possessor directly, and therefore require an additional grammatical element joining the two constituents. I reserve the term 'non-possessible' for the first category and use the term 'indirectly possessed' for the second category.

In this study, I compare possessive constructions of four types: two containing alienable nouns (examples *a-b* below) and, when applicable, two containing inalienable nouns (*c-d* below). One of each pair includes a possessor

that is expressed as a lexical noun (as in examples *a* and *c*), while in the other a pronominal possessor is used (as in examples *b* and *d*). Whenever possible, I have tried to consider constructions which contain a possessor that refers to a specific person. This is to ensure that constructions are strictly possessive.

(a) *Mario's boat* (lexical possessor; alienable noun);
(b) *his boat* (pronominal possessor; alienable noun);
(c) *Mario's ear* (lexical possessor; inalienable noun);
(d) *his ear* (pronominal possessor; inalienable noun).

This chapter has the following structure. Section 4.1 establishes the major types of possessive constructions based on the locus of marking, and introduces morphological markers of possession which vary with respect to the kind of information they encode. Section 4.2 offers a detailed overview of possession patterns found within each major type. Section 4.3 deals with the presence and the formal realization of (in)alienability, and compares alienable vs. inalienable possession in the languages in the sample with respect to the locus of possession marking. Section 4.4 considers constituent order in possessive constructions in the sample. The final section, 4.5, summarizes the major points and observations made throughout the chapter.

4.1. Locus of possession marking and markers of possession

4.1.1. Locus of possession marking

The locus of marking refers to the placement of an overt morphosyntactic marker that reflects the syntactic relation between the constituents of a phrase (see Nichols & Bickel 2011). Thus, such marking can be located on the head of the phrase, on the dependent, on both, or on neither. Information about the head-dependent marking is informative about the structure of the NP and the grammar of a language in general (cf. Nichols 1986).

Taking the locus of possession as the primary parameter, attributive possessive constructions in the languages of the sample can be divided into five types. These five types are identified on the basis of constructions with (i) alienable possession, and (ii) possessors expressed by full nouns. The choice to start this typology from the perspective of alienable possession is motivated by two considerations. One is that expressions of alienable possession can be regarded as more prototypical cases of possession (see Stassen 2009:16). The other is the fact that constructions with inalienably possessed nouns are cross-linguistically less marked than constructions with alienable nouns (Haiman 1985:130, Payne 1997:105), which means that one can expect more formal

diversity in alienable than in inalienable constructions. The choice to take possessors expressed by full nouns ensures that the results are consistent. The absence of lexical possessors may trigger different possession marking strategies. For instance, in some Quechuan dialects, both lexical possessor and possessed are marked, which can be treated as a 'double-marking' strategy. However, when the lexical possessor is absent, the marked possessed noun can also be used alone, which could then be treated as a 'head-marking' strategy. Another example here is Mekens, which uses an unmarked juxtaposition of lexical possessor and possessed to signal the possessive relationship (treated as 'unmarked' possession here), while when the lexical possessor is absent, the possessed noun can occur with personal possessive affix indicating the possessor (treated as 'head-marking' possession here).

Thus, for alienable constructions with possessors expressed by full nouns, the following five types of possession marking are encountered in the sample languages.

(i) *Head-marking*, i.e. the noun denoting the possessed (the head) is marked for possession.

(ii) *Dependent-marking*, i.e. the noun denoting the possessor (the dependent) is marked for possession.

(iii) *Double-marking*, i.e. both the noun denoting the possessed and the possessor are marked for possession.

(iv) *Free marking*, i.e. neither possessed nor possessor is directly marked; however, there is some formal marking indicating possession in the NP.

(v) *No morphological marking*, i.e. neither possessed nor possessor is marked; juxtaposition and a particular order of the two constituents relative to each other are the only indicators of the possessive relationship in the NP.

These five types, and the possession patterns found within each type, are presented in a schematic form in the table in appendix 1. As shown by the table, there is some variation in the morphological markers used for different patterns. Specifically, the morphological markers differ with respect to the kind of information they contain - whether they register person, gender, number of the possessor, or simply encode that the entity is possessed - and their specialization for marking possession or not. In what follows I introduce these markers.

4.1.2. Morphological markers found on the possessed (head-marking)

▪ Personal possessive prefixes or suffixes. These affixes occur on the possessed noun and encode information about person and, often, number and gender of the possessor. It can be mentioned here that in the majority of the languages in the sample that use such affixes, the same set of affixes is also used for argument cross-reference on the verb.

(1)   Yurakaré (unclassified; Van Gijn 2006:116, p.c.)
(a)   *shunñe*   ***a****-sibë*   (b)   ***a****-sibë*
         man   3SG-house   3SG-house
         'the man's house'   'his/her house'

- 'Possessed' suffixes. These suffixes encode that the referent is possessed, but do not encode any information about the possessor. Such markers are specialized in marking possession.[17]

(2)   Apurinã (Arawakan; Facundes 2000:236,348)
(a)   *tokatxi*   *xika-**re***   (b)   *nota*   *aiko-**te***
         Tokatxi   sing-POSSD   1SG   house-POSSD
         'Tokatxi's song'   'my house'

- 'Relational morphemes' (also known as 'linkers' for Cariban languages). Such markers occur on the possessed noun and serve to signal unity between possessor and possessed as elements of one NP. In two languages in the sample (Itonama and Mocoví), this marker occurs only in constructions with alienably possessed nouns and is absent with inalienable nouns.

In other languages in the sample (Tapiete, Emérillon, Kamaiurá, Timbira, Hixkaryana, Tiriyó and Panare) this marker can occur both with alienable and inalienable nouns. Its presence is often phonologically and morphologically conditioned.[18] In addition, for these languages the occurrence of this marker is not limited to possessive constructions. This is why the use of this marker is not treated as a separate possession pattern for this group of languages. However, I do regard the use of the relational morpheme as a separate possession pattern for Itonama and Mocoví.

The following example from Itonama shows the presence of the relational morpheme with alienable nouns (3a) and its obligatory absence with inalienable nouns (3b).

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[17] In the Cariban languages in the sample such possessed suffixes also encode a tense distinction (present vs. past).

[18] Rodrigues (2000:102, referred to in Ribeiro 2010), notices similarities between the relational morphemes in the Tupian, Cariban and Macro-Ge language families. In these families, such morphemes occur "whenever a (noun, verb, or postpositional) root of the relevant morphological class is preceded by its absolutive argument (a possessor, for nouns; an object, for transitive verbs and postpositions; etc.). Roots belonging to this class will have at least two different stem-forms: one, with the "linking morpheme", the other, with a default, third-person marker (although, in some languages, a few stems can also occur "bare", prefixless)" (Ribeiro 2010).

(3)   Itonama (unclassified; Crevels 2012)[19]
(a)   *as-**mi**-ku*   (b)   *us-nu*
          1SG-RLT-house   1SG-nose
          'my house'   'my nose'

4.1.3. Morphological markers found on the possessor (dependent-marking)

▪ Possessive (or genitive) marker. This type of marker encodes possession and
is syntactically associated with the noun denoting the possessor. Since the term
'genitive' is often used for specific formal categories in specific languages, I use
the more general term 'possessive' as a cover term for any marker that has this
function. Morphologically, such possessive markers can be bound (4) or free (5).

(4)   Tsafiki (Barbacoan; Dickinson 2002:60,94)
(a)   *ya   Chipiri   Kato=**chi**   ya=bi…*
          3PRO   Chipiri   Kato=POS   house=LOC
          'In Chipiri Kato's house…'

(b)   *ya=**chi**   na=ka*
          3PRO=POS   child=ACC
          '…(if he ate) her children'

A possessive marker realized as a free morpheme is demonstrated by Hup in (5).
The reason why the possessive marker *nɨh* is associated with the possessor, is
that the possessive marker always follows the possessor, even in different
constituent order patterns. As shown in example (5b), when the usual word order
'possessor preceding the possessed' is reversed, the marker *nɨh* still occurs
immediately after the possessor and cannot be split (Epps 2008:225).

(5)   Hup (Nadahup; Epps 2008:225)
(a)   *pedú   **nɨ̌h**   cug' æ̌t*
          Pedro   POS   book
          'Pedro's book'

(b)   *cug'æ̌t   pedú   **nɨ̌h***
          book   Pedro   POS
          'Pedro's book'

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[19] The difference in the forms for 1st person singular (*as* and *us*) is due to vowel harmony.

▪ In one language in the sample, Mosetén, the possessor occurs with a morpheme that agrees in gender with the possessed.[20] This morpheme has several functions in this language. It is included here because in this case it signals the possessive relationship between the constituents, but it is not glossed as 'possessive'.

(6)   Mosetén (Mosetenan; Sakel 2004:64,96)

(a)   *martin-**si'**   aka'*   (b)   *mi'-**si'**   äwä'*
      Martin-L.F   house[F]   3M.SG-L.F   child[F]
      'Martin's house'   'his daughter'

4.2. Possession patterns

The aim of this section is to provide an overview of the patterns found within each major type of possessive construction. The discussion is complemented by a schematic representation of the patterns in appendix 1. Information in the appendix is given in the following way. Constructions are first divided into two large types: *Alienable possession* and *Inalienable possession*. Within each type, constructions are considered in which a possessor is expressed by a lexical noun (with the header *Lexical Possessor*), and those in which the lexical possessor is absent (with the header *Pronominal Possessor*).[21] The column *Language* gives the language in which a particular construction is used. The column *Inalienably possessed nouns* states whether the language has such a category of nouns.

As already mentioned, the general description that follows will be based on alienable constructions in which the possessor is expressed by a lexical noun (the first column in appendix 1).

4.2.1. Head-marking patterns

The patterns within the head-marking possession type encountered in the languages in the sample are provided as schemas, abstracting away from the word order of possessor and possessed. The actual word order is given in appendix 1, and is mentioned in the text only when it deviates from the most common order in the sample, which is possessor-possessed.

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[20] There are only two languages in the sample (Mosetén and Jarawara) in which the possessor constituent registers features of the possessed constituent. This presents an interesting asymmetry, since the possessed constituent frequently registers the features of the possessor.

[21] In the category of pronominal possessors I include the following non-lexical indications of the possessor: personal pronouns, possessive pronouns, and personal possessive affixes that occur on the head-noun.

Patterns 1.1.a and 1.1.b. Personal possessive affixes on the possessed.

Lexical possessor	Pronominal possessor
[POSSR] pers.pos.pref-[POSSD] [POSSR] [POSSD]-pers.pos.suf	pers.pos.pref-[POSSD] [POSSD]-pers.pos.suf

As indicated above, personal possessive affixes encode person and, often, number and gender of the possessor. Among the languages in the sample which mark possession with such affixes the majority employ *prefixes*, while four languages use *suffixes* (Movima, Huallaga Quechua, Aymara) or *enclitics* (Wari'). This pattern is illustrated below by several languages from different families (see also example (1) above from Yurakaré). Example (7) shows the use of a personal possessive prefix in Mamaindê.

(7)   Mamaindê (Nambikwaran; Eberhard 2009:323)
         Paulo-soʔka   **na**-*sih-ã*   *wi-lei-a-nãn-wa*
         Paulo-CLF:hum   3SG-house-FNS   enter-I.PST-S1-PST-DECL
         'I entered Paulo's house.'

Example (8) comes from Tiriyó, which shows a possessive strategy that is different from the closely related languages Hixkaryana and Panare, which are discussed below.

(8)   Tiriyó (Cariban; Sérgio Meira, p.c.)
         Asehpë   **i**-*kanawa*
         Asehpë   3-canoe
         'Asehpë's canoe'

The following example of the pattern is from Tehuelche, which has the word order possessed-possessor.

(9)   Tehuelche (Chonan; Fernández Garay 1998:191)
         t-*jatene*   *šome*
         3-stone   bola
         'the stone of the *bola* (throwing device / hunting tool)'

In cases in which the lexical possessor is not present, possession can be expressed exclusively by personal possessive affixes on the possessed. This is illustrated with examples from Mamaindê and Tiriyó, respectively (compare with (7) and (8) above).

(10)   Mamaindê (Nambikwaran; Eberhard 2009:323)
         na-*teiʔ-tu*
         3SG-wife-FNS
         'his wife'

(11)   Tiriyó (Cariban; Sérgio Meira, p.c.)
         i-*kanawa*
         3-canoe
         'his/her canoe'

The use of possessive prefixes seems to be prevalent in the languages of the New World as compared to the Old World, where possessive suffixes are the primary type (Dryer 2011e). The present results confirm Dryer's observation with respect to South America.

Pattern 1.2. Personal possessive prefix + relational morpheme on the possessed.

Lexical possessor		Pronominal possessor
[POSSR]	pers.pos.pref-**rlt**-[POSSD]	pers.pos.pref-**rlt**-[POSSD]

This construction differs from the previous type in that the possessed obligatorily receives an extra marker - called a relational morpheme here - in addition to the personal possessive prefix. This marker has been referred to with different names in different studies: 'relational morpheme', 'relational prefix', 'relativizer', etc. Within a possessive NP such relational morphemes[22] occur on the noun denoting the possessed entity, and serve to signal unity between two constituents of the NP.

This pattern is encountered in two languages in the sample, Itonama and Mocoví. In both languages this marker occurs only in constructions with alienably possessed nouns and is absent with inalienable nouns.

Both in Itonama and Mocoví, the possessed noun precedes the possessor. In example (12) from Itonama, the alienably possessed noun *wabï'ka* 'woman' occurs with the morpheme *mi-* and with the personal possessive prefix *ah-* '3rd person' referring to the lexical possessor *chiwo*.

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[22] I use the term 'relational morpheme' as a cover term, and specify, whenever relevant, the original terms used in language descriptions.

(12)   Itonama (unclassified; Crevels 2012)
          ah-mi-*yabï'ka*   *o-chiwo*   *pi-kadaya*   *ni-me'sere*
          3-RLT-woman   DV-Chivo   3SG.F-name   HON-Mercedes
          'Chivo's wife is called Mercedes.'

In instances without a lexical possessor, the construction is basically the same.

(13)   Itonama (unclassified; Crevels 2012)
          mama'na   *si-we-he*   **as-mi**-*ku*
          AUX:FUT   1SG-sell-DISTR   1SG-RLT-house
          'I am going to sell my house.'

In the following example from Mocoví, the alienable nominal root *amaɕki* 'shirt' is preceded by the morpheme *n*-, referred to as 'alienable prefix' in Grondona (1998:72). I have not found concrete examples with a lexical possessor to demonstrate the construction, hence the examples in (14), with the possessor expressed by a personal possessive prefix only.

(14)   Mocoví (Guaycuruan; Grondona 1998:72)
(a)   **i-n**-*amaɕki*   (b)   **Ø-n**-*amaɕki*

          1SG-RLT-shirt   3SG-RLT-shirt
          'my shirt'   'his/her shirt'

Both Itonama and Mocoví have a class of obligatorily possessed nouns. In constructions with inalienable nouns the relational morpheme is absent.

Pattern 1.3. Possessed suffix on the possessed.

Lexical possessor		Pronominal possessor	
[POSSR]	[POSSD]-possessed	Personal.pro [POSSD]-possessed, pers.pos.pref-[POSSD]-possessed	

The suffixes labeled here as 'possessed' mark the referent of the NP as possessed, but do not encode any information about the possessor. This particular pattern is found in Apurinã, Baure, and Hixkaryana.

Example (15) is from Apurinã. In this language, optionally possessed nouns occur with one of the 'possessed' suffixes -*te*, -*ne*, or -*re*, while the possessor, expressed either by a noun or a personal pronoun, is left unmarked (Facundes 2000:228).

(15) Apurinã (Arawakan; Facundes 2000:236)[23]

(a) *tokatxi   xika-re*   (b) *uwa   yaxirika-re*
    Tokatxi   sing-POSSD   3SG.M   tie-POSSD
    'Tokatxi's song'   'its/his knot'

In Apurinã, there is an additional construction for possessive NPs that do not contain an overt lexical possessor. In addition to the construction given in (15), alienably possessed nouns can occur with the possessed suffix *and* a personal possessive prefix encoding person, number and gender (gender in the case of third person singular) of the possessor. These prefixes are the same morphemes that occur on verbs as subject markers (see Facundes 2000:379).

(16)   Apurinã (Arawakan; Facundes 2000:201)
    nota   nuta-ro   n-ãã̃ta-ne
    1SG   look.for-3F.O   1SG-canoe-POSSD
    'I look for my (traditional) canoe.'

Apurinã also has a class of inalienable nouns which use a different possessive construction (discussed in section 4.3.2 below).

Baure, another language in the sample that shows this pattern, has two possessive constructions for alienable nouns. One involves personal possessive prefixes on the possessed noun (17a), while the other uses personal possessive prefixes on the noun, plus the possessed suffix *-no* (17b). With inalienable nouns only the first construction is possible.

(17)   Baure (Arawakan; Danielsen 2007:126, 123)

(a) *to   ro=wer   to   ni=tovian*
    ART   3SG.M=house   ART   1SG=neighbor
    'my neighbor's house'

(b) *ni=hapi-no*
    1SG=jar-POSSD
    'my jar'

This pattern of marking possession is also found in Hixkaryana. Alienable nouns in Hixkaryana usually take the possessed suffix *-nɨ*, but some nouns occur with the possessed suffix *-rɨ*, like the noun *kanawa* 'canoe' in (18). In addition to

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[23] Facundes (2000:235-236) notes that unlike the other 'possessed' suffixes in the language, the suffix *-re* "aside from being attached to free roots to derive possessed noun forms […], can also be added to verbs to derive noun stems".

marking possession, the possessed suffixes in Hixkaryana also encode a tense distinction (present vs. past). In the following example the suffix *-rɨ* encodes the 'present' tense distinction in addition to encoding the 'possessed' status of the referent.

(18)   Hixkaryana (Cariban; Derbyshire 1979:97)
         waraka ɸ-kanawa-rɨ
         Waraka LK-canoe-POSSD
         'Waraka's canoe'

In possessive constructions with a pronominal possessor, the noun denoting the possessed entity is marked twice: with a personal possessive prefix denoting the possessor, and with the possessed suffix, denoting that the entity is possessed.

(19)   Hixkaryana (Cariban; Derbyshire 1999:41)
         ɨ-kanawa-rɨ
         3POS-canoe-POSSD
         'his canoe'

In possessive expressions with a lexical possessor the possessed noun occurs with the morpheme *y-*, if the noun is vowel-initial and without the *y-* if the noun starts with a consonant, as in (18) above (Derbyshire 1999:41; he refers to this as a 'genitive' marker). This morpheme, often referred to as 'linker', signals that two constituents belong to one NP (Sérgio Meira, p.c.). However, I do not regard the use of this morpheme as indicating a separate possession pattern, for two reasons. First, its occurrence is phonologically conditioned. Second, it is used not only on nouns in possessive constructions but also on verbs and postpositions when these occur with an argument.

Pattern 1.4. Classifiers.

Lexical possessor	Pronominal possessor
[POSSR] (pers.pos.pref)-cls [POSSD]	pers.pos.pref-cls [POSSD]

This section discusses a pattern that is less straightforward with respect to determining the locus of marking. The pattern is found in Wichí, Bororo, Timbira and Panare. In these languages, there is a class of nouns ('indirectly possessed nouns') that cannot occur with a possessor directly and require the use of a classifier.

Wichí has two classifiers: *lo*, used for nouns denoting all kinds of animals (including insects, reptiles, etc.), and the general classifier *qa*, used for all other nouns. Example (20) shows two possible constructions in Wichí. In (20a) the classifier *qa* occurs between the lexical possessor and the possessed. In (20b) the classifier also receives a personal possessive prefix referring to the possessor, with the lexical possessor present. In (20c) the possessor is expressed only by the possessive prefix on the general classifier. Example (20d) shows that the use of classifiers is ungrammatical with inalienable nouns in this language.

(20)   Wichí (Matacoan; Terraza 2009:98, 70, 71)
(a)   *xwan   i-kʸox   maltin   **qa**   lapis*
        Juan   3-buy   Martin   CLF:gen   pencil
        'Juan bought Martin's pencil.'

(b)   *hinu   **la-qa**   kilus   Ø-i-hi   83*
        man   3POS-CLF:gen   kilos   3-be-LOC   83
        'Man's weight is 83 kilos.' (Lit. 'Man's kilos are 83.')

(c)   *n-**qa**   wuna*
        1sg-CLF:gen   sombrero
        'my sombrero'

(d)   ***n-qa**   kwey   oytax*
        1sg-CLF:gen   hand   hurt
        'My hand hurts.'

Bororo has four classifiers: *-ke*, used for food items, *-aku*, used for domesticated animals, *-imo*, for nouns referring to adornments, and the general classifier *-o*, used for all other referents. Unfortunately, no examples could be found for possessive constructions with an overt lexical possessor. If no lexical possessor is present, a classifier receives a personal possessive prefix referring to the possessor.

(21)   Bororo (Macro-Ge; Nonato 2008:61)
        *a   modü   re   **in-o**   ika   ø   pemegadö*
        2SG   FUT   ASSR   1SG-CLF:gen canoe   3SG   repair
        'You are going to repair my canoe.'

This pattern has characteristics of a head-marking strategy for the following reasons. It seems more plausible that the classifier forms a syntactic unit with the possessed noun rather than with the lexical possessor. This is suggested by the

semantic unity between the classifier and the possessed noun, in that classifier categorizes the noun. As noted above, when the lexical possessor is not present, the classifier takes a personal possessive prefix referring to the possessor. Such personal possessive prefixes occur directly on the head noun in inalienable constructions, since the classifier is not used with inalienable nouns. This can be an additional argument in favor of treating the pattern as head-marking.

It may be interesting to note that Timbira, another Macro-Ge language in the sample, uses a construction very similar to that of Bororo. Alienable possession in Timbira involves the use of a possessive marker -ɔ̃, which is a generic noun meaning 'thing, belongings, possession' (Rodrigues 1999:190). According to Rodrigues (1999:192), the generic noun -ɔ̃ in Timbira and the Bororo general classifier -o (21 above) are cognates. It is possible that Timbira used to have a similar inventory of classifiers that over time was reduced to one general morpheme, which is now better reanalyzed as a possessive marker (since there are no other complementary semantic categories in which nouns can be classified, and since this form is semantically general or non-specific). Timbira has a relational morpheme *j-* ~ *ɲ-* that occurs on nouns beginning with a vowel (Alves 2004:52-53), like the possessive marker -ɔ̃. When a lexical possessor is present, a construction of alienable possession uses the complex *ɲ-ɔ̃*, as shown in (22a). In the absence of a lexical possessor, personal possessive prefixes are used on the possessive marker, with the relational morpheme, to express the possessor (22b).

(22)   Timbira (Macro-Ge; Alves 2004:48)

(a)   *kahãj*   *ɲ-ɔ̃*   *rɔp*   (b)   *pa-ɲ-ɔ̃*   *kuhe*
         woman   RLT-POS   dog   1INCL-RLT-POS   bow
         'woman's dog'   'our bow'

There is little evidence for the syntactic behavior of the *ɲ-ɔ̃* morphological complex with respect to the constituents of a possessive phrase: it is not clear whether the *ɲ-ɔ̃* is associated syntactically with the possessed noun or with a lexical possessor. The 'semantic' argument used for Bororo would not be applicable here, as the morpheme *ɔ̃* is semantically non-specific and does not have complementary categories. Therefore, the preliminary classification of Timbira as head-marking here could be contested if more data were to become available.

Panare has a relatively large inventory of classifiers used in possessive constructions. Carlson & Payne (1989:11, referring to Mattéi Müller 1974) list 21 such morphemes. Semantically, these classifiers include an edible and drinkable category, one for animals, vehicles, musical instruments, clothing, hunting, containers, single items, a general category, and some other categories.

As in Wichí and Bororo, classifiers in Panare are used only with alienable nouns. Example (23a) illustrates possessive constructions with a lexical possessor, while in (23b-d) the possessor is expressed pronominally. Classifiers (and inalienable nouns) take the final -*n*, -*Ø* or -*e*, which mark possession. Doris and Tom Payne (p.c.) note that the choice between these morphemes is lexicalized and completely unpredictable on semantic grounds.

(23)   Panare (Cariban; Tom and Doris Payne, p.c.)
(a)   *Toose*   ***iyu-Ø***   *libro*   *asa'*
        Toose   CLF:gen-POSSD   book   two
        'Toose's two books'

(b)   *yu*   ***wúto-n***   *uto'*
        1SG   CLF:manioc-POSSD   manioc
        'my manioc/cassava/juka' (not yet prepared)

(c)   *y-**u'ku-n***   *wanë*
        1-CLF:liquid-POSSD   honey
        'my honey'

(d)   *mono* *këj*   *tïwïnke*   *kape-ya*   *y-**uku-n**-ya*
        EX   SPEC   fly   coffee-POSTP   3-CLF:liquid-POSSD-POSTP
        'There is a fly in his/her coffee.'

Panare is another instance where classification according to the locus of marking is not straightforward. An argument to treat it as a head-marking strategy is the function of classifiers, which is to specify the noun and to add to the semantic content of the noun, thus also determining what the whole phrase refers to. This way, the classifier that receives the personal possessive prefix and the suffixes marking possession, can be regarded as the head together with the noun. This is also supported by a grammatical possibility for a classifier and possessed noun to occur in apposition when taking a postposition. For instance, in example (23d) both the possessed noun and the classifier take the postposition -*ya* 'in', which usually occurs as a phrasal clitic in the language.

In Wichí, Bororo, Timbira and Panare, nouns which belong to the inalienable class do not require the use of a classifier.

4.2.2. Dependent-marking patterns

The following dependent-marking patterns have been found in the languages in the sample. The patterns are given abstracting away from the actual constituent

order, which is shown in appendix 1, and mentioned in the text whenever it deviates from the most common order in the sample, i.e. possessor-possessed.

Pattern 2.1.a and 2.1.b. Possessive marker on the possessor.

Lexical possessor	Pronominal possessor	
[POSSR]-pos.marker [POSSD]	Personal.pronoun-pos.marker	[POSSD]
	Possessive.pronoun	[POSSD]
	Pers.pos.pref-pos.marker	[POSSD]
[POSSR] pos.marker [POSSD]	Personal.pronoun-pos.marker	[POSSD]
	Possessive.pronoun	[POSSD]

This pattern, in which the possessor occurs with a possessive marker while the possessed noun remains unmarked, is found in a large number of languages in the sample (see appendix 1). The possessive marker on the possessor can be realized either as a bound morpheme (24-26), or as a free morpheme (27-28).

(24)   Trumai (unclassified; Guirardello 1999:76)
        *hakew-**kate**   tahu*
        Raquel-POS   knife
        'Raquel's knife'

(25)   Imbabura Quechua (Quechuan; Cole 1982:77)
        *juan-**paj**   wasi*
        Juan-POS   house
        'Juan's house'

In the following example from Kwaza, the possessive marker *-dy-* is followed by the nominalizer *-hỹ*, which serves as a semantically neutral classifier (Van der Voort 2004:181). The possessor usually precedes the possessed noun, but it can also follow it.

(26)   Kwaza (unclassified; Van der Voort 2004:182)
        *ha'rwi-**dy**-'hỹ   kanwã=ekai-'ɛ*
        Luiz-POS-NMZ   canoe=leg-too
        'Luiz' car'

Hup uses the possessive marker *nɨh* which is realized as a free morpheme, as introduced earlier. The possessive maker is obligatorily associated with the noun

denoting the possessor[24], in the sense that it always follows it, even in different constituent order patterns. Epps (2008:225) notes that while the usual word order is the possessor preceding the possessed (27a), it can also be reversed. In that case, the possessive marker *nɨ̆h* must still occur immediately after the possessor (27b).

(27)   Hup (Nadahup; Epps 2008:225)

(a)   *pedú*   ***nɨ̆h***   *cug'æ̆t*
        Pedro   POS   book
        'Pedro's book'

(b)   *cug'æ̆t*   *pedú*   ***nɨ̆h***
        book   Pedro   POS
        'Pedro's book'

Example (28) is from Karo, where the possessive marker is also a free morpheme. In a possessive phrase in Karo, the first noun is always the possessor and the second noun is the possessed, with the marker *at* occurring between them (Gabas 1999:141) (28a). The choice to treat the marker *at* as associated with the possessor is motivated by the fact that pronominal possessive forms also contain this marker (28b), thus suggesting that it is belongs to the possessor rather than to the possessed.

(28)   Karo (Tupian, Gabas 1999:142,149)

(a)   *maʔpəy*   ***at***   *manikap*   (b)   ***wat***   *kaʔa*
        woman   POS   hammock   1POS.PRO   house
        'woman's hammock'   'my house'

When the lexical possessor is not present, the dependent-marking languages in the sample fall into two groups. One includes languages where a separate category of possessive pronouns is used to express the possessor, while the second includes languages in which personal pronouns are used with the same possessive marker as lexical possessors. The two groups are considered next.

Languages in which the same possessive marker is used with personal pronouns as with lexical possessors include: Tsafiki, Mosetén, Imbabura Quechua, Dâw, Kwaza, Cavineña, Shipibo-Konibo, Ika, Desano, Jarawara, Trumai and Leko.

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[24] This marker is used only with alienable possessed nouns; a possessive construction with inalienable nouns has the structure of a compound (cf. Epps 2008:225).

For instance, example (29) from Cavineña shows the possessive marker *ja* used with personal pronoun *tu* '3ʳᵈ person'.

(29)   Cavineña (Tacanan; Guillaume 2008:488,489)
(a)   *jee=dya*   *Antoni=**ja***   *tujuri*
          here=FOC   Antoni=POS   mosquito.net
          'This is Antoni's mosquito net (in the photo).'

(b)   *e-ra*   *tu-**ja***   *e-bakani*   *adeba-ya=ama*
          1SG-ERG   3SG-POS   NPF-name   know-IMPFV=NEG
          'I don't (even) know his (the linguist's) name.'

Another example is Kwaza, where the possessive marker *-dy* is used in this type of structure.

(30)   Kwaza (unclassified; Van der Voort 2004:182,181)[25]
(a)   *lu'zeu-**dy**-hỹ*   *ko'sa*   *hyri-'ty-da-ki*
          Luzeu-POS-NMZ   sun   steal-DETR-1SG-DECL
          'I stole Luzeu's lantern / from Luzeu.'

(b)   *ko-'ro-tse*   *'xyi-**dy**-hỹ*   *'kopu*
          without-CLF:cup-DECL   2-POS-NMZ   cup
          'Your cup is empty.'

In Leko, lexical possessors occur with the possessive marker *-moki* (31a), while pronominal possessors are formed by adding the same marker to personal possessive prefixes (31b,c). For 3ʳᵈ person pronominal possessors the language makes a distinction between a co-referential and a non-co-referential possessor, depending on whether it is co-referential with the subject (Simon van de Kerke, p.c.). [26]

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[25] Kwaza, which is dependent-marking, has an alternative head-marking construction when the possessor is expressed by a 3ʳᵈ person singular or plural. Instead of a possessive marker on the possessor, the noun denoting the possessed receives a person possessive suffix *-tja'te*. This is shown in the following example from Van der Voort (2004:200):
    *kanwã-**tja'te***
    canoe-3POS
    'his canoe'

[26] In both cases the same possessive marker *moki* is involved. While the co-referential possessor is expressed by the 3ʳᵈ person prefix *kV-* followed by the marker *moki* (the construction shown in (31c)), the non-co-referential possessor is expressed by *moki* with the 3ʳᵈ person suffix *-a*. The 3ʳᵈ person suffix *-a* is found only in possessive constructions, while the personal possessive prefixes are also found on verbs for co-reference with the object argument (Simon van de Kerke, p.c.).

(31)   Leko (unclassified; Simon van de Kerke, p.c.)
(a)   *pedro-**moki**   pele*   (b)   *yo-**moki**   pele*
        Pedro-POS   raft   1SG-POS   raft
        'Pedro's raft'   'my raft'

(c)   *ko-**moki**   pele*
        3SG-POS   raft
        'his/her raft' (he/she = subject)

Some earlier examples, like (4) from Tsafiki and (6) from Mosetén, also show the use of the same possessive marker on lexical possessors and personal pronouns.

It has been stated that languages in which the construction used for pronominal possessors is identical to that used for lexical possessors "form a small minority of the world's languages" (Dryer 2007a:182). Interestingly, about half of the dependent-marking languages in the sample use exactly the same construction with pronominal and with lexical possessors. As indicated earlier, this is the case for Tsafiki, Mosetén, Imbabura Quechua, Dâw, Kwaza, Cavineña, Shipibo-Konibo, Ika, Desano, Jarawara, Leko and Trumai.

There is another, related, argument made in Dryer (2007a:182) that is notable with respect to the South American data considered in this study. Dryer states that many languages with some form of possessive marking on lexical possessors, have "a distinct morphological class of possessive pronouns, often *without* a clearly identifiable genitive morpheme" (italics are mine). This is rarely the case for the languages in the sample. As just stated, half of the dependent-marking languages use possessive markers on personal pronouns to mark possession. The other half of the dependent-marking languages are reported to have a category of so-called possessive pronouns. However, even most of these possessive pronouns are relatively transparent morphologically. In three languages, Cubeo, Kanoê and Ninam, possessive pronouns as a fully grammaticalized category are only found for 1st and 2nd person, for which they use distinct forms. The 3rd person possessive pronouns are formed transparently with a 3rd person pronoun and the same possessive marker as lexical possessors. There is just one language out of 22, Awa Pit, where the whole set of possessive pronouns is morphologically distinct from personal pronouns.[27]

I will exemplify the category of morphologically transparent possessive pronouns with Hup, Matsés and Karo.

Epps (2008:224) notes for Hup that the possessive pronouns are formed from the fusion of the subject pronoun and the possessive marker *nɨh*. She observes

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[27] In contrast with Tsafiki, another Barbacoan language in the sample (cf. Dickinson 2002:94).

that the forms of the possessive pronouns are "somewhat phonologically reduced (via simplification of consonant clusters)" in two of the dialects, but are transparent in a third dialect, with the exception of the 1st person singular form (Epps 2008:224). This partial reduction in some of the forms is the reason to ascribe them to a distinct class of possessive pronouns in contrast to personal pronouns marked by possessive markers. Example (32a) show the possessive marker *nɨ̆h*. Some of the possessive pronouns are given in (32b,c).

(32)   Hup (Nadahup; Epps 2008:225,224)

(a)   *pedú*   ***nɨ̆h***   *cug'ǽt*

      Pedro   POS   book

      'Pedro's book'

(b)   ***nɨ̆***   *kayak=tɨ̆g*   *nɨ̆=yɨʔ*   *ʔãh*   *wǽd-ǽh!*

      1SG.POS.PRO   manioc=stem   1SG.POS.PRO=TEL   1SG   eat-DECL

      'My manioc plants, I eat only mine!'

(c)   ***tɨnɨ̆h***   *mɔ̆y*   *g'ŏd-ót, ...*

      3SG.POS.PRO   house   inside-OBL

      'inside his house..'

Matsés is another example of a language in the sample where possessive pronouns show some transparency, with indications that they are composed of personal pronouns and a possessive marker. Fleck (2003:252) notes that although possessive pronouns "can be considered personal pronouns in the genitive case", since they all end in -*n* (the possessive marker in Matsés), the possessive pronoun forms cannot be segmented as there are no correlates in the language for some of the forms without the -*n*. Example (33a) illustrates the possessive marker -*n* with the lexical possessor, while example (33b) shows a possessive pronoun *cun* derived with the marker.

(33)   Matsés (Panoan; Fleck 2003:763,762)

(a)   *shaë-**n***   *pabiate*[28]   *pictsëc*   *ic-e-c*

      giant.anteater-POS   ear   small   be-NPST-IND

      'The giant anteater's ears are small.'

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[28] Many of the part-whole relationships can also be represented by two unmarked nouns (cf. Fleck 2003:764).

(b)   ***cun***   *nënë*   *beccho-ø*
        1POS.PRO   tobacco give.me-IMP
        '…Bring me my tobacco snuff!...'

Similarly, the set of possessive pronouns in Karo show transparency in their morphological composition. Gabas (1999:49) notes that these forms are probably derived from personal clitics and the possessive marker *at.* The following examples show some of the possessive pronouns in the language.

(34)   Karo (Tupian, Gabas 1999:141,149,56)

(a)   *maʔwɨt*   ***at***   *tágɨp*   (b)   ***wat***   *kaʔa*
        man   POS   bow   1POS.PRO   house
        'man's bow'   'my house'

(c)   ***et***   *icɨ*   (c)   ***at***   *tágɨp*
        2POS.PRO   water   3POS.PRO   bow
        'your water'   'his bow'

(d)   ***tabat***   *tap*
        3PL.POS.PRO   ASSOC
        'theirs (things)'

These cases exemplify the argument developed above about the morphological transparency of the possessive pronoun category in the sample languages.

Pattern 2.2. Agreement marker on the possessor.

Lexical possessor	Pronominal possessor
[POSSR]-agr/w/posd [POSSD]	Personal.pronoun-agr/w/posd [POSSD], [POSSD]-personal.pronoun

In one language of the sample, Mosetén, the possessive relationship is marked by a marker referred to as 'linker' in Sakel (2004), which agrees in gender with the possessed. The linker in question is a multifunctional morpheme that occurs on constituents functioning as modifiers of an NP, including possessors, property words, relative clauses, and verbal participles (see Sakel 2004:84 for a discussion of the linker). The two linkers in Mosetén are: *-tyi'* (M) and *-si'* (F). Example (35a) shows a lexical possessor *martin*, marked in the same way as a property word modifying a noun (35b).

(35)   Mosetén (Mosetenan; Sakel 2004:64,115)

(a)   *martin-si'*   *aka'*   (b)   *jaem'-si'*   *shiish*
         Martin-L.F   house[F]   good-L.F   meat[F]
         'Martin's house'   'good meat'

In those cases in which the lexical possessor is not present, Mosetén has two possible constructions. The possessor can be expressed either (i) by personal pronouns with a linker that agrees in gender with the possessed (example 36), or (ii) by personal pronouns cliticized to the possessed agreeing in person, number and gender with the possessor (example 37). Sakel (2004:98) notes that there are also examples in which both types of marking occur in one and the same construction.

(36)   Mosetén (Mosetenan; Sakel 2004:96)

(b)   *mi'-si'*   *äwä'*   (b)   *yäe-tyi'*   *äwä'*
         3M.SG-L.F   child[F]   1SG-L.M   child[M]
         'his daughter'   'my son'

Example (37) illustrates the second option to mark possession in Mosetén, i.e. by using personal possessive suffixes on the possessed. When the possessor is a 3ʳᵈ person, the suffix can be shortened, which implies that the forms for feminine and masculine become indistinguishable (Sakel 2004:123).

(37)   Mosetén (Mosetenan; Sakel 2004:123)
         wïyädye'-nä-m'   *jäe'nä'-tyi'*   *am*   *mi'?*
         last.name-FOC-3SG   where-L.M   Q   3M.SG
         'And his last name, where is he from?'

In Mosetén there is no formal difference between alienable and inalienable possession (Sakel 2004:72,96).[29]

4.2.3. Double-marking pattern

A double-marking pattern is found in three languages in the sample, Huallaga Quechua, Aymara and Aguaruna. The word order in these languages is possessor preceding possessed.

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[29] Possible exceptions are instances with a change in gender agreement. They involve personal possessive suffixes which would normally show agreement with the possessor. These are examples primarily with kinship terms, in which the personal possessive suffix agrees with the possessed instead of the possessor. This type of examples mainly occurs in the speech of the younger generation, but they have also been found with some older speakers (Sakel 2004:72).

Pattern 3. Possessive marker on the possessor and personal possessive suffix on the possessed.

Lexical possessor	Pronominal possessor
[POSSR]-pos.marker [POSSD]-pers.pos.suf	(Personal.pronoun-pos.marker)[POSSD]-pers.pos.suf

In this pattern, the lexical possessor and the possessed are both marked. The lexical possessor occurs with a possessive marker, while the possessed noun receives a person possessive suffix referring to the possessor.[30]

(38)   Huallaga Quechua (Quechuan; Weber 1989:254)
         *hwan-**pa***   *wasi-**n***
         John-POS   house-3
         'John's house'

(39)   Aymara (Aymaran; Cerrón-Palomino & Carvajal Carvajal 2009:189)
         *jaqi-**na***   *taki-nuqa-wi-**pa***
         people-POS   (foot)step-PL-NMZ-3
         'tracks of people '

In Huallaga Quechua, the possessor can be expressed by a personal pronoun with the possessive marker *-pa* (40a,b), or the possessor can be left out. This results in a construction consisting of the possessed noun with the personal possessive suffix denoting the possessor (40c).

(40)   Huallaga Quechua (Quechuan; Weber 1989:255,254)
(a)   *(qam-**pa**)*   *munay-**niki***
         2SG-POS   authority-2
         'your authority'

(b)   *(pay-**pa**)*   *wamra-**n***
         3SG-POS   child-3
         'his child'

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[30] The possessive marker is referred to as a genitive case suffix in the studies on these languages, see Weber (1989:254) for Huallaga Quechua, and Cerrón-Palomino & Carvajal Carvajal (2009:189) for Aymara.

(c)   *wasi-**n***
         house-3
         'his house'

There is no class of inalienable nouns in Huallaga Quechua and Aymara. In Aguaruna, there are two basic classes of nouns (suffixing and vowel-changing) which roughly correspond to alienable and inalienable nouns. However, Overall (2007:207) notes that there are many exceptions and, moreover, that "possession is never obligatory or inherent: nouns of both classes can appear outside of a possessive construction".

4.2.4. No morphological marking

Possessive constructions in which neither the lexical possessor nor the possessed are formally marked, are found in 12 languages in the sample. These are: Tariana, Gavião, Mekens, Tapiete, Emérillon, Kamaiurá, Sabanê, Northern Embera, Nasa Yuwe, Urarina, Puinave, and Pilagá.

In all these languages, except for Pilagá, the constituent order is possessor preceding the possessed.

Pattern 4. No morphological marking.

Lexical possessor		Pronominal possessor
[POSSR] [POSSD]		Personal.pronoun [POSSD]
		pers.pos.pref-[POSSD]

Constructions with an unmarked lexical possessor and an unmarked possessed noun are exemplified by Urarina, Mekens and Tariana in (41)-(43). Juxtaposition and the order of constituents relative to each other are the only formal indication of the possessive relationship.

(41)   Urarina (unclassified; Olawsky 2006:333)
         *ajtɕune   kɨane   ama-ɨre   **neba**   **rene***
         place.name   inside   take-3PL   mother   place
         'They took her to the Río Espejo, to her mother's place.'

(42)   Mekens (Tupian; Galucio 2001:33)
         o-top   tek
         1SG-father   house
         'my father's house'

(43)   Tariana (Arawakan; Aikhenvald 2003:483)
        ʧinu   panisi
        dog   house
        'dog's house'

Urarina and Tariana have additional possessive constructions which are less commonly used than those given in (41) and (43). One of these strategies in Urarina is the use of the possessive marker *raj* between the lexical possessor and the possessed (Olawsky 2006:333). In Tariana, an alternative construction involves the possessive marker *-ya-* preceded by a personal possessive prefix and followed by a classifier. This construction can be used with both alienable and inalienable nouns, and is used when possession itself is in focus (Aikhenvald 2003:134) (see example 68).

   While constructions with a lexical possessor are characterized by the juxtaposition of unmarked constituents, constructions *without* a lexical possessor can show one of two basic patterns (see also appendix 1). The first pattern is the juxtaposition of an unmarked personal pronoun referring to the possessor and an unmarked possessed element. This pattern is found in Tariana (it is not clear whether it is used for all persons), in Urarina (for 1st and 2nd person possessor),[31] in Nasa Yuwe (for 1st and 2nd person possessor),[32] and in Northern Embera (for all persons).[33]

(44)   Tariana (Arawakan; Aikhenvald 2003:128)
        waha   panisaɾu
        1PL   abandoned.village
        'our abandoned village (i.e. where we used to live)'

The second pattern is the use of a personal possessive prefix on the possessed noun. This pattern is found in Gavião, Mekens, Tapiete, Emérillon, Kamaiurá, Sabanê, Urarina, Puinave, and Pilagá.

   The pattern is illustrated by Mekens (45) and Urarina (46). For Urarina, Olawsky (2006:337, 341) notes that the construction with proclitics is typical for

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[31] When the possessor is a 3rd person, the possessive marker *raj* substitutes for the possessor (Olawsky 2006:333).

[32] Pronoun forms used to indicate possessors coincide largely with unmarked personal pronouns. There is just one exception: for 3rd singular the form *tjaxj* is used instead of *tjã*: '3SG' (see Jung 2008:121,136).

[33] Mortensen (1999:20,42) mentions in the description of Northern Embera that the same forms as personal pronouns are used as possessors. In the description of Embera by Licht (1999:23), it is noted that personal pronouns used attributively do not receive primary stress and therefore differ from the same forms used as arguments of verbs.

the traditional language and usually occurs with formally inalienable nouns, whereas free personal pronouns are preferred in contemporary language.

(45)   Mekens (Tupian; Galucio 2001:76)
(a)   ***o-**tek*   (b)   ***i-**tek*
         1SG-house   3SG-house
         'my house'   'his/her house'

(46)   Urarina (unclassified; Olawsky 2006:337)
(a)   ***ka**=lureri*   (b)   ***i**=hitɕana*
         1SG=house   2SG=blowgun
         'my house'   'your blowgun'

Among these languages Sabanê, Urarina and probably Nasa Yuwe do not have a class of inalienable nouns. No information is available for Northern Embera on this aspect. For Urarina, Olawsky (2006:350,354) notes that the language may have had inalienably possessed nouns at an earlier stage, but the feature has been largely lost over time. He notes some traces of inalienability, like the fact that nouns denoting body parts, kinship terms, some human attributes and a few abstract nouns can occur with possessive proclitic marking instead of a free personal pronoun (the use of proclitics or free pronouns are both acceptable).

4.2.5. Other types: Free marking and floating marking

Pattern 5.1. Free marking

Lexical possessor	Pronominal possessor
[POSSR] possessive.pro [POSSD]	Personal.pronoun possessive.pro [POSSD]

This construction is found in one language of the sample, Mapuche. The construction involves an unmarked lexical possessor and an unmarked possessed, with a possessive pronoun occurring between the two constituents (Smeets 2008:133). This is illustrated in (47) and (48).

(47)   Mapuche (Mapadungun; Smeets 2008:133)
         chaw   ***ñi***   *wenüy*
         father   3.POS.PRO   friend
         'father's friend'

(48)   Mapuche (Mapadungun; Adelaar with Muysken 2004:520)
tɨfa-či   wenču   **ñi**   ruka
this-ADJZ   man   3.POS.PRO   house
'this man's house'

Whereas the usual constituent order is possessor preceding the possessed, this order can be reversed in some conditions. In such cases, the possessive pronoun stays in the position before the possessed noun (Smeets 2008:134). However, as noted in Adelaar with Muysken (2004:519), these forms "must not be treated as prefixes, […] because there is no phonetic coalescence, and because they can be separated from the noun by another modifier, such as an adjective". Formally, possessive pronouns are related to independent personal pronouns in Mapuche, but they themselves cannot occur independently and have to occur before a noun or a nominalized verb (Adelaar with Muysken 2004:519). The possessive pronoun *ñi* has the same form for 1ˢᵗ person singular and 3ʳᵈ person singular, dual or plural (Smeets 2008:103). When the lexical possessor is not present, personal pronouns can be used before the possessive pronouns to emphasize or disambiguate the referent. This is shown in (49) and (50).

(49)   Mapuche (Mapadungun; Smeets 2008:133)
iñché ñi   chaw   **ñi**   pu   kümé   wenüy
1SG   1:POS.PRO father   3.POS.PRO COL   good   friend
'my father's good friends'

(50)   Mapuche (Mapadungun; Adelaar with Muysken 2004:520)
(eymi) **mi**   ruka
2SG   2SG.POS.PRO   house
'your house'

The fact that the possessive pronoun can stand on its own to refer to the possessor might be an argument to regard this construction as a dependent-marking strategy on a par with the other languages that use possessive pronouns. For instance, this construction is equivalent to the English 'your house' or 'his father', which is treated as a dependent-marking strategy. At the same time, the possibility (and maybe preference) for the personal pronoun and possessive pronoun to co-occur, sets this construction apart from dependent-marking patterns.

On the other hand, the systematic occurrence of the possessive pronouns before the possessed may point to their syntactic association with the possessed noun, and thus be an argument to treat this construction as a head-marking strategy. However, the fact that other modifiers (e.g. property words and

numerals) may occur between the possessive pronouns and the possessed noun, sets this pattern apart from head-marking patterns. Based on these considerations I treat this construction as free-marking in this study.

Pattern 5.2. Floating marking

Lexical possessor	**Pronominal possessor**
No morphological marking, tonal pattern	pers.pos.pref-[POSSD]

In one language in the sample, Miraña, there is no segmental morphological marking of a possessive relationship between the lexical possessor and the possessed. However, the construction is formally marked by a low tone (Seifart 2005:144). The tonal pattern can affect both possessor and possessed and, depending on the number of syllables of these elements, can be realized either on the last syllable of the possessor or on the first syllable of the possessed (Seifart 2005:45, p.c.).

(51)   Miraña (Boran; Seifart 2005:46)

(a)	/pìʔmúì hà/	(b)	/tàj-pɨ:kà/
	pìʔmui ha		*taj-pɨ:ka*
	proper.name house		1SG.POS-manioc
	'Piʔmúi's house'		'my manioc'

Miraña has a class of inalienable nouns; however, there is no formal difference between possessive constructions involving alienable or inalienable nouns.

4.2.6. Possession strategies and the geographical component

The majority of languages in the sample fall into either the head-marking or the dependent-marking type, as summarized in table 4.1. The exact number of head-marking and dependent-marking languages depends on the constructions we count, i.e. with lexical or pronominal possessors. This relates to two facts: (i) 12 languages which have no formal marking in constructions with a lexical possessor, can be unmarked or head-marking in constructions with a pronominal possessor. (ii) Two languages (Kwaza and Mosetén) which are dependent-marking in constructions with a lexical possessor can be both head- and dependent-marking when the possessor is expressed pronominally. This is reflected in table 4.1 by the numbers in brackets.

Locus of marking for alienable possession	
With lexical possessor	**# of languages**
Head-marking	18
Dependent-marking	20
Double-marking	3
No morphological marking	12
Free marking and Floating marking	2
With pronominal possessor	
Head-marking	27 (25)
Dependent-marking	20 (22)
Double-marking	3
No morphological marking	4
Free marking and Floating marking	1

Table 4.1: Locus of marking for alienable possession in the sample languages.

According to Dixon & Aikhenvald (1999:8), the locus of marking in possessive NPs is one of the features defining Amazonia as a linguistic area. They suggest that "possession (either alienable or inalienable) is typically marked on the possessed noun, not on the possessor", arguing that this contrasts with "the Andean linguistic area", where languages mark both possessor and possessed.

The present study does not support the assertion that Amazonian languages are typically head-marking with regard to possession. Both types of marking are represented equally in the Amazonian languages in the sample. This observation is also consistent with the observation by Van der Voort (2009:345) with respect to the languages in the Southwestern Amazon region. Looking at the geographical distribution of the head-marking and dependent-marking types, one can identify certain clusters of languages with a dependent-marking strategy (see Map 2 in appendix 4). These are, for instance, languages spoken in Ecuador, on the border of Colombia and Brazil, and the Peru-Brazil border.

Dixon & Aikhenvald's (1999:9) statement that the languages of "the Andean linguistic area" mark both possessor and possessed is based on the Quechuan and Aymaran families. These are indeed double-marking, except that in the Quechua dialects spoken in Ecuador and Colombia, and in the Ecuadorian and northern Peruvian jungle dialects, marking on the possessed noun has been lost (Adelaar with Muysken 2004:208). In the present sample, however, languages spoken in the Andean sphere other than Huallaga Quechua, Aymara and Aguaruna show various types of possession marking. For example, Imbabura Quechua, Tsafiki, Awa Pit and Leko use a dependent-marking strategy, while Yanesha' is clearly head-marking. As mentioned above, Mosetén can show both strategies. Mapuche has free marking, and possession in Nasa Yuwe can be referred to as 'unmarked'. Therefore, we should be careful in referring to the Amazonian languages as

typically 'head-marked' with regard to possession and the languages in the Andean sphere as typically 'double-marked'.

4.3. The (in)alienability parameter

4.3.1. Presence and formal realization of (in)alienability

It is often the case that a language has more than one construction for attributive possession. Among the factors motivating multiple possessive constructions in my sample are discourse factors, animacy of the possessor, person of the pronominal possessor (3rd person vs. 1st and 2nd person), and/or semantic properties of the possessed noun (see Stolz et al. 2008). Since the semantics of the possessed, i.e. the alienability component, seems to be the major source of variation in the possessive constructions in the sample, I focus here on the cases in which (pragmatically unmarked)[34] alternative possessive constructions are primarily conditioned by this feature. A systematic analysis of factors other than alienability is problematic for a large number of languages in the sample.

   Chappell & McGregor (1996:4) define the semantics of (in)alienability as follows: "[w]hereas inalienability denotes an indissoluble connection between two entities – a permanent and inherent association between the possessor and the possessed – the complementary notion of alienability refers to a variety of rather freely made associations between two referents, that is, relationships of a less permanent and inherent type […], including transient possession and right to use or control an object." One of the proposals to determine what is prototypical for the inalienable category can be found in Nichols (1988:572). Based on a large sample of languages, Nichols proposes the following hierarchy:

Kin terms and / or body parts < Part-whole and / or spatial relations < Culturally basic possessed items

However, Chappell & McGregor (1996:9) observe that numerous languages show complications for this proposal, and that the treatment of nouns as inalienable cannot be adequately predicted by the hierarchy. They suggest that assignment of nouns into the inalienable category can be predicted more easily "on the basis of cultural and pragmatic knowledge" of its speakers.

   If an alienable / inalienable distinction is present in a language, it is often reflected formally. As pointed out by Haiman (1985:130, referred to in Chappell & McGregor 1996:4) "the conceptual distance between an inalienable possession and its possessor is less than that between an alienable possession and its

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[34] As far as the available information allowed us to determine this.

possessor, and this is iconically reflected in many languages". This is also observed by Payne (1997:105), who states that inalienable possession often requires less "morpho-syntactic material" than alienable possession, and by Croft (1991:174-176).

With respect to alienable / inalienable possession, the languages in the present sample can be divided into the following types:

Types of languages with respect to (in)alienability	# of lang-s
Type 1: Languages which *do not* have a class of inalienable nouns	14
Type 2: Languages which *do* have a class of inalienable nouns	41
Type 2-A: Using the same construction with alienable & inalienable nouns[35]	22
Type 2-B: Using a different construction with inalienable nouns	18

Table 4.2: Alienable-inalienable possession in the sample.

In the present sample, 14 languages do not have a class of inalienable nouns, while 41 languages do have such a class. In 22 languages out of these 41, there is no formal distinction between alienable and inalienable possession, i.e. the same construction is used with alienable and inalienable nouns. Among the other 18 languages, which formally differentiate alienable and inalienable possession, the following division can be made:

- 13 languages require *less* morphological marking in inalienable constructions than in alienable.

- Two languages (Tariana and Pilagá) require *more* morphology for inalienable possession than for alienable possession. While alienable possession is characterized in Tariana by the unmarked juxtaposition of a lexical or pronominal possessor and an unmarked possessed, inalienable possession is signaled by the obligatory use of personal possessive prefixes on the possessed noun (Aikhenvald 2003:483). In Pilagá, similarly, the possessed noun takes a personal possessive prefix for inalienable possession, whereas it is unmarked for alienable possession (see Vidal 2001:291).

- Two languages (Karo and Leko) show a different locus of marking in inalienable possession and, therefore, have an entirely different construction. One language (Movima) uses a qualitatively different strategy for marking inalienable possession, i.e. infixing reduplication (Haude 2006:237).

Map 3 in appendix 4 gives an overview of the geographical distribution of languages which have a class of inalienably possessed nouns and those which do not. Looking at this distribution, it can be observed that languages *without* a class of inalienable nouns are mainly spoken in the Andean region. However, this is a

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[35] The distinction between alienable and inalienable nouns in this case would be the obligatory expression of the possessor for inalienable nouns, and the possibility for alienable nouns to occur on their own without the specification of a possessor.

strong tendency and not an absolute division, since there are languages spoken in the Andean foothills which do have inalienable nouns. These are Ika, Leko, Mosetén, Yurakaré and Yanesha'.

On the other hand, a class of inalienable nouns is found in the majority of languages outside the Andean region. Here there are exceptions as well, namely: Warao in the Coastal Guiana, Kwaza and Sabanê in the Guaporé-Mamoré area, and Urarina. It is reported for Sabanê that the language may have possible vestiges of inalienability (Araujo 2004:102), and, similarly, Urarina may have had inalienably possessed nouns at an earlier stage, but lost the feature over time (Olawsky 2006:350, 354).

Thus, the presence of alienable vs. inalienable nouns is one of the features that distinguish Amazonian vs. Andean languages with regard to possession, and not the locus of possession marking as suggested in Dixon & Aikhenvald (1999:9).

4.3.2. Alienability and the locus of marking

Focusing exclusively on the sample languages that have a class of inalienable nouns, I present a typology of how the alienable and inalienable construction types relate to each other and to the locus of possession marking.[36]

Languages with *a head-marking strategy* for alienable possession (see appendix 1) are also head-marked in inalienable constructions. This concerns possessors expressed lexically as well as pronominally. This is consistent with observations made by Nichols (1992:119). Among 17 head-marking languages with a category of inalienable nouns in the sample, there are two semi-exceptions, viz. Apurinã and Wichí. I first present examples from languages that are consistently head-marking, and then discuss Apurinã and Wichí.

Example (52) from Hixkaryana shows alienable and inalienable nouns occurring in exactly the same constructions.

(52)   Hixkaryana (Cariban; Derbyshire 1979:97, 1999:41)
(a)   *waraka ø-kanawa-rɨ*   (alienable)
        Waraka LK-canoe-POSSD
        'Waraka's canoe'

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[36] As noted in section 4.3, the overview in appendix 1 shows whether a language has a class of inalienable nouns (see column *Inalienably possessed nouns*). If a language has this class *and* uses the same construction with alienable as with inalienable nouns, it is stated 'No morphological difference'. Thus, a construction is explicitly mentioned only when it differs from the one with alienable nouns.

(b)   *ɨ-kanawa-rɨ*   (alienable)
        3POS-canoe-POSSD
        'his canoe'

(c)   *waraka y-owa-nɨ*   (inalienable)
        Waraka LK-chest-POSSD
        'Waraka's chest'

(d)   *o-he-tʃe*   (inalienable)
        2POS-wife-POSSD
        'your wife'

Mocoví and Itonama are two further examples of consistently head-marking possession. The only difference from Hixkaryna is that inalienable possession is morphologically less marked. Alienable nouns in Mocoví and Itonama require the use of a relational morpheme between the personal possessive prefixes and the stem of the possessed noun. Inalienable nouns, on the other hand, do not take a relational morpheme (53b and 54b).

(53)   Mocoví (Guaycuruan; Grondona 1998:72,71)
(a)   *i-n-amaɢki*   (alienable)
        1SG-RLT-shirt
        'my shirt'

(b)   *l-qosot*   (inalienable)
        3SG-neck
        'his/her neck'

(54)   Itonama (unclassified; Crevels 2012)
(a)   *pi-ni-ku*   (alienable)
        3SG.F-RLT-house
        'her house'

(b)   *pi-kachï*   (inalienable)
        3SG.F-face
        'her face'

As already mentioned, in the set of 17 languages with a head-marking strategy, Apurinã and Wichí are two semi-exceptions to the observation made above. More specifically, Apurinã shows no morphological marking in constructions

with inalienable nouns when possessors are expressed by a lexical noun (55c). If the lexical possessor is absent, however, inalienable possession is head-marked (55d), just like alienable possession. In such constructions, it uses personal possessive prefixes.

(55)   Apurinã (Arawakan; Facundes 2000:236,152,380)
(a)   *tokatxi   xika-**re**   (alienable)
        Tokatxi   sing-POSSD
        'Tokatxi's song'

(b)   *nota   nuta-ro   **n-ããta-ne**   (alienable)
        1SG   look.for-3F.O   1SG-canoe-POSSD
        'I look for my (traditional) canoe.'

(c)   ***kema   kuwu   mipa   atama-ta***   (inalienable)
        tapir   head   Mipa   look-VBLZ
        'Mipa looked at the tapir's head.'

(d)   ***u**-kuwu*   (inalienable)
        3M-head.of
        'his head'

In Wichí, the situation is very similar to Apurinã. The difference for inalienable possession is that in Wichí, an inalienable noun can occur with a personal possessive prefix when the lexical possessor is present, but it can also occur unmarked (like example 55c from Apurinã).

    For languages with *a dependent-marking strategy* for alienable possession (see appendix 1), there are three general patterns for the marking of inalienable possession.
- Inalienable possession is consistently marked on the dependent, both with lexical and pronominal possessors.
- Inalienable possession is unmarked, both with lexical and pronominal possessors. In fact, unmarked juxtaposition for inalienable possession (both with lexical and pronominal possessors) is found only in dependent-marking languages in my sample.
- Inalienable possession can shift to head-marking, but only with pronominal possessors (in constructions with inalienable nouns, there are no cases when a lexical possessor is marked while a pronominal possessor is unmarked).

These patterns are illustrated next. The first pattern is found in Cubeo, Cavineña, Mosetén, Matsés and Yaminahua. In the following example from Cubeo, the

possessive marker *-I* is used with both alienable (56a) and inalienable nouns (56b,c):

(56)   Cubeo (Tucanoan; Morse & Maxwell 1999:118,126)
(a)   *Víctor-**I**   kɨ̃rãbĩ*   (alienable)
        Víctor-POS   house
        'Víctor's house'

(b)   *i-ko-**I**   'bã-ko*   (inalienable)
        DEM:PROX-F.SG-POS   child-F.SG
        'this (female) one's daughter'

(c)   *ĩ-**I**   ãbĩ'ã*   (inalienable)
        3M.SG-POS   name
        'his name'

Similarly, example (57) from Cavineña shows identical marking of possession for alienable (57a) and inalienable nouns (57b,c).

(57)   Cavineña (Tacanan; Guillaume 2008:484,488,489)
(a)   *ai=ra=tu   tiru-sha-wa=ama   Lizardu=**ja**   arusu tee*
        INT=ERG=3SG(-FM)   burn-CAUS-PERF=NEG Lizardu=POS rice   garden
        'Who prevented (lit. did not let) Lizardu's rice garden from burning (when it was threatened by a big fire)?'

(b)   *tsura-kware   sudaru=**ja**   e-kwita=ju*
        go.up-R.PST   soldier=POS   NPF-body=LOC
        'It (a viper) climbed on the soldier's body.'

(c)   *e-ra   tu-**ja**   e-bakani   adeba-ya=ama*
        1SG-ERG   3SG-POS   NPF-name   know-IMPFV=NEG
        'I don't (even) know his (the linguist's) name.'

The second pattern, in which inalienable possession is unmarked both with lexical and pronominal possessors, is found in Desano, Dâw and Hup. In Trumai and Jarawara this is also the case, but these languages have alternative constructions for inalienable possession and can show properties both of this pattern and of the third pattern discussed below (see examples (61-63) for Trumai).

    The following examples from Dâw and Desano illustrate the second pattern. In Dâw, the possessor occurs with a possessive marker *-ɛ̀ɟ* in constructions with

alienably possessed nouns (58a,b). The possessor can either follow or precede the possessed. With inalienably possessed nouns the lexical and pronominal possessor are unmarked (58c,d), with the possessor always preceding the possessed (Martins 2004:547).

(58)   Dâw (Nadahup; Martins 2004:546-547)
(a)   *tɔp   Tũk-ɛ̀̃ɟ*   (alienable)
         house   Tũk-POS
         'Tũk's house'

(b)   *tih-ɛ̀̃ɟ   cɨ̀g*   (alienable)
         3SG-POS   arrow
         'his arrow'

(c)   *tih   tɛ   ʔæ̃m*   (inalienable)
         3SG   son   wife
         'his son's wife'

(d)   *tih   nũh*   (inalienable)
         3SG   head
         'his head'

Similarly, in Desano the possessor is marked in constructions with alienably possessed nouns, and unmarked with inalienable nouns.

(59)   Desano (Tucanoan; Miller 1999:48-49)
(a)   *ĩgɨ̃   ya   wiʔi*   (alienable)
         3M.SG   POS   house
         'his house'

(b)   *igo   pago*   (inalienable)
         3F.SG   mother
         'her mother'

As noted above, inalienable constructions which involve juxtaposition of an unmarked possessor (lexical and pronominal) and an unmarked possessed occur exclusively in dependent-marking languages (as opposed to the other language types). This observation is valid for the present sample. I do not know if it can be generalized for other parts of the world. In the major source for these patterns (Nichols 1992), there seems to be no reference to a similar phenomena.

Interestingly, Nichols (1992:118,177) notes that there are no languages in her sample with inalienable possession which have exclusively dependent-marking possession. However, such languages are attested in studies on attributive possession by Koptjevskaja Tamm (2003) and Haspelmath (2006). In my sample, there are six languages where inalienable possession is marked by the dependent-marking strategy (which is identical to the strategy used for alienable possession). These languages are Matsés, Yaminahua, Cubeo, Cavineña, Kanoê and Ika.

The third pattern, in which inalienable nouns become head-marked when possessors are expressed pronominally, is found in Karo, and in Trumai and Jarawara with a subset of inalienable nouns. Nichols (1992:117-118) also reports languages with such a pattern. In Leko, the situation is more complicated. Specifically, possession is marked on the dependent with alienable nouns, double-marked with inalienable nouns modified by lexical possessors, and head-marked if a lexical possessor is absent. The following examples illustrate these patterns.

In Karo, alienable possessive constructions are formed either by the possessive marker *at* occurring between the lexical possessor and the possessed (60a), or by possessive pronouns if the lexical possessor is not present. Inalienable possessive constructions, on the other hand, involve the juxtaposition of an unmarked lexical possessor and possessed (60b), or the possessed noun occurring with a personal possessive prefix if the lexical possessor is not present (60c) (Gabas 1999:148-149).

(60)   Karo (Tupian; Gabas 1999:148)
(a)   *maʔwit*   ***at***   *kaʔa*   (alienable)
        man   POS   house
        'man's house'

(b)   *aoro*   *cagá*   (inalienable)
        parrot   eye
        'parrot's eye'

(c)   ***a****=cagá*
        3SG=eye
        'his/its eye'

As already mentioned, in Trumai and Jarawara inalienable possession involves a split and shows properties of the second and the third patterns. For instance in Trumai, alienable possession is marked by a possessive morpheme (-*k(a)te*) suffixed to either a lexical or pronominal possessor (61a,b).

(61)   Trumai (unclassified; Guirardello 1999:76)
(a)   *hakew-**kate**   tahu*   (b)   *ine-**kte**   tahu*
        Raquel-POS   knife   3M.SG-POS   knife
        'Raquel's knife'   'his knife'

Inalienable possession is marked by juxtaposition of unmarked possessor and
possessed, either a lexical or pronominal possessor (62).

(62)   Trumai (unclassified; Guirardello 1999:78,82)
(a)   *axos   atle*   (b)   *ine   atle*
        child   mother   3M.SG   mother
        'child's mother'   'his mother'

(c)   *axos   kuch*   (d)   *ine   kuch*
        child   hair   3M.SG   hair
        'child's hair'   'his hair'

However, inalienable possession has an alternative construction for possessors
expressed by 3rd person, which involves a personal possessive prefix on the
inalienable possessed noun. In the case of kinship terms it is either the prefix *tsi-
/t-* on the possessed (for 3rd person singular possessor) or the suffix *-ake* (for 3rd
person plural possessor) (63a,b). In the case of body parts, it is the suffix *-ake*
irrespective of the number of the possessor (63c,d) (Guirardello 1999:78-82).

(63)   Trumai (unclassified; Guirardello 1999:78)
(a)   *tsi-**tle**   (b)   *wan   atle-**ake***
        3POS-mother   PL   mother-3POS
        'his mother'   'their mother'

(c)   *kuch-**ake***   (d)   *wan   kuch-**ake***
        hair-3POS   PL   hair-3POS
        'his hair'   'their hair'

The case of Trumai, which shows two patterns for inalienable possession
(unmarked and head-marking with pronominal possessors) may be an example
of a general preference for head-marking within inalienable possession in the
sample languages. The case of Leko, discussed next, supports this by showing
the gradual shift from dependent-marking for alienable possession, to double-
marking and head-marking for inalienable possession.

    In Leko, alienable possession involves the possessive marker *-moki* suffixed
to either the lexical possessor or the pronominal possessor (64a,b).

(64)   Leko (unclassified; Simon van de Kerke, p.c.)
(a)   *pedro-**moki**   pele*
        Pedro-POS   raft
        'Pedro's raft'

(b)   *ko-**moki**   pele*
        3SG-POS   raft
        'his/her raft' (coreferential)

Inalienable possession is marked as follows. A lexical possessor occurs with the possessive marker *-moki*, while the possessed noun receives a personal possessive suffix (65a), thus showing a double-marking strategy (like Huallaga Quechua, Aymara and Aguaruna discussed in section 4.2.3). When the lexical possessor is absent, the possessed noun with a personal possessive prefix stands for the possessive NP (65b).

(65)   Leko (unclassified; Simon van de Kerke, p.c.)
(a)   *pedro-**moki**   kul-**a***
        Pedro-POS   ear-3SG
        'John's ear'

(b)   ***ku**-kul*
        3SG-ear
        'his/her ear' (coreferential)

So far I have considered strategies expressing inalienable possession in head-marking and dependent-marking languages (identified as such on basis of alienable possession). Three languages in the sample which show *double-marking* (Huallaga Quechua, Aymara and Aguaruna) do not have a category of inalienably possessed nouns, so they are not discussed in this section.

Those languages that show *no morphological marking* in constructions with alienable nouns, behave similarly in constructions with inalienable nouns. Constructions are unmarked if the lexical possessor is present, and head-marked if the lexical possessor is absent. There is one language that shows a different behavior from the rest: in Tariana, inalienable head nouns occur with personal possessive prefixes, irrespective of the presence of a lexical possessor.

As shown in (66) alienable constructions in Tariana are unmarked, both with a lexical (66a) and a pronominal possessor (66b).

(66)   Tariana (Arawakan; Aikhenvald 2003:483,128)
(a)   *tʃinu   panisi*   (b)   *waha   panisaɾu*
         dog   house   1PL   abandoned.village
         'dog's house'   'our abandoned village'

Inalienable nouns, on the other hand, like *-pitana* 'name' have to take an indefinite prefix *i-* if the possessor is expressed lexically (67a), or they occur with a personal possessive prefix denoting the possessor if the lexical possessor is absent (67b).

(67)   Tariana (Arawakan; Aikhenvald 2003:483)
(a)   *kuphe   **i**-pitana*   (b)   ***nu**-pitana*
         fish   INDF-name   1SG-name
         'the name of the fish'   'my name'

These possessive constructions are semantically unmarked in Tariana (Aikhenvald 2003:138). This is basically the only exception in the sample to the generalization by Haiman (1985), Croft (1991) and Payne (1997), that inalienable possession is less marked than alienable possession. Tariana also has another way to mark possession, which is used when possession itself is in focus. This construction involves a personal possessive pronoun followed by a possessive marker *-ya-* and a possessive classifier. The possessed noun occurs after the possessor NP and can be omitted, if it is recoverable from the context. This alternative possessive construction is used both with alienable and inalienable nouns (Aikhenvald 2003:134).

(68)   Tariana (Arawakan; Aikhenvald 2003:134)
         nu-ya-da   *(nhuwi-da)*
         1SG-POS-CLF:round   head-CLF:round
         'my round one (head)'

4.4. Constituent order in possessive constructions

This section deals with constituent order in possessive constructions, specifically the order of a lexical possessor and a possessed noun. This parameter is important for at least two reasons. First, constituent order can be the only means available to mark a possessive relationship, as shown for a number of sample languages, therefore making it important to determine a tendency in placing the possessor with respect to the possessed. Second, constituent order at the phrase level and the clause level can show correlations. As shown in Dryer (1992), such

a correlation does exist for possessive constructions, as opposed to constructions involving property words or demonstratives.

The majority of the languages in the sample have a constituent order of *possessor-possessed*, which is either fixed or favored.[37] Except for Pilagá, the order of possessor preceding possessed is the one which is used in possessive constructions with no morphological markers.

Five languages out of the total sample of 55 have an order of *possessed-possessor*, which is, likewise, either fixed or favored. These six languages are: Baure, Movima, Itonama, Wari' and Pilagá. Two languages, Mocoví and Mosetén, show both constituent orders with neither being dominant, and without any obvious semantic distinction. Finally, there is one language in the sample, Dâw, which can have both constituent orders, but in specific conditions: with alienable nouns either order is possible, but with inalienable nouns the possessor always precedes the possessed.

All five languages with *possessed-possessor* order are genetically unrelated. Looking at geographical distribution, we can observe that four of these six are concentrated in the Guaporé-Mamoré region, namely Baure, Movima, Itonama and Wari'. This region is suggested by Crevels & Van der Voort (2008) to have strong characteristics of a linguistic area. However, *possessed-possessor* order is not among the features that define the area.

Table 4.3 summarizes constituent order patterns in the sample.

Constituent order in possessive construction	# of languages
Possessor - Possessed	47
Possessed - Possessor	5
Both orders: neither dominant	2
Both orders: specific conditions	1

Table 4.3: Constituent order in possessive NPs.

Comparing word order in possessive constructions with constituent order in the clause, it can be observed that languages with *possessor-possessed* order are prevailingly OV at the clause level, while those with *possessed-possessor* order have VO constituent order in the clause. Mocoví, which has both orders in the possessive NP, can also have either OV or VO order at the clause level. Dâw, which can have both orders depending on the type of construction involved, has VO order.[38] The exact numbers are shown in table 4.4.

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[37] For instance, in Yurakaré, both orders are possible, though the order *possessor-possessed* is the most common (see Van Gijn 2006:91).

[38] I use the abstractions VO and OV instead of 'verb-initial' and 'verb-final' here. This is motivated by the fact that there are six languages in the sample, which are reported to have OVS as the most

Constituent order in possessive construction	Constituent order in the clause	# of languages	Total # of languages
Possessor - Possessed	OV	35	47
	VO	5	
	OV/VO + free order	7	
Possessed - Possessor	OV	-	5
	VO	5	
	OV/VO + free order	-	
both orders	OV	-	3
	VO	3	
	OV/VO + free order	-	

Table 4.4: Constituent order in possessive NPs and constituent order at the clause.

According to Dryer (1992), OV languages of all types tend to have possessor-possessed order, while VO languages tend to have possessed-possessor order. The only exception are SVO languages, which according to Dryer can have both orders. Both of these tendencies are confirmed by the languages in the sample. However, it can be seen from the numbers in table 4.4 that OV constituent order is predominant in the sample.

4.5. Summary

The section summarizes the major points made in this chapter.

The great majority of languages in the sample fall into two types: a head-marking type and a dependent-marking type. The ratio of head-marking vs. dependent-marking in alienable possession depends on the construction we count, i.e. with lexical or pronominal possessors. There are 18 head-marking languages and 20 dependent-marking, if we count constructions with a lexical possessor. There are 27 head-marking and 20 dependent-marking languages, if we count constructions with a pronominal possessor.

This study questions the assertion by Dixon & Aikhenvald (1999:9) that locus of possession marking is one of the features that distinguish Amazonian languages from Andean languages. Dixon & Aikhenvald (1999:8,10) state that possession is typically marked on the possessed noun and not on the possessor in Amazonian languages, while Andean languages mark both the possessed and the possessor nouns. As shown in this chapter, no such pattern emerges when looking at the geographical distribution of possession marking types. Both head-marking and dependent-marking possession strategies are represented equally among the Amazonian languages in the sample. Likewise, the languages spoken

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common constituent order, to which the 'verb-initial' / 'verb-final' terminology would not be applicable.

in the Andean sphere show various types of possession marking, including but not restricted to the double-marking pattern.

As for the means of possession marking, the following types have been encountered for the languages in the sample: (a) morphological markers, (b) tonal patterns, and (c) constituent order in the possessive NP. The last pattern is found, for instance, in Dâw, where morphologically marked alienable possession permits both word orders, while morphologically unmarked inalienable possession requires a particular order (possessor-possessed). Marking by tone has been reported for Miraña, which have no segmental markers of possessive relationship between lexical possessor and possessed. Possessive constructions are formally marked by a low tone and have a fixed constituent order (cf. Seifart 2005:144). Among the morphological markers of possession two types prevail: *possessive markers* occurring on the noun denoting the possessor, and *personal possessive affixes* occurring on the noun denoting the possessed. Among the latter, personal possessive *prefixes* are most common. In the majority of languages in the sample that use personal possessive affixes, the same set of affixes is also used for argument cross-reference on the verb.

The analysis of the data in this chapter offers a new perspective on the analysis of possession marking presented in Dryer (2007a). First, South American languages are typologically unusual in that constructions used for pronominal possessors are generally identical to those used for lexical possessors. Approximately half of the dependent-marking languages in the sample use exactly the same construction with pronominal and with lexical possessors. Second, the analysis in this chapter also shows that few of the sample languages have a fully grammaticalized category of possessive pronouns. There is just one language out of 22, Awa Pit, where the whole set of possessive pronouns is morphologically distinct from personal pronouns.

With regard to the parameter of alienability, it has been shown that the majority of the sample languages (41 out of 55) have a class of inalienably possessed nouns. Among 18 languages that *structurally distinguish* alienable and inalienable possession, 13 languages are consistent with the observations by Haiman (1985) and Payne (1997) that inalienable possession involves less morphological marking than alienable possession. With respect to the formal marking of alienable and inalienable possession in the sample several observations have been made:

(a) Languages which are head-marked in alienable constructions are also head-marked in inalienable constructions. This applies both to constructions with lexical and pronominal possessors.

(b) In dependent-marking languages inalienable possession can shift to the head-marking strategy, but only in constructions with pronominal possessors (i.e. when the lexical possessor is not present).

(c) Inalienable constructions which involve juxtaposition of an unmarked lexical or pronominal possessor and an unmarked possessed occur only in dependent-marking languages.

An interesting geographic pattern emerges from the distribution of languages which have a class of inalienably possessed nouns and those which do not. Languages without a class of inalienable nouns are mainly found along the western edge of the continent (roughly corresponding with the Andean sphere), whereas the majority of languages outside the Andean sphere do have a class of inalienable nouns. Crevels & Van der Voort (2008:170) mention the alienable / inalienable distinction among the features that had not yet been noted as typically Amazonian. This study confirms that the feature can indeed be treated as such. Further, the study suggests that alienability could be a feature that sets languages spoken in the Andean sphere apart from the rest.

With respect to constituent order in the possessive NPs, it has been observed that *possessor-possessed* order prevails in the sample, found in 47 out of 55 languages. The order *possessed-possessor* is found only in five languages. Two languages show no dominant word order, and one language shows both word orders, but for specific conditions. The geographical distribution of the patterns show that four out of five languages with possessed-possessor order are spoken in the Guaporé-Mamoré region, which is suggested to have characteristics of a linguistic area (Crevels & Van der Voort 2008, Van der Voort 2009). However, the possessed-possessor order is not among the features defining the area. Finally, the analysis in this chapter also supports the general observations made by Dryer (2007b) on word order correlations. OV languages of all types tend to have possessor-possessed order, while VO languages tend to have possessed-possessor order, except for SVO languages in which both orders are common. However, the analysis has also shown that possessor-possessed order at the NP level and OV order at the clause level are the predominant patterns in this part of the world.

Chapter 5. Nominal number and modification by numerals

This chapter deals with two aspects of the expression of number within the NP. One is the presence and formal realization of number, and the conditions on its realization. The other is the expression of cardinality by means of numerals, specifically the morphosyntactic characteristics of NPs with numerals as modifiers. In section 5.1, I will discuss the availability and expression of grammatical number within the NP. Not all nouns are marked for number, but when they are, the distribution of number marking is very often governed by the animacy hierarchy (Corbett 2000:90), and topicality and/or specificity of the referent (Smith-Stark 1974, referred to in Epps 2008:192). In addition to these factors, the presence of a numeral in an NP can also strongly influence the presence of number marking. In section 5.2, I will focus explicitly on numerals within the NP. Section 5.2.1 looks into the morphosyntactic properties of native numerals. In the languages of the sample, numerals are not always nominal expressions, but they can also be verbal elements that have to be nominalized in order to function within the NP. In some languages of the sample, numerals are used only predicatively or adverbially, and thus are not part of the NP at all. Section 5.2.2 addresses the theory of different noun types presented in Rijkhoff (2002). While I try to classify the languages of the sample in terms of the subtypes of nouns they have, I also discuss some characteristics that make the classification far from straightforward. Section 5.3 deals with such issues as agreement between a numeral and a noun, and discuss constituent order patterns found in the languages of the sample. Section 5.4 provides a summary of results.

5.1. Nominal number

In this section, I will discuss how number is expressed on nouns that denote plural entities but are not modified by a numeral. Languages in the sample differ with respect to the following parameters, which will be discussed in order:

    (a) the availability and occurrence of number marking within the NP;

    (b) the formal realization of number marking (if a language marks number);

    (c) the degree of detail and the semantic distinctions made in number marking (e.g. plural, dual, paucal, collective).

5.1.1. Availability and occurrence of number marking

The languages in the sample fall roughly into four groups with respect to number marking. One includes languages in which number marking is obligatory (or

highly frequent) with all count (concrete) nouns:[39] Chamacoco, Cubeo, Desano, Imbabura Quechua, Miraña, Movima, Puinave, and Wichí.

The second group includes languages in which formal number marking in the NP is conditioned by additional factors. These factors are: (i) the animacy of the referent: the higher on the Animacy Hierarchy[40], the more likely it is to be marked for number (Corbett 2000:90); and (ii) topicality and/or specificity of the referent: the more 'topical' or more 'specific', the more likely it is to be marked for number (Smith-Stark 1974, referred to in Epps 2008:192).

Animacy plays an important role in at least 13 languages of the sample. In seven of these (Baure, Bororo, Huallaga Quechua, Leko, Trumai, Ninam, and Yurakaré) number is frequently used with nouns denoting both human and non-human animates, while in the other six languages (Dâw, Hup, Kamaiurá, Mosetén, Tariana, and probably Timbira) it is used frequently only with nouns denoting humans. In addition to animacy, topicality and specificity of the referent can also trigger plural marking. For instance, in Hup, the plural marker is generally only obligatory with nouns denoting humans. Nouns denoting animals can be used both with and without the plural marker, but more specific references to animals are usually marked for number, while more generic references are not (Epps 2008:197).

(1)   Hup (Nadahup; Epps 2008:196)
         *hɨd   nɔ-pɨd-ɨh,   yúp,   yã?ám=**d'əh**   có?-óy-óh*
         3PL   say-DISTR-DECL   that.ITG   jaguar=PL   LOC-DYNM-DECL
         'They were saying, those jaguars.'

Nouns denoting inanimate countable entities in Hup normally do not receive a plural marker, but it is not ungrammatical if the marker is present (cf. Epps 2008:197).

The third (and largest) group includes languages in which number marking is optional within the NP. It consists of 21 languages. In many of these languages, number is marked on the noun only when it is necessary to focus on the non-singular character of the referent. While number marking is optional in general, factors like animacy, topicality and specificity can play a role in some of these languages, as can the presence of a number marking elsewhere in the clause.

For instance, in Tsafiki, plural marking is optional with all nouns but it is more often used with nouns denoting humans than with non-human nouns. With

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[39] It is not always evident from descriptions if a language has a division of nouns into count vs. mass nouns. In such cases, I will focus on those nouns that are likely to be considered count nouns in a language.

[40] The Animacy Hierarchy can be schematized as follows (see Corbett 2000:56, referring to Smith-Stark 1974):*1st person > 2nd person > 3rd person > kin > human > animate > inanimate.*

nouns denoting humans, NPs can also be unmarked for number when the verbal predicate is marked for it, as in (2a). With nouns denoting non-humans, most often neither the verb nor the noun receives plural marking, and the plural reading is recovered from the context (Dickinson 2002:57), as in (2b).

(2)   Tsafiki (Barbacoan; Dickinson 2002:57)
(a)   *tsan-ke-to=bi,*   ***unila*** *mantiminni   jelen=chi*
       SMBL-do:VCL-SR=LOC   man   EMPH   jungle=LOC

       *ji-**la**-i-e*
       go-PL-become:VCL-DECL
       'When they had done this the men went to the jungle.'

(b)   *junni   ja=te=le*   ***para***   *jo-e   ti-ti-e*
       then   3DIST=LOC=LOC   wild.pig   be-DECL   say-REP-DECL
       'Then they say he said that over there are wild pigs.'

In Tapiete, all nouns, regardless of their animacy status, occur with a number marker at the beginning of a narrative or discourse. After that, once they have been established as topics, number marking becomes optional (Hebe Alicia González, p.c.).

In some languages, the use of number marking on nouns that are normally unmarked can have a function of individualization. In such cases, the referent of a noun is perceived as individualized and non-collective (cf. Olawsky 2006:368 for Urarina, Aikhenvald 2003:180 for Tariana, among others). This can be illustrated with an example from Tariana, where the plural marker normally does *not* occur on inanimate nouns modified by a numeral.

(3)   Tariana (Arawakan; Aikhenvald 2003:217)
       kephunipe-phi-pe   surupe-phi-pe
       four-CLF:hollow-PL   clay-CLF:hollow-PL
       'four clay pots'

The fourth group includes languages in which number is not marked within the NP. There are ten languages that belong in this category: Awa Pit, Ika, Jarawara, Kanoê, Kwaza, Mapuche, Sabanê, Wari', Itonama and Nasa Yuwe. The last two languages show some exceptions. In Nasa Yuwe, number marking occurs on nouns in dative (with or without a numeral preceding the noun) (Jung 2008:131). In Itonama, there are two lexical exceptions: the word *umu* 'man' has the plural form *umu'ke* 'men', and the word *t'iyaya'tya* 'girl' has the plural form *t'iyaya'tye* 'girls' (Crevels 2012, p.c.).

Another condition that can influence the occurrence of the number marking in the NP is the presence of a numeral modifier. Three logical patterns are observed in the data for the interrelation between numeral and overt number marking in the NP.

(i) The first pattern is that number marking is banned if a numeral is present. For instance, in Mosetén, NPs with human nouns and higher animals are obligatorily marked for number when referring to more than one individual. NPs with inanimate nouns can receive a plural marker, but only when plurality is in focus. When either type of noun is modified by a numeral, however, the plural marker is obligatory absent, including for nouns denoting humans, as shown in (4b) (Sakel 2004:84, p.c.).

(4)   Mosetén (Mosetenan; Sakel 2004:84,474)
(a)   *nanatyi'-**in**   (b)   *paerae'   äwä*'
       boy-PL   two   son
       'boys'   'two sons'

Another example is the Cuzco variety of Quechua, where animate nouns receive the plural marker much more often than inanimates. The example given in (5b) is sooner judged as acceptable, than as ungrammatical.

(5)   Cuzco Quechua (Quechuan; Pieter Muysken, p.c.)
(a)   *warmi-**kuna**   (b)   *?rumi-**kuna**
       woman-PL   stone-PL
       'women'   'stones'

Whenever a noun is modified by a numeral in Cuzco Quechua, however, the plural marker is obligatorily absent, as shown in (6).

(6)   Cuzco Quechua (Quechuan; Pieter Muysken, p.c.)
       iskay   warmi(*-kuna)
       two   woman(*-PL)
       'two women'

(ii) The second pattern is that number marking becomes optional when a numeral higher than one is present, since the numeral itself marks the non-singular character of the referent. This is the case, for instance, for Imbabura Quechua, where plural marking is obligatory "except when a noun is preceded by a numeral" (Cole 1982:128).

(iii) The third pattern is that number marking is present when a noun is modified by numeral higher than one. For instance, in Movima plural marking is

used with all nouns when they are modified by a numeral. Example (7a) shows number marking in an NP without a numeral referring to a plural referent, whereas in (7b) number marking is present in an NP with a numeral. Number in Movima is marked by so-called referential elements.

(7)   Movima (unclassified; Haude 2006:150, 208)
(a)   *is*   *kwe:ya*
        ART.PL   woman
        '(the) women'

(b)   *tas-poy*   *is*   *paj'i*
        three-BR:animal   ART.PL   dolphin
        'There are three dolphins.'

In Urarina, number marking on a noun is generally optional, also when a noun is modified by a numeral. However, it is more common to mark the noun in combination with a numeral for plural, if it denotes a human. If the noun modified by a numeral does not denote a human, it is unlikely to be marked for plural (Olawsky 2006:367,356).

Table 5.1 in the end of the section gives an overview of the realization of number marking on NPs referring to plural entities in the languages of the sample, when they do not contain a numeral or other quantifier.

5.1.2. Formal realization of number marking

The formal type of marking used for specifying number distinctions may partially depend on the morphological profile of a language. Very different means can be used: affixes, clitics, free forms, tone variations, or changes in the noun stem (cf. Corbett 2000:138-159). In the languages in the sample, the most common strategy is the use of suffixes, found in approximately half of the languages. The use of enclitics to mark number is also common. Other means are encountered much less frequently. The use of free (i.e. not morphologically bound) markers is reported in four languages: Dâw, Hixkaryana, Trumai and Ninam. In Ninam, the plural of nouns denoting human and animate referents is formed by postposing the reduced form of the 3rd person plural animate pronoun *pIk* (Goodwin Gómez 1990:79) (example 8a,b). Nouns denoting plants and inanimate objects take the partitive-collective suffix *-k* to mark plurality (Goodwin Gómez 1990:80) (example 8c).

(8)   Ninam (Yanomaman; Goodwin Gómez 1990:79,75,74)

(a)   *irIt* **pIk**   *carami*   (b)   *ey*   *thIwə*   **pIk**
         child AN.PL   many   DEM:DIST   woman   AN.PL
         'many children   'those women'

(c)   *carekep*   *mamo-**k***
         two   eye-INAN.PL
         'two eyes'

The use of proclitics is found in one language, Timbira, where mainly (but not exclusively) human nouns are marked with the proclitic *mɛ̃=*. Example (9) illustrates this.

(9)   Timbira (Macro-Ge; Alves 2004:48)

 (a)   **mɛ̃=***kahãj*   (b)   **mɛ̃=***iʔ-ŋko*   *ŋkre*
         PL=woman   PL=3-louse   three
         'women'   'three lice'

Finally, one language in the sample, Movima, marks number with so-called referential elements that are obligatory with a noun. Referential elements in Movima are articles, pronouns and demonstratives, which are grouped together as a class of their own due to their unique ability to take the oblique marker *n-* (Haude 2006:128). Example (7) and (10) demonstrate this.

(10)   Movima (unclassified; Haude 2006:150)
         is   *me:sa*
         ART.PL   table
         '(the) tables'

5.1.3. Semantic distinctions in number marking

There is a certain variation among languages in the range of semantic distinctions they make in the category of number. Whereas some languages have a two-fold distinction in number marking, i.e. singular vs. non-singular (or plural), other languages show more subtle distinctions. These can include a 'dual' marker for entities that number two, a 'paucal' marker for entities that number up to about eight, and a 'plural' marker for those that number more than eight. Corbett (2001:5) mentions that "[t]ypically the value which includes in its meaning reference to the largest set of referents will be called 'plural', whatever other meanings or restrictions it may have". In general, the meaning encoded by 'plural' can be quite diverse, often depending on the paradigmatic context (cf.

Corbett 2000:4-5). In languages with a dual distinction, plural can mean more than two entities, while in a language with an additional paucal distinction, plural can mean more than eight.

In the languages of the sample, the singular vs. plural distinction is most common, and values like dual or paucal are less often overtly present. A dual marker is found in the following seven languages: Tehuelche, Miraña, Cavineña, Trumai, Ninam, Nasa Yuwe, and Pilagá. In the last three, its occurrence is conditioned by animacy of the noun. Specifically, in Ninam, the dual marker, which is the reduced form of the 3rd person dual animate pronoun, occurs only on animate nouns and pronouns. Inanimate nouns can be only pluralized by the partitive-collective suffix -*k* (Goodwin Gómez 1990:49). In Nasa Yuwe, only human referents can take a dual marker, which is reported by Jung (2008:132) to be unproductive. In Pilagá, dual is used with just a few nouns that naturally come in pairs (Vidal 2001:91).

A paucal marker is found in only three languages: Mocoví, Pilagá, and Kwaza. In Kwaza it is used only with humans and animals (Van der Voort 2004:540). A 'trial' category (referring to three items) is not encountered in the sample.

The presence of the number distinctions in a language generally follows the Number Hierarchy: *singular > plural > dual > paucal/trial* (Corbett 2000:39, referring to Foley 1986:133 and Croft 1990:96-97, Greenberg 1963:94). According to this hierarchy, no language has a paucal or trial unless it has a dual, and no language has a dual unless it has a plural. This is the case for Miraña (where plural and dual number is obligatory), and for Tehuelche and Cavineña (where both plural and dual number are not obligatory but tend to be marked). An additional condition on the occurrence of number is found in Nasa Yuwe, where plural can occur on all nouns but only in dative, whereas the (unproductive) dual is used exclusively on human nouns.

Furthermore, languages can also have 'collective' markers. The issue of collectives vs. plurals is a complex one. Corbett (2000:111) gives the following characteristic of collectives: they refer to a group of items which should be considered together as a unit rather than individually, and are typically also spatially contiguous. The primary function of collectives is "to specify the cohesion of a group, sometimes manifested in joint activity" (2000:119). Corbett (2000:118-9) gives the following arguments why collectives should not be regarded as being on a par with basic number values, or as a subdivision of these:

(i) co-occurrence with number markers within a word: collectives may co-occur with number markers;
(ii) obligatoriness: collectives are never obligatory, while number can be;

(iii) occurrence of collective markers and the Animacy Hierarchy: collectives do not follow the Animacy Hierarchy, in that they are typically formed from nouns low on the hierarchy and not with pronouns.

To give an example from the sample used here: in Wichí, there is a collective marker that is morphologically different from a plural marker, as shown in example (11), and that can co-occur with it (Terraza 2009:88), as predicted by Corbett (2000:118-9).

(11)   Wichí (Matacoan; Terraza 2009:92)
          *hep-**ey-layis***
          house-PL-COL
          'many houses grouped together'

However, these criteria can be problematic in cases when a language has only one morpheme that encodes a range of number meanings, including the collective reading, and that is not obligatory. For instance, in the Cariban languages Tiriyó, Hixkaryana and Panare, the plural / collective markers are optional on all nouns. However, they are more frequent on animates than on inanimates, and much more frequent on humans. Semantically, one and the same marker can be used to mark 'more of the same kind' or it can have a collective meaning (Sérgio Meira, p.c.). Among the languages in the sample with optional marking of number, it is very common for a number marker to encode both a collective and a plural meaning - in the sense that items can be viewed together as a group or individually. An interesting case for the three criteria noted above could be, for instance, the Panoan languages Shipibo-Konibo and Matsés. In Shipibo-Konibo, the marker *-bo* has the function of a collective and is optional with all nouns, but it also forms the plural of the 3rd person pronoun (Valenzuela 2003:185), which is atypical for collectives. In Matsés, the same plural marker *-bo* is likewise optional with all nouns. It can optionally be used with the archaic 2nd person form *mitso*, but never with any other personal pronouns (Fleck 2003:244). When *-bo* is attached to human nouns it can indicate "either a set of people in a group, a category of people in general, or multiple people acting separately". And in order to specify collective meaning, "the verbal suffixes *-cueded* or *-beded* are used, optionally with or without the enclitic *-bo*" (Fleck 2003:273). Whenever *-bo* is used on nouns with non-human referents, it specifies a heterogeneous category, e.g. different kinds or types of something.

   Corbett (2000) mentions that not treating collectives on a par with basic number values does not imply that collectives and plural are unrelated. On the contrary, he argues that collectives imply plurality and by implication may provide an indication of plurality in languages which have no regular plural

marking. In the sample, this seems to be the case quite often for languages with optional number markers.

Table 5.1 offers an overview of the realization of number marking in NPs that refer to plural entities and do not contain a numeral or other quantifier. The table combines languages where plural marking is *obligatorily* present with languages where it is *highly frequent*. I decided to merge these two options, since the grammars often did not allow me to decide which option applied. One language, Warao, is missing from the table, as I could not find any information on conditions of nominal number marking.

Statistically, number marking is obligatory or highly frequent on all nouns in about 16% of the languages.[41] About 23% of the languages mark number only on animate nouns or just on human nouns. In about 41%, number marking is optional within the NP. If number marking occurs, it occurs more frequently on humans than on non-humans, and more frequently on animates than on inanimates. In about 20% of the languages number marking is always absent within the NP. Map 4 in appendix 4 gives an overview of the geographical distribution of number marking in the languages of the sample according to the categories in table 5.1.

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[41] Information on conditions for the occurrence of number marking is lacking for one language in the sample, Warao. Thus it is not included in the count.

Number marking is obligatory (or highly frequent) with:			Number marking is optional with all nouns (there can be additional factors)	Number is not marked on noun or NP
all nouns (animates + inanimates)	**a subset of nouns**			
	animate nouns (humans + non-human animates)	**only human nouns**		
Chamacoco Cubeo Desano Imbabura Quechua Miraña Movima Puinave Wichí	Baure Bororo Huallaga Quechua Leko Trumai Ninam Yurakaré (+some inanimate)	Dâw Hup Kamaiurá Mosetén Tariana Timbira (?)	Apurinã Aymara Cavineña Emérillon Gavião (?) Hixkaryana Karo Mamaindê Matsés Mekens Mocoví Northern Embera Panare Pilagá (?) Shipibo-Konibo Tapiete Tehuelche (?) Tiriyó Tsafiki Urarina Yaminahua Yanesha'	Aguaruna Awa Pit Ika Itonama (two exceptions) Jarawara Kanoê Kwaza Mapuche Nasa Yuwe (except in DAT) Sabanê Wari'

Table 5.1: Presence of number marking on nouns not modified by a numeral.

5.2. Numerals as modifiers

This section deals with syntactic and morphosyntactic questions of noun modification by a numeral. Focusing primarily on native expressions for cardinal numbers, I divide numeral expressions mainly into three categories: those which can be directly used as modifiers of nouns, those which require additional derivational morphology to modify nouns, and those that cannot be used within NPs at all. The first two categories roughly correspond to numerals with nominal or verbal properties, since numerals pattern much like nouns or like verbs in the corresponding languages. However, the division according to word class is somewhat less straightforward, because classifiers, which serve as derivational markers in the languages of the second category, are found not only on verbs but on a whole range of grammatical categories and also display inflectional properties.

The data also show that while in some languages borrowed numerals are adjusted morphosyntactically to the word class and the corresponding syntactic behavior of native numerals (e.g. Hixkaryana, Wari', Tsafiki), in other languages, morphosyntactic properties are borrowed along with the numeral (e.g. Shipibo-Konibo, Itonama, Movima).

5.2.1. Morphosyntactic properties of numerals

As a definition of numerals I use the one proposed by Hammarström (2010), which is particularly relevant for the distinction between low numerals and quantifiers with a vague meaning. Hammarström (2010) defines numerals using the following criteria (see Hammarström 2010:11-13 for detailed discussion of each point):

1. *spoken*
2. *normed expressions* that are used to denote the
3. *exact number* of objects for an
4. *open class* of objects in an
5. *open class of social situations* with
6. *the whole speech community* in question.

Few languages in the sample have a developed numeral system, i.e. a system with wide-ranging options for counting and a certain systematicity in coining numeral forms. The majority of the languages have native forms only for low numbers, which are also transparent etymologically. In some cases, it is even difficult to determine whether a form can be considered a numeral or whether it is a quantifier conveying an approximate meaning, which has not yet conventionalized to denote an exact number. There is a certain geographic division among languages with respect to their numerals systems. Andean languages (e.g. Quechua, Aymara) often have elaborate decimal numeral systems, while languages of the lowland Amazon (e.g. Jarawara, Wari') often have a very limited inventory of native forms used for counting (cf. Adelaar 2008:24).

In terms of morphosyntactic properties, numeral expressions can be divided into three main categories: (i) those that do not require additional morphology to occur as noun modifiers, (ii) those that require derivational morphology to modify nouns, and (iii) those that are used only as predicates or adverbs, and thus are not part of an NP. These three categories are discussed and exemplified next.

Table 5.2 lists languages where native numerals do not require any derivation to occur as noun modifiers. Example (12) from Aymara shows numerals with

nominal properties. In some of these languages, numerals are inflected for gender (Apurinã, Chamacoco, Mosetén, and Tehuelche). This is demonstrated by Chamacoco in (13) and discussed in more detail in section 5.3.1.1.

(12)   Aymara (Cerrón-Palomino & Carvajal Carvajal 2009:205)
(a)   *kimsa   uta*
          three   house
          'three houses'

(b)   *uka   taqi   **pusi** jach'a qala   **uta***
          DEM:PROX all   four   big   stone   house
          'all these four big stone houses'

(13)   Chamacoco (Zamucoan; Luca Ciucci, p.c.)
(a)   *ɨntɨpor-rza   **nohma-ta***
          she.peccary-F.SG   one-F.SG
          'one she-peccary'

(b)   *hm-e   **otiyer***
          hand-F.PL   two.F
          'two hands'

Languages with numerals that do not require further derivation	Morphology added when used as a modifier
Aguaruna, Awa Pit, Aymara, Cavineña, Dâw, Emérillon, Huallaga Quechua, Hup, Ika, Imbabura Quechua, Kanoê, Leko, Mamaindê, Mapuche, Mekens, Nasa Yuwe, Northern Embera, Shipibo-Konibo, Tapiete, Trumai, Warao, Yaminahua, Yurakaré; Ninam (?), Timbira (?).	None
Apurinã, Mosetén[42]	Gender agr. with native '1', none with native '2'
Chamacoco	Gender agr. with native '1', suppletive '2'
Tehuelche	Gender agr. with all numerals, '2' is suppletive

Table 5.2: Number expressions with do not require derivation.

For Timbira, which has a question mark in the table, we have very limited information and too few examples of numerals to observe their syntactic behavior. Alves (2004:86) mentions that numerals can be used as noun modifiers

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[42] Sakel (2004:98) mentions for the numeral 'one' that this is a nominalization with unproductive nominalizing suffixes encoding gender.

(14a,b) and as 'verbal operators' (14c). When given in isolation, numeral forms consist of two morphemes, one referring to the 3rd person generic and the other referring to quantity: *ø-pitʃet* (3-one) 'one', *i-pjakrut* (3-two) 'two', *iʔ-ŋkre* (3-three) 'three' (Alves 2004:85-86).

(14)   Timbira (Macro-Ge; Alves 2004:86,51,86)

(a)   *aʔkrajrɛ*   **ŋkre**   (b)   *iʔ-mpɔr*   **pjakrut**
         child   three   3-horn   two
         'three children'   'two horns (its)'

(c)   *i-pəm*   **pjakrut**
         1-fall   two
         'I fell twice.'

Table 5.3 lists languages where native numerals have to take derivational markers in order to occur as modifiers. These markers are nominalizing affixes, which also function as verb nominalizers in those languages, as well as classifiers. In some of these languages (e.g. Cubeo, Desano, Miraña, Tariana), classifiers have both derivational and inflectional properties. The role of classifiers in these constructions is discussed in more detail in section 5.2.2.

Languages with numerals that require further derivation	Morphology added when used as a modifier
Puinave	Nominalizing prefix
Urarina, Bororo	Nominalizing suffix
Kwaza	Nominalizing suffix / classifier
Movima, Tsafiki, Baure, Yanesha'	Classifier
Itonama, Cubeo, Desano, Miraña, Tariana	Classifier with inanimates, gender and/or number agreement with animates

Table 5.3: Number expressions that require derivational morphology.

The use of nominalizing morphology on modifying numerals is illustrated with Urarina (15), Bororo (16) and Puinave (17).

In Urarina, the native numerals from 1 to 5 are a subtype of verbs, and have to occur either with the nominalizing suffix *-i* or the participial suffix *-ĩ* when used as noun modifiers (Olawsky 2006:275). Other numerals, except for the form for 'million' which is of Spanish origin, are borrowings from Quechua. These forms show a different syntactic behavior when used as modifiers and are analyzed as nouns by Olawsky (2006:277). He shows that borrowed numerals must take the participial form of the copular auxiliary *neĩ*, exemplified in (15b).

(15)   Urarina (unclassified; Olawsky 2006:277)

(a)   *lejhi-ĩ*   *eene=te*   *hana*   *nitɕataha-j*   *fwanara*
        one-PRT   woman=FOC instead three-NMZ   banana

        siitɕa-ĩ   *laɨɨeke*
        hold-PRT   be.sitting:3
        'One woman instead is sitting, holding three bananas.'

(b)   *kãsi=ɲe-ĩ*   *kuraanaa* *kãsi=ɲe-ĩ*   *beene*
        seven=AUX-PRT   chief   seven=AUX-PRT   female
        'seven males and seven females'

The following example from Bororo shows how the native numeral *mitë* 'one' obligatorily receives the nominalizing suffix *-dɨ*. It should be mentioned that in Nonato's (2008:107) description of Bororo, numerals are analyzed as adverbs, but not much further information is available.[43]

(16)   Bororo (Macro-Ge; Crowell 1979:218)
        u-re   *kogariga-re*   *mitë-dɨ*   *makɨ*   *in-ai*
        3SG-NEUTR   chicken-NEUTR   one-NMZ   give   1SG-BEN
        'He gave me one chicken.'

In Puinave, numerals used as modifiers carry the attributive marker (nominalizer) *i-*, which also introduces relative clauses. The nominalizer is realized as a prefix (Girón 2008:372).

(17)   Puinave (unclassified; Girón 2008:448)
        óyat *ka-mok-ma*   *i-pɣ́i-ot*   *mot,*   *dukjín-ot*
        then   3PL-say-REP   ATTR-three-PL   man.PL   orphan-PL
        'Then the three men, the orphans, said…'

In Kwaza, numerals take either the nominalizer *-hɣ̃* or a semantically specific classifier. For Kwaza and a number of other sample languages which use classifiers, specific classifiers used on numeral roots (as well as on other roots)

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[43] There is one example of a numeral for 'two', in Nonato (2008:282):
    i-wogu-re   *ji-i-wu*   *karo-doge-re*   ***pobe***
    1SG-to.fish-NEUT   3SG-THEME-NMZ   fish-PL-NEUT   two
    'I caught two fish.'

can also form complete NPs by themselves. In that case, the semantic head noun is omitted. Example (18a) illustrates the use of the numeral *aky-* 'two' with the nominalizer *-hỹ*. Interestingly, the numeral root *aky-* singles out animate referents, since it is the only root with which the animate suffix *-ta* has been attested (Van der Voort 2004:215).

(18)   Kwaza (unclassified; Van der Voort 2004:214-215)
(a)   *ka'nwã   aky-'hỹ*   (b)   *tã'jã   aky-'ta*
          boat   two-NMZ   chief   two-AN
          'two boats'   'two chiefs'

Table 5.4 lists languages in which numerals are not used within an NP. They occur either as predicates or as adverbs.

Numerals not used as noun modifiers within the NP	
Kamaiurá, Hixkaryana, Tiriyó, Panare, Matsés, Karo, Sabanê	Used as adverbs
Jarawara, Wari'	Used as predicates

Table 5.4: Languages in which expressions for number are not used as noun modifiers within the NP

The occurrence of numerals as sentential adverbs is reported for the three Cariban languages in the sample, Hixkaryana, Tiriyó and Panare. Numerals in these languages have the same morphological and syntactic properties as adverbs (Derbyshire 1979:44, Meira & Gildea 2009). Morphologically, adverbs do not take inflectional morphological markers, unlike nouns and verbs, and can take only nominalizers. Syntactically, adverbs function as copula complements or as verbal modifiers (Meira & Gildea 2009:101). Example (19a) shows the occurrence of a numeral as a modifier of the verbal predicate. In (19b) the numeral is used as an adjunct, semantically modifying the noun. Example (19c) shows a rare case of a numeral modifying a noun directly.

(19)   Hixkaryana (Cariban; Meira & Gildea 2009:101, Derbyshire 1979:44)
(a)   ***asako***   *ɾo   nɨ-nɨh-tʃownɨ*
          two   totally   3S-sleep-PST
          'He slept twice (=two nights).'

(b)   *kanawa   wenyo,   **asako***
          canoe   1-saw-3   two
          'I saw two canoes.'

(c)   ***asak*** *kanawa*   *wenyo*
        two   canoe   1-saw-3
        'I saw two canoes.'

Interestingly, Derbyshire (1979:44) mentions that numerals borrowed from Portuguese are incorporated as nouns in Hixkaryana, but receive the denominalizing morpheme *me* and are further used as adverbs.

As in the Cariban languages, numerals in Kamaiurá and Karo function syntactically as adverbs. While in Karo numerals do not take any inflectional or derivational affixes and typically occur at the end of the clause or in the initial focus position (Gabas 1999:65,169), numerals in Kamaiurá can take a nominalizer (-*wat*) and typically occur before the verb (Seki 2000:78). However, Seki (2000:121) also mentions that there are examples in which numerals are used in a modifier position in Kamaiurá. Example (20a) shows the use of the numeral *mojepete* 'one' as an adverb modifying the verb, while in example (20b) the numeral *mokõj* 'two' occurs preceding the noun. As this is the only example available with no additional information, it is not clear if this is indeed a case of attributive modification.

(20)   Kamaiurá (Tupian; Seki 2000:78,121)
(a)   ***mojepete***   *i-ker-i*
        one   3-sleep-CIRC
        'He/she slept one (day).'

(b)   *ini-a*   *rak* *a-mojopepy* ***mokõj*** *mo'yr-a*   *pype*
        hammock-NUC   AT   1SG-exchange two   necklace-NUC   for
        'I exchanged the hammock for two necklaces.'

In Matsés, words that could be considered numerals are treated as adverbs in the grammar along with quantifiers. Numerals in this language are thus syntactically independent constituents. Fleck (2003:759) notes that they can be used in a modifying function, but no particular order relative to the semantic head is required, nor does it have to be adjacent to it. Thus, numerals can be found preceding or following the noun, or elsewhere in the clause.

(21)   Matsés (Panoan; Fleck 2003:558)
        cuididi   ***daëd***   *pudued-o-sh*
        brat   two   enter-PST-3
        'Two naughty kids came in.'

In Wari' and Jarawara, native expressions for number are compound expressions that are verbs syntactically (Everett & Kern 1997:347, Dixon 2004a:559). For example, *xica' pe* 'to be alone' for 'one' and *tucu caracan* 'to face each other' for 'two' in Wari' (Everett & Kern 1997:347-8). As shown in example (22), the borrowed numerals from Portuguese (in this case, *oito* 'eight') appear as intransitive verbs, but Everett & Kern (1997:348) mention a recent innovation in which numerals are used as attributive modifiers.

(22)   Wari' (Chapacuran; Everett & Kern 1997:348)
          oito   ***na***   *cawaxi'*   *nucun*
          eight   3SG:RP/P   dry.season   POS:3SG.M
          'He is eight years old.' (Lit.: His years are eight.)

Four languages of the sample, Gavião, Pilagá, Mocoví and Wichí, are not included in tables 5.2-5.4. I could not find any information on numerals in Gavião, and for the other three languages, the grammars state that they do not have native numerals and use Spanish borrowings even for the lowest numbers. The borrowed forms for 1-2 in Pilagá and 1-6 in Wichí are morphologically and phonologically adapted, while others are borrowed into the language without any morphological and phonological adaptations (see Vidal 2001:129, Terraza 2009:93). However, older sources available for the languages suggest that these languages may have had native numerals.[44] Gavião will not be included in any further analysis, but the other three languages (Pilagá, Mocoví and Wichí) will be.

5.2.2. Types of nouns (Rijkhoff 2002)

It was noted in the previous section that in some languages of the sample constructions with a numeral require the use of a classifier. The use of classifiers

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[44] I would like to thank Harald Hammarström (p.c.) for drawing my attention to the following facts about native numerals in Wichí, Pilagá and Mocoví, and for providing access to these sources. For Wichí, Hunt (1913:21) reports forms for numerals 1-5 and compares them to the forms for the same numerals found in a manuscript on the language from the D'Orbigny collection (the manuscript provides forms for numerals 1-17, though Hunt argues that the inventory is limited to five for many reasons). However, since there is a rough correspondence of forms only for the numerals 'one' and 'two' in Hunt (1913) and the manuscript, one could speculate that Wichí may have had only two native numerals. For Mocoví, native numerals 'one' and 'two' are reported by Lafone Quevedo (1893:244). For Pilagá, Bruno and Najlis (1965:34) give forms for numerals up to 'four' synthesizing different sources available on the language. However, since neither of these sources provides any example sentences with numerals, it is not possible to say anything about their morphosyntactic properties and behavior in the NP.

in such constructions and its relation with the use of number has led to a model of different types of noun, developed in Rijkhoff (2002). In this section, I will briefly introduce Rijkhoff's classification of nouns into subtypes, and I will discuss some complications for the model shown by the South American data.

As already said, in some languages a noun cannot occur in direct construction with a numeral, but requires the use of a classifier. In this type of language, the obligatory occurrence of a classifier in such constructions is argued to be motivated by properties of the noun rather than by properties of the numeral (Lyons 1977:462, referred to in Rijkhoff 2002:50). Specifically, the argument is that such nouns denote a concept rather than a discrete entity. Thus, we are speaking of something like 'bookness' instead of a 'book' or 'mangoness' instead of a 'mango tree' or a 'mango fruit'. In such cases, a classifier serves as an individualizer that creates a discrete entity out of a concept. As can be seen from table 5.3, there are several languages in the sample that require the use of a classifier in constructions with numerals. For instance, in Tsafiki, numerals other than 'one' obligatorily take a classifier. In (23a) the classifier -*de* 'long, rigid' is used in order to convert the concept of 'banana' into a concrete entity a 'banana fruit'. In (23b) the classifier -*ki* 'flexible' creates another type of concrete entity 'banana leaves'.

(23)   Tsafiki (Barbacoan; Dickinson 2002:76)
(a)   *palu-**de***   *ano*
          two-CLF:long.rigid   banana
          'two single bananas'

(b)   *palu-**ki***   *ano*
          two-CLF:flexible   banana
          'two banana leaves'

The use of classifiers in constructions with numerals, as well as the occurrence of overt plural marking on nouns modified by numerals, have been taken by Rijkhoff (2002) as important criteria for setting up nominal categories. Rijkhoff (2002:50) postulates four subtypes of nouns referring to discrete spatial objects. These subtypes are as follows.

  (a)   *Singular object nouns*: The noun is in direct construction with a numeral; plural marker is obligatory, both with and without a numeral. This type of noun designates a property of a single object.
  (b)   *Set nouns*: The noun is in direct construction with a numeral; number marking is absent when the noun is modified by a numeral. Nouns of this

type are argued to denote a set of individuals, which may contain just one individual or more individuals (singleton set vs. multiple set).

(c) *Sort nouns*: The noun is not in direct construction with a numeral, the numeral must combine with a *sortal* classifier. Number marking is absent, both with and without a numeral.

(d) *General nouns*: the noun is not in direct construction with a numeral, the numeral must combine with a *general* classifier. Number marking is absent, both with and without a numeral.[45]

The distinction between *general nouns* and *sort nouns* hinges on the distinction between the kinds of classifiers the nouns are used with (Rijkhoff 2002:47). One classifier type to which Rijkhoff refers as 'sortal classifiers' is contrasted with another type to which he refers as 'mensural classifiers'. The term 'sortal classifier' is used in reference to classifiers that are "typically used in connection with discrete objects" and which "do not indicate the volume or size, but may involve many different kinds of notions (notably shape)" (2002:48). Nouns used with this type of classifier are 'sort nouns'. The term 'mensural classifier' is employed in reference to classifiers that are typically used with nouns denoting "non-discrete spatial entities (masses)", e.g. a liter of wine, a pound of cheese, a cup of tea, etc. (2002:48). Finally, the label 'general nouns' is used by Rijkhoff (2002:49) in reference to nouns which do not show the distinction sort vs. mass. He refers to the classifiers that are used with such nouns as 'general classifiers'. Additionally, Rijkhoff suggests that properties of nouns used with general and sortal classifiers, differ in the following sense: *general nouns* are "less specified in terms of lexically coded information" than *sort nouns* (Rijkhoff 2002:49). For instance, in a language with general nouns, one and the same unspecified noun can receive various meanings depending on the classifier it is used with, since it is the classifier that is semantically loaded and not the noun. Sort nouns, on the other hand, are much more specified in their own right and do not receive much additional semantic information from the classifiers they are used with.[46]

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[45] Note that there is no subtype of nouns that is linked to the pattern [numeral + classifier + noun + plural] (disregarding word and morpheme order). Rijkhoff (2002:50) notes that this pattern, in which a noun is marked for plural while the modifying numeral combines with a 'true' classifier, is not attested in his sample, and is highly unusual in the languages of the world.

[46] The typology of classifiers discussed in Rijkhoff (2002) deviates from the one suggested in Grinevald (2000). What Rijkhoff regards as 'mensural classifiers', are considered 'measure terms' by Grinevald. Grinevald (2000:58) argues that classifiers are a lexico-grammatical device of noun categorization, which categorize a referent by its inherent characteristic, such as its shape, texture, or material. For measure terms, on the other hand, she argues that these are purely lexical, and exist in all languages of the world to express quantities.

Before we can try to apply Rijkhoff's model to the South American data, there are some interesting complications to be discussed, which are due to the following typological characteristics of the languages.

First, in several languages of the sample, number is not marked on the noun but rather on the NP, which, according to Rijkhoff (2002:31), suggests that number is a property of the NP and not of the noun. This is the case, for instance, for Hup, Yurakaré, Shipibo-Konibo, Tsafiki, Cavineña, Mosetén, Emérillon, Mekens, Karo and Huallaga and Imbabura Quechua. Rijkhoff does not include languages that mark number on the NP level rather than on the noun in his classification.

Second, in many languages in the sample, number marking on nouns modified by a numeral is irregular. The presence of number marking can depend on animacy of the noun and / or its pragmatic characteristics, such as specificity or topicality in discourse. To give just one example here, in Urarina, human nouns modified by a numeral are more likely to be marked for number than not, but number marking is still not obligatory, as suggested by the existence of examples without marking (cf. Olawsky 2006:367).

Third, numerals in at least four languages (Puinave, Bororo, Urarina and Kwaza) have to occur with a nominalizer which usually introduces a relative clause in those languages (e.g. example 12 above). Thus, such numerals are no longer simple modifiers but create complex NPs (with embedded structures), which Rijkhoff (2002:33,283) argues have other syntactic properties than simple NPs.

Fourth, in nine languages of the sample, numerals are normally used only as adverbs or as predicates, and are not part of an NP at all (see table 5.4).

Fifth, classifiers play a crucial role in the division of nouns into subtypes, but the nature of classifiers in the sample makes a straightforward application of the theory difficult. Rijkhoff (2002:163) mentions a similar problem in the discussion of numeral classifier languages in his sample, but he does not seem to suggest possible consequences for the theory. In many languages in the sample that use classifiers on numerals, such classifiers show unusual properties, in that they combine several types of noun categorization devices.[47] The same or almost the same set of classifiers can occur in several syntactic environments, e.g. on numerals, verbs, nouns, property words, demonstratives and question words. When occurring on a modifying constituent, classifiers in these languages show both derivational and inflectional properties (cf. Seifart & Payne 2007:383). In some languages, classifiers can form an NP of their own when they are used on a modifying constituent. These properties are shown by classifiers in the following languages of the sample (to a different degree): Baure, Movima, Cubeo, Desano,

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[47] Classifiers in the sample languages are discussed in more detail in Chapter 8.

Kwaza, Miraña, Tariana and maybe Yanesha'.[48] Due to these special characteristics, we do encounter the pattern [numeral + classifier + noun + plural] in the sample, which Rijkhoff (2002:50) notes to be highly unusual in the languages of the world and not attested in his sample. This type of construction is considered to be highly unusual, because there are few or possibly no languages "in which the noun must take a plural marker while the attributive numeral combines with a true classifier" (Sanches & Slobin 1973, referred to in Rijkhoff 2002:29). Example (24) shows the Baure numeral *mapi-* 'two' combined with a classifier *-no* 'human', while the noun occurs with the plural marker for humans.

(24)   Baure (Arawakan; Danielsen 2007:171)
         po-no   *mapi-**no***   *eton-**anev***
         other-CLF:human   two-CLF:human   woman-H.PL
         'the other two women'

In the following two cases classifiers have strong inflectional characteristics and are considered in the descriptions to be class markers rather than classifiers (Aikhenvald 2003, Seifart 2005). Example (25) from Miraña demonstrates the use of a class marker *-Ɂi* 'bunch' on the numeral *ma:kíní-* 'three', while the head noun, which occurs with the same class marker in agreement, also takes a plural marker.

(25)   Miraña (Boran; Seifart 2005:131)
         ma:kíní-Ɂi-ßa   (*úhɨ-Ɂí-:nɛ*)
         three-SCM:bunch-PL   banana-SCM:bunch-PL
         'three bunches of banana'

Example (3) from Tariana, repeated here as (26), shows the numeral *kephunipe* 'four' used with a class marker *phi* for hollow objects modifying the noun, which also takes the same class marker and the plural marker in agreement with the numeral.

(26)   Tariana (Arawakan; Aikhenvald 2003:217)
         *kephunipe-**phi**-pe*   *surupe-**phi**-pe*
         four-CLF:hollow-PL   clay-CLF:hollow-PL
         'four clay pots'

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[48] In Yanesha' and Movima, a numeral and its head noun can have the structure of a compound (cf. Duff-Tripp 1997:54, Haude 2006:114-115).

Thus, it is not clear which of the following two analyses would be more suitable for these languages. One option would be to treat such languages on a par with those that use classifiers in constructions with numerals (i.e. classifiers create a discrete entity out of a concept). Another option would be to treat them as languages where classifiers form part of the derivational morphology of numerals and thus are less clearly motivated by properties of the noun itself. Each of these analyses would presuppose a different subtype of nouns in a language (sort nouns in the first case, and set nouns in the second case). Both analyses seem to be correct, as suggested by the following patterns.

In some sample languages (e.g. Baure, Movima, Itonama), only native numerals obligatorily occur with a classifier, while borrowed numerals take a classifier optionally. For instance, in Itonama, native numerals 1-2 have to occur with a classifier, if the head noun is inanimate (27a). If the head noun is animate, a classifier is absent (27b). At the same time, constructions with borrowed Spanish numerals do not involve classifiers at all (27c) (Crevels 2012, p.c.).

(27)   Itonama (unclassified; Crevels 2012, p.c.)
(a)   ***wawa**-chïpa*   *woro'i*   (b)   *a-chïpa*   *t'iyaya*
         CLF:container-two   basket   DV-two   boy
         'two baskets'   'two boys'

(c)   *o-si'-ye*   *k'ipala*   ***si'ko***   *wa'ihna*
         DV-EX-CLF:oval.PL   egg   SP.five   and

         o-si-so   *opi*   ***kwaturu***
         DV-EX-CLF:lying.PL   fish   SP.four
         'There are five eggs and four (dead) fish.'

Thus, such examples suggest that the occurrence of classifiers in constructions with numerals is not always motivated by the properties of a noun.

When excluding all these doubtful cases, we are left with about one half of the sample languages to which the theory of the four subtypes of nouns can be applied. The majority of the languages seem to have *set nouns* (i.e. nouns that lack number marking when occurring in a direct construction with a numeral). These are: Aguaruna, Apurinã, Awa Pit, Aymara, Ika, Kanoê, Leko, Mamaindê, Mapuche, Mocoví, Nasa Yuwe, Northern Embera, Pilagá, Tapiete, Tehuelche, Wichí, Yaminahua.[49] Only one language, Chamacoco, seems to have *singular*

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[49] Ika and Hixkaryana are also present in Rijkhoff's sample, and both languages are regarded as having set nouns (however, see Rijkhoff 2002:33). While Ika is also treated as a language with set

object nouns (i.e. nouns that take number marking when occurring in a direct construction with a numeral). In my understanding of the differences between 'sortal' and 'general' classifiers suggested by Rijkhoff, probably only one language in the sample can be said to have *general nouns*: Tsafiki (see example 23).[50] And one language, Itonama, has at least a group of nouns that have characteristics of *sort nouns* (animate nouns modified by a native numeral).

Rijkhoff argues that the type of nouns a language uses is linked to the availability of an adjective class in the language. He observes that "[a] distinct class of adjectives is only attested in languages that use set nouns or singular object nouns (i.e. nouns with the feature +Shape) to refer to a single, discrete, spatial entity" (2002:341). This implies that a language can only have adjectives when nouns are in direct construction with a numeral (with no classifiers used on numerals) (2002:141, 2003). Rijkhoff (2003:32) offers an explanation for this dependency, suggesting that "a language can only have a distinct class of adjectives, if nouns in that language include in their meaning the property that is associated with a prototypical object, i.e. a concrete thing, which […] has an outline in the spatial dimension (Shape)." Looking at the South American data, we can observe that among 23 languages in the sample that are reported to have a major class of adjectives (see figure 6.1 in chapter 6) there are three exceptions to Rijkhoff's argument.[51] Baure, Tariana, and Yanesha' are languages with an adjective class where nouns are modified by a numeral combined with a classifier. However, as mentioned earlier, classifiers in these languages have an important derivational function, in addition to the function of semantic categorization, with classifying elements in Tariana best treated as class markers due to their highly grammaticalized status.

Interestingly, the Andean languages Mochica and Cholón have numeral classifiers of the Chinese or Mayan type (cf. Adelaar 2008:28). Mochica has a distinct class of adjectives (see Adelaar with Muysken 2004:335) while Cholón is said to use nouns for the core semantic properties (see Alexander-Bakkerus 2005:186, referring to the description by Pedro de la Mata 1748). These two languages are not included in the present sample, but they may constitute possible exceptions for the theory.

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nouns in my analysis, Hixkaryana is excluded on this point because numerals in this language are not part of an integral NP with their semantic heads.

[50] There are five classifiers in Tsafiki, which are used exclusively with numerals. Semantically, four classifiers refer to shape (small grain-like objects, long / rigid, hard / planular, and flexible), and one classifier is general and can also be used with human referents (Dickinson 2002:75).

[51] The following languages, which are classified here as having set nouns, do not have a distinct class of adjectives: Apurinã, Aymara, Kanoê, Mamaindê, Tapiete, Tehuelche, Wichí, Yaminahua. However, Rijkhoff (2002:144) notes that the implication he proposed is not violated by the existence of languages with set nouns that have no major class of adjectives.

5.3. Further issues

5.3.1. Agreement in the NP

It is interesting to see to what degree the phenomenon of agreement exists between a numeral and a noun in the languages of the sample. Using the terms introduced in chapter 2, the noun is taken as the agreement controller, the numeral as the agreement target, and gender, number and physical properties as agreement features. The scope is limited to languages in the sample, (i) in which numerals can be used adnominally, and (ii) which have the categories of gender and number, as well as an inventory of classifiers that categorize the referent according to physical properties. The analysis of the data shows that agreement in at least one of the three features is found in about 10% of the languages of the sample.

5.3.1.1. Agreement in gender

Agreement in gender is found more often in the sample than agreement in number or physical properties. If a language shows agreement in gender between a noun and a numeral, it is almost always found with the cardinal numeral for 'one'. The following languages show agreement exclusively with the numeral 'one' and not with any of the other available cardinal numerals: Apurinã, Mosetén, Pilagá, Itonama, Cubeo and probably Desano.[52] In examples (28) - (30) numerals for 'one' carry morphological gender markers in accordance with gender of the head noun. Numerals other than 'one' are left unmarked in these languages.

(28)   Apurinã (Arawakan; Facundes 2000:359)
(a)   ***hãt-u***   *kuku*   (b)   ***hãt-o***   *suto*
        one-M   man[M]   one-F   woman[F]
        'one/other man'   'one/other woman'

(c)   ***epi***   *kuku-wako-ru*
        two   man-PL-M
        'two men'

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[52] In Mosetén, in addition to the cardinal numeral for '1', all ordinal numerals agree in gender with the head noun (cf. Sakel 2004:87).

(29)   Itonama (unclassified; Crevels 2012)
(a)   **u-k'ane**   *umu*   (b)   **k'a'ne'-ka**   *wabï'ka*
        DV-one   man   one-F.SG   woman
        'one man'   'one woman'

(c)   **achïpa**   *upa'u*
        two   dog
        'two dogs'

(30)   Mosetén (Mosetenan; Sakel 2004:195,376)
(a)   *yäe*   *tye-te*   **jiri-s**   *kirjka*   *yäe-tyi'*   *otyi'*
        1SG   give-3M.O   one-F   book[F]   1SG-L.M   brother
        'I gave a book to my brother.'

(b)   *... iits*   *soñi'*   *näij-te*   **paerae'**   *tara'tara'*
        DEM.M   man   see-VSM.3M.O   two   big.rat
        '… this man sees two big rats.'

In the following languages, agreement in gender occurs with other cardinal numerals than 'one': Chamacoco, Miraña, Tariana and Tehuelche. In Chamacoco, agreement in gender is found with the two native numerals 'one' and 'two'. In Miraña, agreement is obligatory with numerals 'one' and 'two' and optional with others.[53] In Tariana, it is obligatory with numerals 'one' to 'four'.[54] In Tehuelche, all native numerals show agreement in gender.[55]

Example (31) is from Chamacoco. According to Luca Ciucci (p.c.), nominals including numerals can have a base form and a full form (although the distinction is disappearing). The numeral 'one', which still has both, shows a gender distinction only in the full form (31a,b). The numeral 'two', which does not distinguish a base form and a full form, encodes a gender distinction in the root (31c,d).

(31)   Chamacoco (Zamucoan; Luca Ciucci, p.c.)
(a)   *ɨntɨpor-**rza***   *nohma-**ta***
        she.peccary-F.SG.FF   one-F.SG.FF
        'one she-peccary'

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[53] Miraña has a quinary system with native numerals running until 400 (Seifart 2005:130).

[54] In Tariana, native numerals run until 20: numerals 1-3 are underived forms, 4 is a nominalized verb, and forms from 5 to 20 are compounds (Aikhenvald 2003:217).

[55] Tehuelche has a decimal numeral system; the forms for '100' and '1000' are borrowings from Quechua which came into the language via Mapuche (Fernández Garay 1998:241).

(b)   *kuchɨ-t*   *nohme-t*
        thing-M.SG.FF   one-M.SG.FF
        'one thing'

(c)   *hm-e*   ***otiyer***   (d)   *uu-lo*   ***osiyer***
        hand-F.PL   two.F   nest-M.PL   two.M
        'two hands'   'two nests'

In Tehuelche, all native numerals show agreement in gender. As example (32) shows, numerals receive the morpheme *n* when they are used as modifiers of feminine nouns, and remain unmarked when used with masculine or neuter nouns. The numeral *xawke* 'two' has a special form *xa:one* / *xaone* 'two.F' which is used with nouns of feminine gender (Fernández Garay 1998:243).

(32)   Tehuelche (Chonan; Fernández Garay 1998:243-244)
(a)   *wen-TK*   ***xa:one***   *ka:rken*   (b)   *xawke*   *ka:w*
        DEM-DU   two.F   woman[F]   two   house[N]
        'these two women'   'two houses'

(c)   *qa:š-**n***   *ka:rken*   (d)   *qa:š*   *t'alenk*
        three-F   woman[F]   three   boy[M]
        'three women'   'three boys'

The languages discussed so far have native basic numeral forms. The Guaycuruan languages Mocoví and Pilagá are among those which lack such numerals and use terms borrowed from Spanish. Interestingly, Pilagá numerals *onole'* 'one.F' / *onolek* 'one.M' and *dosolqa* 'two' have been morphologically and phonologically adapted. Specifically, they contain the gender suffixes *-le'* 'feminine' and *-lek* 'masculine', while the form *dosolqa* contains the number morpheme *-qa* 'paucal'. Other numerals are borrowings without adaptations (Vidal 2001:129). Therefore, NPs with the numeral 'one' can show agreement in gender in Pilagá.

5.3.1.2. Agreement in number

Agreement in number occurs less often in the languages in the sample than agreement in gender. This is not so surprising, given the small number of languages which show obligatory plural marking on nouns. The following languages show agreement in number: Puinave, Miraña, Cubeo, Desano, Tariana and Pilagá.

Example (17) from Puinave, repeated here as (33), shows agreement in number between a numeral and an animate head noun.

(33)   Puinave (unclassified; Girón 2008:448)

  óyat *ka-mok-ma* ***i-pɨ́-ot*** *mot,* *dukjín-ot*

  then 3PL-say-REP ATTR-three-PL man.PL orphan-PL

  'Then the three men, the orphans, said…'

It is not clear whether agreement is found mainly with animate nouns. There is one example with an inanimate noun modified by a numeral that has no agreement; furthermore, the numeral in this example does not have the nominalizing prefix *i-*, which normally occurs on numerals used attributively (see Girón 2008:372).

In Miraña, agreement is obligatory only with the numerals 'one' and 'two' and optional for 'three' and higher. With the numeral 'two', the dual number marker is used instead of the plural marker; this is illustrated in example (34a). The plural marker that occurs on numerals is morphologically different from the plural marker used on nouns (Seifart 2005:130).

(34)   Miraña (Boran; Seifart 2005:130-131)

(a) *mí-ʔí-**:ku***   *(úhɨ-ʔí-**:ku**)*

  two-SCM:bunch-DU (banana-SCM:bunch-DU)

  'two banana bunches'

(b) *ma:kíní(-ʔi-**βa**)* *(úhɨ-ʔí-**:nɛ**)*

  three-SCM:bunch-PL (banana-SCM:bunch-PL)

  'three (bunches) (of banana)'

In the Tucanoan languages Cubeo and Desano, agreement in number appears to occur with all available numerals. The word order of the constituents is influenced by the animacy of the head noun and by discourse factors. Thus, in Desano a numeral often follows the noun when the noun is animate (Miller 1999:4). For Cubeo, it is noted that when the numeral modifier "represents new information to the hearers, it is more likely to occur postnominally" (Morse & Maxwell 1999:92). Both languages have separate plural markers for animate and inanimate nouns, in addition to several other irregular ways of pluralizing nouns. Example (35) from Cubeo shows agreement in number between a numeral and an animate noun. The suffixes *-wA* and *-Rã* are plural markers for animate nouns.

(35)   Cubeo (Tucanoan; Morse & Maxwell 1999:92)
        *bũxã-joka-**wA***   *pɨka-**Rã***   *aru*
        palometa-CLF:leaf-PL   two-PL   and

        *kõbĩ'õwãĩ-**wA***   *pɨka-**Rã***   *boa-'wɨ*   *jɨ*
        sardine-PL   two-PL   kill-NON3   1SG
        'I caught two *palometas* and two sardines.'

In Pilagá, as mentioned above, the form *dosolqa,* which is a borrowing from
Spanish, contains the morpheme *-qa* 'paucal', which also occurs on nouns
modified by this numeral.

(36)   Pilagá (Guaycuruan; Vidal 2001:129)
        qanač'e   na'   *tayiñi* ***dosol-qa***   *na'*   ***emek-qa***
        CONJ   CLF:PROX   south   two-PAUC   CLF:PROX   house-PAUC
        'And in direction to the south, there are two houses.'

5.3.1.3. Agreement in physical properties

A clear case of agreement in physical properties between a numeral and noun is
found in two languages of the sample, Miraña and Tariana. This agreement is
realized with class markers. I only regard those cases as agreement in which both
numeral and noun have to occur with a classifying morpheme and show
systematic covariance. Example (34) above from Miraña illustrates obligatory
agreement in physical properties by means of the classifying morpheme *ʔɨ*
'bunch'. Example (37) from Tariana shows a similar construction.

(37)   Tariana (Arawakan; Aikhenvald 2003:217)
        *kephunipe-**phi**-pe*   *surupe-**phi**-pe*
        four-CLF:hollow-PL   clay-CLF:hollow-PL
        'four clay pots'

In a few other languages in the sample, e.g. Desano and Cubeo, classifying
morphemes show similar properties to those in Miraña and Tariana, in that the
same set of morphemes can be used for the noun derivation and can occur in
different morphosyntactic environments (see Aikhenvald 2003, Seifart 2005).
However, in Desano and Cubeo the classifying morphemes seem to constitute a
less grammaticalized system, since they are used in some cases but not in others.
The following examples from Desano illustrate this. In example (38a),
classifying morphemes are used on the head noun (*wɨ-ri-ru* 'plane') and on the
modifying constituents (*yuhu-* 'one' and *wɨa-ri-* 'large'). In example (38b), only

the numeral *pe-yẽ* 'two' takes a classifier. In (38c), neither the head noun nor the numeral *ɨʔre* 'three' occur with a classifier.

(38) Desano (Tucanoan; Miller 1999:4)

(a) *yuhu-ru*   *wɨ-ri-ru*   *wɨa-ri-ru*
     one-CLF:spherical fly-DVBZ-CLF:spherical   large-DVBZ-CLF:spherical
     'one large plane'

(b) *suʔri*   *pe-yẽ*   *opa-a*
     clothes   two-CLF:flat   have-NON3.PRS
     'I have two dresses.'

(c) *ɨʔre*   *wiʔi*
     three   house
     'three houses'

5.3.2. Constituent order

This section deals with the order of numeral and noun in the NP. As mentioned earlier, the question of word order can be interesting for typological reasons (cf. Greenberg 1966, Lehmann 1973, Vennemann 1974, Dryer 1992, among others), and it can be informative for constituency status of the NP involving the elements in question (Givón 1995, Meira 1999, among others).

Among the languages in which numerals can occur as noun modifiers within the NP, the following division is found. 30 languages have *numeral-noun* order, which is either fixed or favored. Six languages show *noun-numeral* order. In two languages the order depends on the properties of the modifying numeral, i.e. whether this is a borrowed vs. a native term. This is the case for Shipibo-Konibo and Itonama. In Shipibo-Konibo, numerals beyond 'two' are of Quechua origin and obligatorily precede the noun (as in Quechua) (39a,b), while the numerals for 'one' and especially 'two', both of Panoan origin, may precede or follow the noun without any obvious semantic difference (Valenzuela 2003:235) (39c,d).

(39) Shipibo-Konibo (Panoan; Valenzuela 2003:239)

(a) *jawen bene-n-ra*   **kimisha shino**   *rete-ke*
     3POS   husband-ERG-EV three capuchin.monkey:ABS kill-CMPL
     'Her husband killed three capuchin monkeys.'

(b) **jawen bene-n-ra*   **shino**   **kimisha**   *rete-ke*
     3POS   husband-ERG-EV capuchin.monkey   three:ABS   kill-CMPL
     'Her husband killed three capuchin monkeys.'

(c)   *jawen   bene-n-ra   **shino**   **rabé**   **rete-ke**
       3POS   husband-ERG-EV capuchin.monkey two:ABS kill-CMPL
       'Her husband killed two capuchin monkeys.'

(d)   *jawen   bene-n-ra   **rabé**   **shino**   **rete-ke**
       3POS   husband-ERG-EV two   capuchin.monkey:ABS kill-CMPL
       'Her husband killed two capuchin monkeys.'

In Itonama, borrowed Spanish numeral forms can occur either before or after the noun, but the native numerals *uk'a'ne* 'one' and *achïpa* 'two' always precede the noun (Crevels 2012, p.c.).

(40)   Itonama (unclassified; Crevels 2012)
(a)   *o-si-pu*   **u-k'a'ne**   **opi**
       DV-EX-CLF:lying.SG   DV-one   fish

       wa'ihna   o-si-di   **a-chïpa**   **u-puwe**
       DM   DV-EX-CLF:sitting.PL DV-two   DV-bird
       'There is one fish and two birds.'

(b)   *o-si'-ye*   **k'ipala**   **si'ko**
       DV-EX-CLF:oval.PL   egg   SP.five

       wa'ihna   o-si-so   **opi**   **kwaturu**
       DM   DV-EX-CLF:lying.PL   fish   SP.four
       'There are five eggs and four fish.'

In five languages, the order depends on characteristics of the referent of the NP. For instance, a number of languages in the sample show different orders depending on the pragmatic status of the referent. In the following languages numerals, as well as property words, may precede or follow the head depending on whether the reference is definite or indefinite: Cubeo (Morse & Maxwell 1999:92) and probably in Desano (see Miller 1999:46), Tariana (Aikhenvald 2003:562), and Ika (Frank 1990:31).[56] In Mosetén, there is a tendency for modifiers to appear after an animate head noun, and before an inanimate head noun (Sakel 2004:82). The following examples from Ika illustrate the occurrence of numerals before the head noun for indefinite reference and after the noun for definite reference.

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[56] This is also the case for some other Chibchan languages of Costa Rica (cf. Frank 1990:31).

(41)   Ika (Chibchan; Frank 1990:32)

(a)   ***mouga***   *tšeirua-ri*   *meina*   *ri-zori-eʔ-ri*
         two   man-TOP   stream   3SBJ-go-then-TOP
         'Two men went along the stream, …'

(b)   *tigri*   *perɨ*   ***mouga***   *nʌ-kʌ-gga*   *au-ʔ*   *no*
         jaguar   dog   two   1OBJ-PERI-eat   AUX-NEG   Q
         'The jaguar ate my two dogs, didn't it?'

The order of numeral and noun in the sample is summarized in table 5.5.[57] The table also includes information on the constituent order at the clause level.

Constituent order of noun and numeral	Constituent order in the clause	# of languages	Total # of languages
numeral - NOUN	OV	20	31
	VO	8	
	OV / VO + free	3	
NOUN - numeral	OV	3	5
	VO	2	
	OV / VO + free	-	
both orders	OV	4	8
	VO	2	
	OV / VO + free	2	
n/a: numeral is not part of the NP	OV	6	9
	VO	1	
	OV / VO + free	2	

Table 5.5: Order of a numeral and noun and constituent order at the clause.

The order of numeral and noun compared to the constituent order at the clause has been discussed in Greenberg (1963) and Hawkins (1983). It was suggested that the order [numeral-noun] occurs more often among OV languages than among the VO languages. However, Dryer (1992) examines data from 625 languages and finds the following unexpected pattern. There is a tendency for the order [numeral-noun] to be more common among VO languages than among OV languages. However, one of the six areas he examines (Africa) does not conform to this tendency, as VO languages there show a different pattern from that found elsewhere (Dryer 1992:119). For that reason, Dryer (1992:119) refrains from regarding numeral and noun as a correlation pair and leaves the pair unclassified.

It is not very insightful to speak of any correlation for the languages in the sample. The majority of the sample languages are OV (found in 35 of the 55

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[57] Gavião and Timbira are not included in the count: for Gavião no information was found on numeral expressions, and for Timbira it is unclear if numerals are part of the NP .

languages), and OV order is the most common in every category in Table 5.5 (numeral-noun, noun-numeral, dependent, or not-applicable).

5.4. Summary

This chapter dealt with the expression of cardinality in the languages of the sample. Nominal number is not a prevailing feature among the languages in the sample with 42% of the languages showing optional marking on all nouns and 20% of the languages not marking number within the NP at all. Among the languages in which some nouns are obligatorily marked for number, number marking follows the animacy hierarchy: it occurs more often on human nouns than on animates, and more frequently on animates than on inanimates. The presence of a numeral modifying a noun also influences the occurrence of a number marking on nouns. Thus, in languages in which nouns can be marked for number, the presence of a modifying numeral can either block number marking or make it even more optional. Another factor that plays a role in the occurrence of number marking is the pragmatic status of the referent, its definiteness and specificity. While generic referents are less likely to be marked for number, specific referents occur with number marking, even if the referent is low on the animacy hierarchy. In some languages, the use of number marking on nouns that are normally unmarked can have the function of individualization.

In a number of languages in the sample numerals are not part of the NP: they are used either as predicates or as adverbs. In the other languages, numerals can have nominal properties in that they pattern like nouns in a language, or numerals can have verbal properties in that they receive nominalizing morphology in order to be used attributively.

In some languages of the sample a noun cannot occur in direct construction with a numeral and requires the use of a classifier. The use of classifiers in constructions with a numeral and their interrelation with the number marking on nouns has led to an important theory about the nature of nouns, developed in Rijkhoff (2002). In this chapter, I addressed some typological characteristics of NPs with numerals in the sample that pose a challenge to a straightforward application of the theory. One of such characteristics is a clearly dual function of classifiers in some of the languages. Classifiers specify the referent and create a distinct spatial entity out of a concept denoted by a noun, which implies that they can be counted. However, in addition, classifiers play an important role in the derivational processes in these languages. The double function of classifiers is particularly prominent in languages in which the occurrence of classifiers is conditioned by the native vs. borrowed nature of a numeral. While classifiers are obligatory with native numerals, their use with borrowed numeral forms is either optional or ungrammatical. Such cases suggest that the occurrence of classifiers

in constructions with numerals is not always motivated by the properties of a noun. Thus, it is not clear if (i) such languages should be treated on a par with those that use classifiers in constructions with numerals and have sort nouns; or (ii) whether they should be treated on a par with languages where classifiers are not required in NPs with a numeral (since classifiers form part of derivational morphology of numerals and are less motivated by properties of the noun itself) and therefore have set nouns.

Another issue discussed in the chapter is the realization of morphological agreement between a noun and a numeral in the NP. Several languages in the sample show agreement in gender, number, or physical properties. The occurrence of agreement in gender is encountered more often than agreement in number. Agreement in physical properties is found the least: it occurs in languages with highly grammaticalized systems of classifiers. The presence of agreement in gender can be conditioned by several factors: (i) animacy of the head noun, in that gender distinction is visible only with human nouns; (ii) number of the head noun, in that gender distinction is often realized exclusively within singular forms. Agreement in number is mainly conditioned by the animacy of the noun: inanimate nouns, which tend not to take number marking, are even less likely to show agreement in the NP with a modifying numeral.

With respect to constituent order patterns, the following observations can be made. Borrowed numerals in the sample tend to be borrowed together with their associated word class and morphosyntactic properties. This is particularly clear in languages in which native numerals have verbal properties, thus contrasting with the nominal character of numerals in the donor languages reported for the sample languages (Spanish, Portuguese and Quechua). For instance, in Urarina, borrowed Quechua numerals from 6 onwards behave like nouns, while the native forms 1-5 are verbs and require a nominalizing suffix or participle suffix when used attributively. Interestingly, in Hixkaryana, borrowed Spanish numerals are incorporated as nouns but they receive a denominalizing morpheme and are used as adverbs, just like the native numerals.

Yet another example of properties that are borrowed along with a numeral form is provided by word order patterns in Shipibo-Konibo. While free constituent order is found with native numerals, numeral forms borrowed from Quechua obligatorily precede the noun, as is the case for numerals in Quechua.

Chapter 6. Property words

This chapter deals with the question of nominal modification by property words in the languages in the sample. It discusses general encoding patterns, largely focusing on the semantic classes of *dimension, age*, *value,* and *color,* argued to be the core of the adjective class in Dixon (1982, 2004b, 2010). The outcome shows that more than half of the sample languages have a class of property words that is morphologically distinct from other classes in a language. However, if we look at the overall picture, including alternative strategies, the dominant way to express property concepts in the sample languages is by means of verbs. In the case of property words which are non-verbal, the strategies used for attributive modification are either (i) a construction of direct modification, or (ii) a possessive construction. In the case of property words with verbal characteristics, the strategies used for attributive modification are (i) a construction with a relative clause or (ii) nominalization. Some languages in the sample also use classifying morphemes as an additional means of attributive modification. The data suggest that geographically there is no robust split between verbal and nominal strategies to encode property concepts. However, many of the languages with noun-like property words are spoken in the Andean sphere, and many of the languages with verb-like property words are spoken in the Amazon and the Mato Grosso area, but there are quite a few exceptions that make potential geographic groupings questionable. Finally, the chapter also deals with NP-internal phenomena like constituent order and the realization of agreement. It is shown that the prevalent constituent order is the noun preceding the property words, irrespective of the morphosyntactic characteristics of the property words.

The chapter has the following structure. Section 6.1 introduces definitions and some basic theoretical issues relating to property words. Section 6.2 deals with the morphological characteristics of property words in the languages in the sample. Section 6.3 considers languages in which property concepts are expressed by a distinct word class, and the strategies used for nominal modification. Section 6.4 is largely concerned with languages without a distinct word class for property words, and analyses the strategies for nominal modification that are used in such cases. Section 6.5 discusses constituent order within the NP, and addresses the question of agreement. Section 6.6 offers some general observations on the questions discussed in the chapter.

6.1. Introduction

Dixon's (1977) study (revised 1982) launched a discussion on the universality of adjectives as a morphologically distinct class: specifically, he argued that not all languages have a class of adjectives. Dixon (2004:1, 2010), on the other hand, takes a different perspective on this question by arguing that "a distinct word class 'adjectives' can be recognized for every human language. […] there are always some grammatical criteria – sometimes very subtle – for distinguishing the adjective class from other word classes". In this chapter I will address this question for the languages in the sample.

There are several approaches to the definition of adjectives in cross-linguistic studies. Dryer (1988:197) follows "the implicit practice of Greenberg (1963) in employing essentially semantic criteria in identifying adjectives. Namely, a word is identified as an adjective if it expresses the kind of meaning associated with descriptive adjectives in English". Schachter & Shopen (2007:13) define adjectives as "the class of words denoting qualities or attributes", noting that this definition has some shortcomings. Dixon (2004b:14) uses both semantic and syntactic criteria, and gives the following definition of adjectives: "a word class distinct from noun and verb, including words from the prototypical adjective semantic types, and (a) functioning either as intransitive predicate or as copular complement; and/or (b) modifying a noun in an NP".

These approaches illustrate Dryer's (2007:168) observation that the term *adjective* has been used by linguists in two senses: (i) in the semantic sense, "to denote a set of words on the basis of their meaning, regardless of their grammatical properties in particular languages"; and (ii) "as a label for a word class in a particular language defined by grammatical characteristics which distinguish it from other words in that language." To distinguish between these two uses, Dryer uses the terms 'semantic adjective' for the first use, and the term 'adjective' for the second use.

Here I will occasionally use the term 'adjective' exclusively for a grammatical category of descriptive words that denote properties or qualities, and that are morphologically, syntactically and semantically distinct from nouns and verbs in a language. In parallel, I will use the term 'property word' for a category of descriptive words that denote properties or qualities, irrespective of their morphosyntactic characteristics. Thus, the term 'property word' also functions as a cover term in this study.

The different definitions suggest that semantic characteristics of such lexemes are of paramount importance. Dixon (1982, 2004b:3, 2010:73) proposes a division of property words into several semantic types, some of which are listed below. He suggests that the first four of these constitute the core and are typically present in both large and small adjective classes (morphosyntactically

distinct from other word classes in a language). In other words, if a language has a small adjective class, it is likely that it will consist of members from the core semantic types.[58]

dimension ('big', 'small', 'long', 'deep', etc.),
age ('new', young', 'old', etc.),
value ('good', 'bad', 'strange', etc.),
color ('black', 'white', 'red', etc.),
physical property ('hard', 'soft', 'heavy', 'wet', 'strong', 'clean', 'hot', etc.),
human propensity ('jealous', 'happy', 'kind', etc.), and
speed ('fast', 'quick', 'slow', etc.).

Property words have several functions. Dixon (2004b:14, 2010:70-72) proposes four functions, three of which are discussed below.[59]

(i) Specifying the referent of the NP. The property word is used as a modifier within an NP in this case. This function is illustrated by the example in (1) from Matsés:

(1)   Matsés (Panoan; Fleck 2003:771)
         shupud   ***iuë***
         bag   heavy
         'heavy bag'

(ii) Stating that a referent has a certain property. In this case, the property word is used in one of the two syntactic constructions: (a) as an intransitive predicate (example 2), and (b) as a copula complement (example 3):

(2)   Kwaza (unclassified; Van der Voort 2004:190)
         hoˈho-ki
         dirty-DECL
         'It is dirty.'

(3)   Huallaga Quechua (Quechuan; Weber 1989:36)
         taqay   ***hatun***   ***ka-yka-n***
         that   big   be-IMPFV-3
         'That one is big/a big one.'

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[58] See Dixon (2004b:5, 2010:74) for the complete set of semantic types.

[59] The fourth function suggested by Dixon (2004b, 2010) is to modify verbs "either in plain form or via a derivational process". Dixon illustrates this with constructions like *He speaks (real) bad* in colloquial American English, which contrasts with *He speaks (really) badly* in British English. This function seems more characteristic of the adverb class, so I do not include it here.

(iii) Serving as a 'parameter of comparison'. In the following example from Hup, the elative marker *-kəd*, derived from the verb root 'pass', has this function:

(4)   Hup (Nadahup; Epps 2008:460)

   *núp   mɔmb'ɔ́k   **pog-kə́d**=cud,   núw-ăn kéy-tæn-ǽh*
   this   iron.pot   big-EL=INFR   this-OBJ see-COND-DECL
   'This pot seems bigger if (you) look at that one.' (i.e. 'This pot is bigger than that one.')

On the basis of the morphosyntactic characteristics of property words in the first two functions, Dixon (2004b, 2010:63,72-73) suggests four different types.

   (i) Property words that have grammatical characteristics of verbs. Property words and verbs may share the function of serving as intransitive predicates and taking morphological markers associated with this function. In order to occur as noun modifiers, property words of this class require a relative clause construction, just like verbs.

   (ii) Property words that have grammatical characteristics like those of nouns. Property words of this class can occur in direct construction with a noun within the NP, and may take the same inflections as nouns. Such property words can be the head of an NP. To ascribe a property, these elements function as copula complements, and cannot function as an intransitive predicate.

   (iii) Property words that have some grammatical characteristics of verbs and some characteristics of nouns. They can function as an intransitive predicate and be inflected like a verb, and they can occur in an NP and take nominal morphology. In some languages, property words of this class can both have the function of a predicate and of a copula complement.

   (iv) Property words that have distinct characteristics of their own, different from those of verbs and those of nouns. Typically, property words of this class cannot function as intransitive predicate, but only as a copula complement. They cannot be head of the NP. When modifying a noun, they do not take morphology that occurs on the noun.

   In the following section, I look at the morphological characteristics of property words in the languages in the sample.

6.2. Morphological characteristics of property words

The morphological characteristics of property words in the sample languages are of key importance. It should be mentioned here that I am exclusively concerned with morphologically simple roots to which no derivational processes have been applied to express 'adjectival' notions. This restriction is necessary because

probably all languages have property words that are derived. Figure 6.1 shows how the central members of the following four *core* semantic classes, as identified in Dixon (1982, 2004b), are encoded: *dimension, age, value,* and *color.* The data suggest that a morphologically distinct class of property words can be identified for more than half of the sample languages, but if we look at the overall picture, including alternative strategies, the dominant way to encode property concepts is by means of verbs. I limit the survey to these semantic classes for the following reason: while most of the grammars contain at least some information about the encoding of these classes, information on the other semantic classes (*physical property*, *human propensity* and *speed*) is often rather fragmentary. Even so, focusing on these core semantic classes can be more revealing. This allows us to use the South American data to test the claim by Dixon (1982, 2004b, 2010) that concepts belonging to the core semantic classes are most likely to be expressed by a morphologically distinct word class.

The division of languages presented in figure 6.1 should be read as follows. At one end of the scale are languages in which the core semantic classes are encoded by adverbs (A) or by verbs (B), while the opposite end of the scale shows languages that use nouns to encode them (D). The middle part of the scale shows languages in which these classes are encoded by lexemes that are morphosyntactically distinct from adverbs, verbs and nouns. These are lexemes that belong to a separate class and are identified as 'adjectives'. In some of these languages, this class has more nominal characteristics, but does not overlap with the class of nouns completely (C2). In others, this class has a mixture of nominal and verbal characteristics, but does not overlap completely with either nouns or verbs (C1). It is not always possible to determine whether adjectives in a language have mixed characteristics or whether they are more nominal, so the division between these types is rather rough (for instance, the characteristics of adjectives in Mapuche and Yanesha' are not clear). Finally, there are languages - marked in capital letters - in which there is a small set of morphologically distinct property words, while most other property concepts are expressed by verbs (E). In these languages, the *central members* of the core semantic classes are expressed by lexemes belonging to different grammatical classes. For instance, such central members as 'big' and 'small' of the core class 'dimension' are encoded by lexemes belonging to different classes, e.g. verbs and nouns. It should be mentioned that while this figure captures the main tendencies in encoding the core property concepts, it cannot reflect the full range of possibilities.

Adverbs	Verbs	Adjectives		Nouns
		Mixed properties (C1)	*Noun-like properties* (C2)	
(A)	**(B)**			**(D)**
HIXKARYANA PANARE TIRIYÓ	Apurinã Bororo Dâw Kamaiurá Kanoê Kwaza Mamaindê Miraña Ninam Puinave Sabanê Tapiete Tehuelche Timbira Wichí Yaminahua URARINA	Emérillon Gavião Hup Karo Leko Mapuche Matsés Mekens Tariana Trumai Yanesha' Yurakaré	Aguaruna Awa Pit Baure Chamacoco Huallaga Quechua Imbabura Quechua Mocoví Nasa Yuwe Northern Embera Pilagá Shipibo-Konibo Warao	Wari' Aymara (?) HIXKARYANA PANARE TIRIYÓ URARINA
		(E) CAVINEÑA CUBEO DESANO IKA ITONAMA JARAWARA MOSETÉN MOVIMA TSAFIKI		

Figure 6.1: The encoding of property concepts in the four core semantic classes.

Key: Languages marked with capitals express the core semantic classes with lexemes belonging to different grammatical classes (e.g. adverbs + nouns, verbs + nouns, adjectives + verbs).

In 22 of the 55 languages in the sample, property words have identical characteristics to nouns, verbs or adverbs, and thus show no evidence for forming a separate class. Among these 22 languages, verbs are the predominant means for encoding property words. A further 24 languages do have a separate adjective class, which covers the majority of property concepts belonging to the four core semantic classes. Finally, nine of the 55 languages have a distinct class

of property words that is very small; the rest of the core property concepts in these languages are expressed by verbs. Thus, the data suggest that the encoding of property words by verbs, either as the main strategy, or as an additional strategy, is dominant in the languages in the sample.

Looking at these groups of languages from a geographic perspective, some general observations can be made (see map 5 in appendix 4 for the geographic distribution of languages according to the categories in table 6.1).

First, if the parameter of comparison is the *availability* of a morphologically distinct (specialized) class of property words (an 'adjective class'), then no particular geographic pattern emerges. Languages with an adjective class are scattered over the continent (see figure 6.1 for the list of the languages). Some languages with such a class (either large or small) are spoken in the Andes and the Andean sphere, e.g. Ika, Huallaga and Imbabura Quechua, Awa Pit, Shipibo-Konibo, Leko, Yurakaré, Mapuche, Nasa Yuwe, Northern Emberá and Yanesha'. There are also quite a few Amazonian languages with an adjective class, e.g. Matsés, Mekens, Gavião, Karo, Hup, Jarawara, Cubeo, Desano, Emérillon, Trumai, and Tariana. For the sample languages of the Chaco area, some of the languages have an adjective class (the Guaycuruan languages and Chamacoco), while others do not (Wichí, Tapiete).

Second, if the parameter of comparison is the morphosyntactic nature of elements encoding property concepts, a certain geographic split can be observed. Languages spoken in the Andes and the Andean sphere seem to have noun-like adjectives, whereas the sample languages spoken in the Amazon have adjectives that are less noun-like.

Third, if we look at the overall picture of how the four core semantic classes are encoded, the dominant way to encode property concepts in the sample languages is by means of verbs. The majority of the languages where verbs are used for this purpose are found *outside* the Andean sphere. Among the exceptions here are Wari', a language spoken in the Southwest Amazon region, where property words are encoded by nouns, and the Cariban languages Hixkaryana, Tiriyó and Panare, where property words are encoded by adverbs and nouns (these languages are discussed in section 6.4).[60]

While a number of structural characteristics have been proposed as areal features in different regions of South America (cf. Derbyshire & Pullum 1986:16-19, Dixon & Aikhenvald 1999:7-10, Crevels & Van der Voort 2008:166-172), so far I have not found reports of any morphosyntactic characteristics of property words as a potential areal feature. Payne (2001:595-6)

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[60] See Stassen (1997:416, 456) for a comprehensive analysis of predicatively used property words in South American languages, and for an analysis of the dependency between the tensedness of a language and the verbal vs. nominal nature of property words.

observes that "[*t*]*he weakness of a class of adjectives*, distinct from nouns and stative verbs" is among the features which "should be evaluated for areal and subareal status".

In earlier work, Payne (1987:41) mentions that "[i]n various South American languages, the class of adjectives is extremely small. Descriptive modifiers within noun phrases are usually nominal. This is true for languages both within and without the Western Amazon". While the present study does not support the observation about the 'usually nominal character' of descriptive modifiers, it does confirm the remark that the adjective class in many languages is very small. For instance, this is the case for Cavineña, Cubeo, Desano, Ika, Itonama, Jarawara, Mosetén, Movima, Tsafiki, which have an adjective class comprising only a few members. At the same time, as shown above, 33 of the 55 languages in the sample do distinguish a morphosyntactically distinct class of adjectives, either large or small.

Section 6.3 discusses examples of languages with a morphologically distinct class of property words, and deals with nominal modification in such languages. Section 6.4 considers languages in which property concepts are encoded exclusively, or predominantly, by nouns, verbs or adverbs, and addresses the strategies used for nominal modification in such cases. Subsection 6.4.4 discusses modification by means of classifying elements.

6.3. Languages with a morphologically distinct class of adjectives

6.3.1. Criteria for adjective status

In a good number of languages the core property concepts are encoded by lexemes of a morphologically separate class. In this section, I will refer to these as adjectives. Although there is some overlap, the criteria on the basis of which adjectives are distinguished in all these languages are often highly language-specific. I will illustrate this by briefly discussing Shipibo-Konibo and Mekens.

In Shipibo-Konibo, adjectives share properties with nouns, but there are several criteria according to which the two word classes can be distinguished. One criterion is the ability to occur with particular morphological markers. For instance, NPs headed by a noun, but not by an adjective, can occur with proprietive or privative morphological markers to derive 'adjectivals':

(5)   Shipibo-Konibo (Panoan; Valenzuela 2003:163)
(a)   *bene-ya*   (b)   [*chopa   kextó*]-**oma**
         husband-PROP   clothes   thick-PRIV
         'married (woman)'   'without thick clothes'

In addition, adjectives, but not nouns, can occur with the suffix -*cha* 'a bit more' and the intensifier -*yora* (example 6a). These markers can also occur on time-location-manner words, and the intensifier can also occur with verbs (example 6b).

(6)   Shipibo-Konibo (Panoan; Valenzuela 2003:164,165)

(a)   *jakon-**yora***   (b)   *keen-**yora***

     good-INTENS   want-INTENS

     'very good'   'to want something very much'

Second, adjectives and nouns take different coordination markers. Adjectives occur with the conjunction *itan*, while nouns take the conjunction *betan*:

(7)   Shipibo-Konibo (Panoan; Valenzuela 2003:164)

(a)   *wiso*   ***itan***   *siná*   (b)   *papa*   ***betan***   *tita*

     black   CONJ   fierce   father   CONJ   mother

     'black and fierce'   'father and mother'

Third, word order in NPs with adjectives as modifiers is different from NPs with nouns as modifiers. When adjectives modify a noun, they can either precede or follow their head. When a noun modifies another noun, by contrast, it can only precede the head. This concerns both compound constructions involving two nouns, and possessive constructions with a nominal possessor.

    In Mekens, adjectives form an open word class, which shows characteristics of both verbs and nouns. Adjective stems are syntactically bound elements that have to occur with a nominal head, which they modify. Such a head can be a noun, a demonstrative pronoun, or a personal prefix (Galucio 2001:35,115). Example (8) shows the adjective stem *same* 'beautiful / good', modifying the noun *ek* 'house'.

(8)   Mekens (Tupian; Galucio 2001:114)

     ek   ***same***   *so-a-r=õt*

     house   beautiful   see-THEM-PST=1SG

     'I saw a beautiful house.'

Galucio (2001:35) notes that an adjective stem is generally preceded by a 3rd person prefix when used in isolation, without specification of the head.

(9)   Mekens (Tupian; Galucio, p.c.)
(a)   ***i-same***   (b)   *aose*   ***same***
         3-beautiful/good   man   beautiful/good
         'someone / something beautiful/good'   'beautiful/good man'

(c)   ***i-pagop***   (d)   *o-tek*   ***pagop***
         3-new   1-house   new
         'someone / something new'   'my new house'

In this respect, adjectives are like inalienable nouns: they cannot occur
independently. However, the difference is in the nature of the relation (a genitive
relation vs. a relation of modification) and the direction of modification
(rightward vs. leftward modification) (Galucio 2001:35-36). Adjectives are also
different from nouns in that they cannot be the head of an NP when they occur
by themselves. With verbs, adjectives share the ability to occur with personal
prefixes "with which they stand in a predicative relation" (Galucio 2001:37).
However, unlike verbs, adjective stems do not take tense-aspect suffixes or
valency changing suffixes, and they cannot occur with the co-reference prefix *se-*
. A feature adjectives share with both nouns and verbs is that they can be negated
with the negative suffix *-ap*. In that case, negation only has scope over the
adjective and not over the whole NP.

6.3.2. Adjectives in different functions

Property words that constitute a separate adjective class are basically always able
to occur in direct modification constructions when used within the NP
(schematized in figure 6.2). This points to the presence of nominal properties in
the adjectival class. In addition, they can occur as predicates or as copula
complements outside the NP depending on whether they are more like verbs or
nouns, respectively.

Argued class	Domain	Construction complexity	Construction
'Adjectives'			
	Within the NP:		
		simple NP:	direct modification
	Outside the NP:		
			as copula complement
			as predicate

Figure 6.2: Morphosyntactic behavior of adjectives within and outside the NP.

In what follows, I discuss Hup and a number of Quechua varieties to illustrate the behavioral patterns of adjectives in these languages. In Hup, adjectives show mixed properties of nouns and verbs, while adjectives in Quechua are clearly noun-like. After that I briefly consider Cavineña, which has separate sets of adjectives for attributive and predicative use.

In Hup the class of adjectives is relatively small (Epps 2008:441). In spite of the fact that they share some properties with verbs and nouns, they differ in terms of a number of important criteria. When used as noun modifiers, adjectives structurally resemble obligatorily bound nouns, but unlike these, adjectives can occur as bare stems predicatively (Epps 2008:331). Constituent order is another feature that distinguishes the two types of modifiers. While adjectives as modifiers always follow the head noun, bound nouns as modifiers precede the head (Epps 2008:326,441).

(10)   Hup (Nadahup; Epps 2008:326)
(a)   *…tod*   ***pŏg***
         …hollow.tree   big
         '…a big hollow tree'

(b)   *hɨd   nɔg'od*   ***j'ǎ***   *pæm-hi-ham-tég*
         3PL   mouth   black   sit-descend-go-FUT
         'They'll all be sitting around with black mouths (from eating coca).'

When used predicatively, adjectives pattern much like verbs, e.g. they can take verbal negation, or aspectual inflection (11a). However, unlike verbs they do not require any of the Boundary suffixes (e.g. an aspect-marking inflectional form -*óy* shown in example 11a). A bare adjective stem used predicatively is illustrated in (11b).

(11)   Hup (Nadahup; Epps 2008:444)
(a)   *yúp*   *tegd'uh*   ***póg-óy***
         that.ITG   tree   big-DYNM
         'That tree is getting bigger.'

(b)   *yúp*   *tegd'uh*   ***póg***
         that.ITG   tree   big
         'That tree is big.'

Another property that distinguishes adjectives as a separate class is that they can occur both with verbal and with nominal negation markers, depending on their

function in the clause. Verbs, by contrast, take only verbal negators, and bound nouns take only nominal negators. Like the adjective roots in Mekens discussed earlier, bare adjectives in Hup cannot be the head of an NP. In order to function as a nominal head, adjectives are obligatorily preceded by the bound 3rd person singular pronoun *tɨh=* (Epps 2008:331,442).[61]

Quechua is a group of languages in which adjectives are often treated as a subclass of nouns in the literature (Weber 1989:35 for Huallaga Quechua, Schachter & Shopen 1985 (revised 2007:17) and Rijkhoff 2002:15-18 for Quechua in general). The often-cited arguments for this claim include: both adjective and noun in Quechua can take nominal morphology (plural marker -*kuna* and case markers); both can function as a head in the NP; both can be used as modifiers in the NP; and they are not distinguished grammatically in attributive use (12a,b) or as copula complements (12c,d).

(12)   Huallaga Quechua (Quechuan; Weber 1989:36)

(a)   *hatun   wasi*   (b)   *rumi   wasi*
         big   house   stone   house
         'big house'   'stone house'

(c)   *taqay   hatun   ka-yka-n*   (d)   *taqay   rumi   ka-yka-n*
         that   big   be-IMPFV-3   that   stone   be-IMPFV-3
         'That one is big / a big one.'   'That one is stone / a stone.'

However, Weber (1989:36) mentions that elements like the intensifier *sumaq* 'very' and -*nnin* 'superlative' can occur with adjectives but not with nouns. Similar observations are made for Imbabura Quechua by Cole (1982:99): *may* 'very' can be used with adjectives but not with nouns. In addition, Adelaar with Muysken (2004:208) note for examples from Ayacucho Quechua that "the main criterion for establishing the difference is that a noun can function by itself as the subject of the sentence, whereas real adjectives can only act as subjects when followed by an element that indicates their status as an independent item". This is frequently fulfilled by the element *ka-q* '(the one) that is', resulting in, for instance, *hatun ka-q* 'the (a) big one'.

Floyd (2011) examines several dialects of Ecuadorian Highland Quechua, specifically addressing the issue of adjectives as a separate class in this language. He shows that adjectives stand out robustly as a separate class. Although there is overlap not only between adjectives and nouns, but between verb, noun, adjective and adverb classes, there are several morphosyntactic criteria,

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[61] The only exception is the form *cípmæh* 'small', which cannot take *tɨh=* and cannot occur as a nominal head at all (Epps 2008:327).

strengthened by semantic and/or pragmatic evidence, that help to identify the adjective class. Floyd gives the following major differences between nouns and adjectives:

(a) *modification properties*: "[a]djectives and nouns cannot equally modify nouns. Modifying nouns form compounds (NN) that can be further modified by adjectives (ANN). Modifying adjectives form attributive noun phrases (AN) that CANNOT be further modified by nouns (*NAN), but CAN stack further adjectives (AAN). Additionally, adjectives and nouns cannot be modified equally: nouns are modified by adjectives (AN) but adjectives cannot be modified by nouns (*NA)" (Floyd 2011:58).

(b) *degree and intensification process*: "[a]djectives and adverbs can be specified for degree through reduplication or with degree words, while nouns cannot" (Floyd 2011:58).

(c) *pragmatic constraints*: "[w]hen an adjective "heads" a noun phrase speakers will seek a recoverable referent to resolve the ambiguity; if no such referent is available, the utterance is not successful. When a noun is used as a noun phrase head no such ambiguity results" (Floyd 2011:58-59). Floyd (2011:44) mentions two different phenomena that are conflated in the literature when it is argued that Quechua adjectives can head an NP. One is that the majority of adjectives can head an NP under restricted conditions, i.e. when an elliptical nominal head is available anaphorically. The other concerns specific adjectives which "have acquired conventionalized nominal meanings that allow them to head noun phrases without restrictions". He gives example of the adjective *uchilla* 'little', which has the conventional meaning of 'child' in discourse situations where no overt nominal head or likely candidate for anaphoric reference is available.

With respect to the argument that both nouns and adjectives in Quechua take number and case marking, Floyd (2011:58) notes that the occurrence of these markers is much wider that just the noun class, thus "making it a poor diagnosis of class membership". With regard to lexical semantics, he concludes that while some words have both adjectival and nominal meanings, this can be observed for all major word classes; and that "[t]here is no evidence that nouns and adjectives overlap any more than any other two classes".

In Cavineña, a Tacanan language in the sample, there are two different sets of adjectives: a closed set of attributive adjectives comprising 16 members, and an open set of predicative adjectives, comprising more than 170 basic members. Semantically, attributive adjectives belong to the semantic groups of dimension, age, color, and physical properties (Guillaume 2008:73). Some of the attributive adjectives are forms which partially overlap with predicative adjective forms for the same meaning. In general, predicative adjectives can express the same range of concepts, as well as others (dimension, age, color, physical properties, human

propensities, etc). Attributive adjectives function only as modifiers within the NP and cannot function as copula complements. Guillaume (2008:465) notes, however, that such attributive adjectives are used more rarely than predicative adjectives. Predicative adjectives primarily occur as copula complements, and can be used attributively only with a relative clause construction that is marked by =*ke* ('ligature') (Guillaume 2008:68,360). Example (13a) illustrates the use of attributive adjectives, while example (13b) shows predicative adjectives used attributively.

(13)   Cavineña (Tacanan; Guillaume 2008:468,360)
(a)   *wiwipa*   **wiri***=ra=ta=Ø*   *dunu-wa*
          eagle   tiny=ERG=EMPH(=1SG-FM)   surround-PERF
          'The tiny eagles surrounded me.'

(b)   *...jae=ra*   *tinu-kware*   *amena*   *wika*   **ari-da***=ke...*
          fish-ERG   pull-R.PST   FILL   hook   big-ASF-REL
          '…the fish pulled the big hook (lit. the hook that is big)…'

Morphological criteria for distinguishing attributive adjectives from other word classes include the following: they are bare roots, cannot take any affixes, cannot be reduplicated, negated, or take modifiers. Syntactically, attributive adjectives differ from other word classes in that they cannot stand by themselves, and require a head noun (Guillaume 2008:466). The main criterion for distinguishing predicative adjectives from other word classes with similar properties is that they cannot function as the head of a predicate (Guillaume 2008:357).

    Table 6.1 gives the full list of languages that are reported to have a separate class of adjectives (whether large or small). The table also shows the most frequent order for the adjective and noun in these languages. Constituent order is discussed in more detail in section 6.4.1.

Language	Class of underived adjectives?	Preferred constituent order
Hup	Yes	N-Adj
Matsés	Yes	N-Adj
Cavineña	Yes	N-Adj
Jarawara	Yes	N-Adj
Mekens	Yes	N-Adj
Karo	Yes	N-Adj
Trumai	Yes	N-Adj
Pilagá	Yes	N-Adj
Chamacoco	Yes	N-Adj
Gavião	Yes	N-Adj
Aguaruna	Yes	N-Adj (BUT: mainly used predicatively)
Huallaga Quechua	Yes	Adj-N
Imbabura Quechua	Yes	Adj-N
Leko	Yes	Adj-N
Mapuche	Yes	Adj-N
Shipibo-Konibo	Yes	Both: no order dominant
Mocoví	Yes	Both: no order dominant
Yurakaré	Yes	Both: no order dominant (BUT: mainly used predicatively)
Tariana	Yes	Both: depends on the modifier, and the head
Awa Pit	Yes	Both: depends on the modifier, and the head
Baure	Yes	Both: depends on the modifier (BUT: mainly used predicatively)
Mosetén	Yes	Both: depends on the head
Movima	Yes (?)	Adj-N (compounds)
Yanesha'	Yes (?)	Adj-N (compounds)
Emérillon	Yes (?)	Both: no order dominant (relative clause construction)
Northern Embera	Yes (?)	N-Adj
Ika	Very small	N-Adj
Itonama	Very small	N-Adj
Desano	Very small	Adj-N
Tsafiki	Very small	Adj-N
Cubeo	Very small	Both: depends on the head
Nasa Yuwe	Yes (?)	N-Adj
Warao	Yes (?)	N-Adj (?)

Table 6.1: Languages in the sample with a class of adjectives.

6.4. Languages without a morphologically distinct class of adjectives

Many languages in the sample do not have a distinct class of adjectives. In the following sections, I discuss the different strategies for property words in these languages when used attributively.

6.4.1. Property words: category of nouns

In some languages in the sample property words belong to the grammatical category of *nouns*. Figure 6.3 presents an overview of the strategies used by such languages.

Argued class	Domain	Construction complexity	Construction
'Nouns'			
	Within the NP:		
		simple NP:	direct modification
		complex NP:	possessed noun
	Outside the NP:		
			as copula complement

Figure 6.3: Property words in the class of nouns.

As shown in figure 6.3, property words of this type require either a construction of direct modification or a possessive construction when used as modifiers within the NP. The latter is found only in one language group, Wari'. Outside the NP, they occur as copula complements.

As discussed in the previous chapter, there is a number of languages in the sample in which property words share syntactic and morphological characteristics of nouns. However, there are some characteristics that point to some differentiation between the two classes in those languages. This section considers two languages, Aymara and Wari', which are reported not to have a distinct adjective class and where property words belong to the class of nouns. In addition to these two, there are four further languages that use nouns as one of the main means to express property concepts: Urarina (nouns and verbs) and Tiriyó, Hixkaryana and Panare (nouns and adverbs). The Cariban languages, where property words are not part of the NP, will be discussed in section 6.3.2.3.

For Aymara, it may well be the case that no specific attempt has been made to consider potential differences between property words and nouns like we have seen for Quechua. Hardman (2001:193) gives the following characteristics of NPs with property words. She notes that the most common type of NP is [noun noun], with the first noun modifying the second one. While there are certain tendencies, any nominal in such constructions may, in principle, function as the head or as the modifier (but always with the head noun last). Hardman mentions that the first noun in the modifier position is limited with respect to the morphological markers it can receive: it can only occur with the following three suffixes: *-naka* 'plural', *-na* 'possessive' and *-ni* 'possessor'. Unfortunately, the grammar provides no further information about words denoting property concepts. In the description by Cerrón-Palomino & Carvajal Carvajal

(2009:185), property words are described as a sub-class of nouns from a morphosyntactic and a semantic perspective. The authors use the term 'adjectives' when referring to modifiers of nouns with such adjectival meanings as 'big', 'small', 'cold', 'new', etc. (Cerrón-Palomino & Carvajal Carvajal 2009:204-205). However, no further information is found discussing their behavior.[62]

The examples in (14) are taken from Hardman's Aymara grammar; they illustrate the attributive use of property words in Aymara. The examples in (15) are adopted from the description by Cerrón-Palomino & Carvajal Carvajal (2009). Note that the glosses as given in the original sources are preserved here; for that reason, the same suffix -*wa* is given as 'evidential' in (15c), while it is glossed as 'sentence suffix / affirmative' in (14b). With respect to example (15c), it would be interesting to see if Aymara nouns that do not have typical adjectival semantics can also occur with such pre-modifiers as *sinti* 'very'.[63]

(14)   Aymara (Aymaran; Hardman 2001:197,193)

(a)   *jach'a*   *janq'u*   *uta-naka*   (b)   *janq'u*   *ch'uqi-wa*
       big   white   house-PL   white   potato-AFM
       'the big white houses'   'It's a white potato.'

(15)   Aymara (Aymaran;   Cerrón-Palomino   &   Carvajal   Carvajal
        2009:205,189)

(a)   *machaqa*   *marka*   (b)   *junt'u*   *uma*
       new / young   town   hot   water
       'new / young town'   'hot water'

(c)   *uta-ma-xa*   *sinti*   *jach'a-wa*
       house-2POS-TOP   very   big-EVI
       'Your house is very big.'

In Wari', property words are also described as having the same characteristics as nouns (cf. Everett & Kern 1997:148). The occurrence of property words as noun modifiers within the NP is observed much less often than their use as predicates (Joshua Birchall, p.c.). If property words occur within the NP, modification takes the form of a possessive construction. Namely, "the first syntactically nominal element occurs with a genitive morpheme (nominal inflectional clitic or suffix)

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[62] Matt Coler (p.c.) notes that there is no evidence for a separate adjective class in the Muylaq' variant of Aymara.

[63] See Cole (1982:99), who mentions that 'very' in Imbabura Quechua can apply only to adjectives but not to nouns.

and is understood as modifying the second noun" (Everett & Kern 1997:342). The genitive nominal elements that modify the head noun are shown in example (16).

(16)   Wari' (Chapacuran; Everett & Kern 1997:333)
 (a)   *wijima-in*   *xirim*
         smallness-3N   house
         'small house' (lit: 'the house's smallness')

(b)   *'an*   *'ina-on*   ***xocori-con***   ***wom***
         take:SG   1SG:RP/P-3SG.M   newness-3SG.M   cotton
         'I got a new dress.'

Example (17) shows property words used predicatively.[64] The form *na* in this example is a Verbal Inflectional Clitic encoding tense / mood, person and number (see Everett & Kern 1997:324). Compare examples (16a) and (17a), and (16b) and (17b).

(17)   Wari' (Chapacuran; Everett & Kern 1997:343)
(a)   *wijima-in*   *na*   *xirim*
         smallness-3N   3SG:RP/P   house
         'The house is small.'

(b)   *xocori-con*   *na*   *wom*
         newness-3SG.M   3SG:RP/P   cotton
         'The dress is new.'

Example (18a) illustrates the use of a derived noun as a modifier. When property concepts expressed by derived nouns occur predicatively, their non-derived verb forms are used (18b).

(18)   Wari' (Chapacuran; Everett & Kern 1997:332, 335)
(a)   [***ca***   ***xain***]   *nein*   *mijac*
         INFL:N.RP/P   hot   POS:3N   pig
         'roasted (lit. hot) pig'

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[64] These examples show some of the so-called *-xi'* nouns which can inflect only for 3rd person and cannot be inflected for 1st and 2nd person for possession. See Everett & Kern (1997:343) for examples of *-xi'* nouns which require a different inflection.

(b) **paca'** *na*   *wom*
     red   3SG:RP/P   cotton
     'The clothes are red.'

6.4.2. Property words: category of verbs

This subsection discusses languages in the sample in which property concepts are encoded by verbs. Figure 6.4 schematizes the strategies used to express attributive meanings in these languages.

Argued class	Domain	Construction complexity	Construction
'Verbs'			
	Within the NP:		
		complex NP:	modification by nominalized verbs
			relative clause construction
	Outside the NP:		
			as a predicate

Figure 6.4: Property words in the class of verbs.

As shown in figure 6.4, these property words can modify a noun through a process of nominalization or with a relative clause construction. A large number of languages in the sample also use nominalization as a strategy for subordination. This implies that there is quite a bit of terminological diversity. Markers introduced with the glosses NMZ 'nominalizer' and ATTR 'attributive maker' both function as verb nominalizers and introduce at least one type of subordinate clause. Likewise, markers introduced with glosses REL 'relativizer' and SUB 'subordinate marker' are functionally similar, but will be used here unchanged as in the corresponding sources.

In what follows, I look at the encoding of property words in a selection of four languages from the sample that use verbs as the dominant strategy to express property concepts: Kwaza, Puinave, Miraña and Timbira.

In Kwaza, property concepts are encoded by verb roots that take canonical verbal inflections (Van der Voort 2004:94). Attributive modification in general "is achieved through the juxtaposition of a modifying noun to a head noun. The modifying noun can be a bare noun or a noun derived from another noun, a verb or an adverb" (Van der Voort 2004:180). It should be mentioned that Kwaza is among the languages in which relative clauses are formed by means of nominalization. Thus, there is no formal difference between the two. Van der Voort (2004:181) points out that "nominalized verbs represent verb-noun derivations which may range in complexity between a morphosyntactically very simple predicate with a semantically attributive root, to a fully-fledged relative

clause-like finite verb phrase with case marked arguments and all." The following examples illustrate the attributive use of the verb roots *'ki-* 'to be ripe' and *txi-* 'to be big', which can be nominalized by the semantically neutral classifier *-hỹ* (19a), a regular classifier or another nominalizer (19b).

(19)   Kwaza (unclassified; Van der Voort 2004:94,187)
(a)   *'manka   'ki-hỹ   'ja-da-ki*
        mango   ripe-NMZ   eat-1SG-DECL
        'I ate a ripe mango.'

(b)   *tsitõ'jẽ   txi-tõi-'tɛ*
        star   big-CLF:eye-NMZ
        'big star'

When used predicatively (20), such verbal roots occur directly with the declarative suffix *-ki*.

(20)   Kwaza (unclassified; Van der Voort 2004:190)
        ho'ho-ki
        dirty-DECL
        'It is dirty.'

In Puinave, as in Kwaza, property concepts are mainly expressed by verbal roots, which receive the attributive (nominalizing) prefix *-i* (Girón 2008:296). The following examples illustrate this.

(21)   Puinave (unclassified; Girón 2008:232,297)
(a)   *jǎ'   **i-peʞ***   (b)   *naʈ   yoʈ-ot   **i-piʞ-ot***
        canoe   ATTR-big   DEM   dog-PL   ATTR-black-PL
        'big canoe'   'these black dogs'

Such verbal roots can also take personal prefixes and function as predicates:

(22)   Puinave (unclassified; Girón 2008:297)
        ka-jɣ̂u-da   *a-yu ýoʈ-ot*
        3PL-dry-ASSR   1SG-clothes-PL
        'My clothes are dry.'

In Miraña, there is no conclusive evidence for a separate class of adjectives either. Adjectival meanings are expressed either by relative clauses or by

nominal expressions that include class markers (Seifart 2005:51). The following example shows the noun 'paddle' modified by a relative clause marked with a high tone on the first syllable of *tsɨ́tsɨ́:-gwa* (Seifart 2005:133).

(23)   Miraña (Boran; Seifart 2005:134)
  boʔdó-gwa   **tsɨ́tsɨ́:-gwa**
  paddle.NMZ-SCM.2d.straight white.SUB-SCM.2d.straight
  'white paddle'

Relative clauses in Miraña can be rather complex. Property concepts are encoded by 'minimal' relative clauses. As shown in example (24), *tsɨ́tsɨ́:-* 'white' also can function as a predicate of the main clause. In this case the tone falls on the second syllable of *tsɨ́tsɨ́:-* and it occurs with the predicative marker *-ʔi* (Seifart 2005:133).

(24)   Miraña (Boran; Seifart 2005:134)
  boʔdó-gwá   **tsɨtsɨ́:-ʔi**
  paddle.NMZ-SCM.2d.straight white-PRD
  'The paddle is white.'

For Timbira, Alves (2004:50) argues that stative verbs are used to encode property concepts. For attributive modification, a relative clause construction is used. The following examples illustrate the use of the verb *mpɛi* 'to be good' as the predicate of a clause (25a) and as a noun modifier (25b).

(25)   Timbira (Macro-Ge; Alves 2004:58,59)
(a) *rɔp* *mpɛi*
   dog good
   'The dog is nice.'

(b) **rɔp** **ita** **mpɛi** *nɛ̃* *iʔ-tɨk*
   dog REL good SS 3-die
   'The nice dog died.' [Lit. the dog which is nice died]

Timbira also has a number of stative verbs that express adjectival meanings but can modify a noun directly, without the use of the relative marker. These instances are shown in (26).

(26)   Timbira (Macro-Ge; Alves 2004:59)
(a)   ***rɔp   j-aka   tɨk***
         dog   RLT-white   die
         'The white dog died.'

(b)   ***ikrɛ   vɛj   ita   tɛ   katʃwər***
         house   old   DEM   POSTP   burn
         'The old house burned.'

(c)   *ikrɛ   ita   **vɛj***
         house   DEM   old
         'The house is old.'

Alves (2004:60) mentions that words like *aka* 'be white', *vɛj* 'be old', *pɨtĩ* 'be heavy' are currently treated as verbs, but future studies may prove that these form a separate adjective class.

6.4.3. Property words: category of adverbs

In the Cariban languages in the sample, Tiriyó, Hixkaryana and Panare, some property words belong to the category of nouns and some to the category of adverbs (Derbyshire 1979, Meira & Gildea 2009, Sérgio Meira p.c.). Meira & Gildea (2009:100) note that nouns with adjectival meanings do not differ in morphosyntactic properties from other semantic groups of nouns (e.g. they can function as subject and object, they can take possessive morphology, they can co-occur with meaning-changing elements, and be arguments of postpositions). Semantically, they can include such properties as 'big', 'thick', 'hard', 'deep', 'alive' in Tiriyó; 'good', 'big', 'heavy', 'deep' in Hixkaryana (see Meira & Gildea 2009:100), and 'big' and properties denoting age in Panare (Sérgio Meira, p.c.). I mentioned in section 6.3.2.1 that property concepts expressed by nouns in the three Cariban languages are best treated as NPs on their own that are syntactically independent from their semantic head noun (Derbyshire 1979:44, Meira 1999:515, Meira & Gildea 2009:114). This is supported by the free constituent order between such 'heads' and 'modifiers': a modifier can precede or follow the head, or be non-contiguous with it. In Hixkaryana, for instance, the two constituents are always separated by a pause (Meira & Gildea 2009:114).

(27)   Hixkaryana (Cariban; Meira & Gildea 2009:115)
         *hɨ:…   ka-je   hatɨ,   **wajamo,   wosɨ***
         all.right   say-PST   HRSY   turtle   woman
         ' "All right…" said the turtle, the woman/female (turtle).'

While some property concepts are encoded by nouns, others show characteristics of adverbs. Members of the adverb class that are typically translated by adjectives include such properties as 'good', 'small', 'black', 'red', 'stupid', 'wild' (for Tiriyó); 'good', 'round', 'slow', 'strong', 'red', 'gentle, polite' (for Hixkaryana) (Meira & Gildea 2009:102, 105); 'small', 'deep' and properties of the value and color category (for Panare) (Sérgio Meira, p.c.).[65] There have been arguments against the adverbial analysis of property words in Cariban languages, specifically in Dixon (2004b:29). Meira & Gildea (2009) provide a detailed analysis of the semantic, syntactic and morphological characteristics of property words in several languages of the family. Comparing the characteristics with the relevant word classes, they demonstrate that an analysis of property words in terms of nouns and adverbs, as first proposed by Derbyshire (1979), is absolutely justified. Meira & Gildea (2009:120-121) provide the following arguments in support of the adverbial analysis of a subgroup of property words: "the category shares syntactic distributional properties with postpositional phrases, including (i) the ability to occur as the predicate of a copular clause, (ii) the ability to modify a verbal predicate, and (iii) the need to be nominalized in order to attributively modify nouns". The following examples illustrate the occurrence of adverb *kuɾe* 'good' modifying a verb (28a), and its occurrence in a nominalized form as a noun modifier (28b).

(28)   Tiriyó (Cariban; Meira & Gildea 2009:101, 114)

(a)   **kuɾe**   *tɨ-ɾə-e*   *i-:ja*
        good   PST-make-PST   3-AGT
        'He made it (=a blanket) well.'

(b)   *o:ni*   *po*   *nai,*   **kuɾa-no**   **epeɾu,**
        that   LOC   3.COP   good-NMZ   fruit

        əmɨja-n   *epeɾu*   *maɾə,*   *tɨ:-ka-e*
        soft-NMZ   fruit   too   PST-say-PST
        ' "Over there (there) are good fruits, soft fruits too," (he) said.'

Meira & Gildea (2009:121) note that important patterns that argue against the adjective analysis include: "adjectives do not typically occur modifying verbal predicates, whereas the Cariban class of adverbs typically does" and "adjectives do not usually pattern morphosyntactically with adpositional phrases. In the

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[65] The property 'good' can be expressed by *eɲhoru* (a member of the class of nouns) and *ohʃe* (a member of the class of adverbs) in Hixkaryana (see Meira & Gildea 2009:100, 105).

languages in question, however, adpositional phrases share with adverbs all the morphosyntactic properties".

Table 6.2 below gives an overview of the languages in the sample that do not have a morphosyntactically distinct class of property words (an 'adjective class').

Language	Class of underived adjectival elements?	Morphology applied for attributive use	Preferred constituent order
Aymara	No (?): nouns	-	Property-N
Wari'	No: nouns	Possessive marker	Property-N
Kwaza	No: verbs	Clf/ Nominalizer	Property-N
Kanoê	No: verbs	Clf/ Nominalizer	N-Property
Puinave	No: verbs	Nominalizer	N-Property
Kamaiurá	No: verbs	Nominalizer	N-Property
Sabanê	No: verbs	Nominalizer	N-Property
Miraña	No: verbs	Rel.clause construction	N-Property
Timbira	No: verbs	Rel.clause construction	N-Property
Wichí	No: verbs	Rel.clause construction	N-Property
Bororo	No: verbs	Rel.clause construction	N-Property (?)
Dâw	No: verbs	Nominalizer (?)	N-Property
Ninam	No: verbs	Nominalizer (?)	N-Property
Yaminahua	No (?): verbs	?	N-Property
Tapiete	No: verbs	Nominalizer (?)	?
Urarina	No: verbs and nouns	Nominalizer	Both: depends on the modifier
Tehuelche	No: verbs	Nominalizer	Both: no order dominant
Apurinã	No: verbs	n/a (used predicatively)	n/a
Mamaindê	No: verbs	n/a (used predicatively)	n/a
Hixkaryana	No: adverbs, nouns	n/a (used adverbially)	n/a
Tiriyó	No: adverbs, nouns	n/a (used adverbially)	n/a
Panare	No: adverbs, nouns	n/a (used adverbially)	n/a

Table 6.2: Languages in the sample which are reported to lack a distinct adjective class.

As seen in table 6.1 and table 6.2, property words cannot always be used for noun modification within the NP, but the predicative use is invariably available. In general, this reflects the result of an empirical study by Thompson (1988) (referred to in Payne 1997:63), that "the most common functions of words that express property concepts are (1) to predicate a property of some referent already on the discourse stage, and (2) to introduce new participants into the discourse".

6.4.4. Encoding of property concepts with classifying elements

Some languages in the sample specify the referent of the NP with classifying elements. This has also been observed by Payne (1990:220). Payne notes for the languages of the Western Amazon region that many of these "lack, or else have

an extremely small set of morphologically simple adjectives". She continues that "[i]t hardly follows however, that there are no means of descriptively modifying nouns. Modification is often achieved by suffixing a classifier or other modifying affix to the noun". Such uses of classifying elements are illustrated next for two languages in my sample.

In Tariana, there are no specific property words "which refer to form, e.g. round, hollow, curved; the corresponding meanings are expressed with the help of classifiers" (Aikhenvald 2003:72). This is demonstrated by the following example.

(29)   Tariana (Arawakan; Aikhenvald 2003:72)
         *kanaɾi   hanu-**kwema***
         mirror   big-CLF:flat.round
         'big round mirror'

In Mamaindê, classifying elements are "a crucial component in the morphology" of the language (Eberhard 2009:330). The following examples show how classifying elements can function as modifiers of nouns.

(30)   Mamaindê (Nambikwaran; Eberhard 2009:353)
(a)   *jañan-**kalokalon**-tu*   (b)   *jañan-**tunni**-tu*
         jaguar-CLF:spotted-FNS   jaguar-CLF:black-FNS
         'spotted jaguar'   'black jaguar'

(c)   *jaho-**ĩu**-tu*
         old.man-CLF:stutterer-FNS
         'an old man who stutters'

As the example from Mamaindê shows, the use of classifying elements functioning as modifying property words is also found in the South Amazon region.

6.5. Further issues

A central topic in typological research has been the order of noun and property word within the NP, and its relation to the order of constituents at the level of the clause (section 6.5.1). NP-internal phenomena like the presence and realization of agreement are also relevant here (section 6.5.2).

6.5.1. Constituent order

As can be seen from table 6.1 and 6.2 above, the most common order is head noun preceding property word. This holds for property words of all categories that function as modifiers. This order is found in 26 languages. The order of modifier preceding the head is found in 12 languages of the sample. In five languages the constituent order is free with no obvious semantic difference. In six languages the order depends on characteristics of the head and/or characteristics of the modifier.

As already mentioned, characteristics of the head that can influence the order include the animacy of the head noun, and the specificity / definiteness of the referent. For instance, in Mosetén there is a tendency for modifiers to occur postnominally with animate heads and prenominally with inanimate heads (Sakel 2004:82). In Cubeo and Tariana, property words usually precede the head if this is specific and / or definite (Morse & Maxwell 1999:92 for Cubeo, Aikhenvald 2003:562 for Tariana).

Characteristics of the modifier that can influence constituent order include the derived or underived status of the modifier, and the borrowed or native nature of the modifier. For instance, in Baure derived adjectival forms are mainly postnominal, while those that do not require derivation are predominantly prenominal (Danielsen 2007:168). In Awa Pit, the constituent order is noun before property word if the latter is a native form. However, when a property word is a Spanish loan, the order can be reversed, especially if the head noun is also a loan (Curnow 1997:119).

Table 6.3 provides information on constituent order in languages with a separate class of adjectives and in languages without a separate adjective class; therefore, the terminological distinction between 'adjective' and 'property word' is maintained in this table.[66]

Constituent order of noun and property word	# of lang-s	Constituent order of noun and adjective	# of lang-s	Total:
N-property word	11	N-adjective	16	**27**
property word-N	3	adjective-N	8	**11**
both orders	2	both orders	9	**11**
n/a: not part of the NP	5	n/a: not part of the NP	0	**5**

Table 6.3: Order of adjective / property word and noun in the languages of the sample.

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[66] Table 6.3 and 6.4 do not include one language in the count (Tapieté), as information on constituent order is lacking.

It has often been assumed that the order of verb and object correlates with the order of noun and property word. For instance, Dryer (1992:95) refers to Lehmann (1973) and Vennemann (1974), who argue that VO languages tend to have the [N-property word] order, while OV language tend to show the opposite order. Dryer (1988, 1992) examines data from a large number of languages and shows that there is no evidence for any correlation of this kind.[67] His results demonstrate that VO languages do not have a tendency for the order [N-property word], and that OV languages do not have a tendency for the order [property word-N]. He finds just the opposite in this case: in five of the six geographic areas considered in his study, OV languages have [N-property word] as the most common order (1992:95). Having examined the proportions of the orders [N-property word] and [property word-N] in OV and VO languages Dryer finds few differences between the proportions, which are "well within the range of random variation" (1992:96). On this basis, Dryer (1992:96) concludes that *noun* and *property word* is not a correlation pair.[68]

As noted, the languages in my sample show a strong preference for an order in which the noun precedes the property word, irrespective of the grammatical status of the property word. Table 6.4 below compares constituent order at the clause level with the order of noun and property word (as a semantic category).

Constituent order of noun and property word	Constituent order in the clause	# of languages	Total # of languages
NOUN - property word	OV	18	26
	VO	5	
	OV/VO + free order	3	
property word - NOUN	OV	7	11
	VO	4	
	OV/VO + free order	-	
both orders	OV	5	9
	VO	2	
	OV/VO + free order	2	
n/a: property word is not part of the NP	OV	4	8
	VO	2	
	OV/VO + free order	2	

Table 6.4: Order of property word and noun and constituent order at the clause.

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[67] It should be mentioned that Dryer (1988, 1992) examined property words as a semantic category, which thus may be expressed by different grammatical categories (e.g. verbs).

[68] See Dryer (1992:96) for detailed comments on the apparent controversy that the order of relative clause and noun is a correlation pair and does correlate with the order of verb and object, while the order of property word (which is expressed by verbs or relative clauses in some languages) and noun is not considered a correlation pair, and shows no correlation with the order of verb and object.

This overview shows that the order [N-property word] is common in both OV languages and VO languages (i.e. either V-initial or SVO).[69] However, if we look at the order of constituents at clause level in the languages in my sample, we find that the majority of languages have OV order. Specifically, 35 out of the 55 languages have OV order, eight have SVO order, six V-initial, and seven have either free or VO/OV order. It is questionable to speak of a correlation here, also for the following reason. In the survey of 1366 languages worldwide, Dryer (2011d) shows that the order [N-property word] is twice as common as the order [property word-N]. The former occurs in 878 languages, while the latter is found in 373 languages. In addition, he finds geographic patterns, with South America as a continent having [N-property word] as the predominant order. This geographic pattern is confirmed by this study.

6.5.2. Agreement

A working definition of agreement was provided in chapter 2, and is repeated here as "some systematic covariance between a semantic or formal property of one element and a formal property of another" (Steele 1978:610, cited in Corbett 2006:4). In this section, I focus on agreement between a noun and a modifying property word; the noun is taken as the agreement controller, the property word as the agreement target, and gender, number and physical properties as agreement features.

6.5.2.1. Agreement in gender

Four languages in the sample show agreement in all three features, gender, number and physical properties, viz. Cubeo, Desano, Tariana, and Miraña. Agreement in gender and physical properties in these languages is realized by classifiers or class markers. In addition to these four languages, agreement in gender between nouns and property words is found in Mosetén, Wari', Pilagá, Mocoví, Tehuelche and Chamacoco.

The following example from Cubeo illustrates agreement in gender between property words and singular animate nouns. With inanimate nouns, property words show agreement in physical properties by taking the same classifier as the noun.

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[69] Dryer (1992:87) does not distinguish between V-initial languages and SVO languages and treats them as VO, although Dryer (2008) does makes the distinction.

(32)   Cubeo (Tucanoan; Morse & Maxwell 1999:127)

(a)   *xɨejo-xĩ-kɨ*   *kĩ-xĩ-kɨ*   (b)   *jawibĩ*   *ɨra-kɨ*

child-DIM-M   little-DIM-M   dog   big-M

'little boy'   'big dog'

(c)   *tataro-ko*   *ɨra-ko*

butterfly-F   big-F

'big butterfly'

In Tehuelche, the derived forms of property words receive a gender marker agreeing with the gender of the head noun (-*K* 'masculine', Ø 'feminine' / 'neuter') (Fernández Garay 1998:136, 192).

(33)   Tehuelche (Chonan; Fernández Garay 1998:192)

(a)   *le* [7]   *tˊaːrte-n-K*

water   dirty-NMZ-M

'dirty water'

(b)   *kaːrken*   *kˊete-n-Ø*

woman   beautiful-NMZ-F

'beautiful woman'

Example (34) is from Chamacoco. Gender and number are marked both on the modifying property word and on the noun itself.

(34)   Chamacoco (Zamucoan; Ciucci, p.c.)

(a)   *phi-ch*   *turkaabɨ-t*

wood-M.SG   short-M.SG

'short stick'

(b)   *esee=ni   hno   o-ch-ichew   jotsɨ-t   bahlu-t=ni*
DEM=PST   3.go   3PL-3-dig   hole-M.SG   big-M.SG=PST
'Then, they went to dig a deep hole.'

6.5.2.2. Agreement in number

In addition to Cubeo, Desano, Tariana and Miraña, which show agreement in all three agreement features, agreement in number is found in Puinave, Chamacoco, and Gavião (with some property words). It is optionally present in Mosetén,

Pilagá and Mocoví. Some instances of agreement in number are also found in Warao and Yanesha', but these seem to be exceptions.

The following examples are from Puinave, where the derived stems of the property word *i-yiḱ* 'big one' and *i-piḱ* 'black one' occur with the plural marker that is also present on the head noun:

(35)   Puinave (unclassified; Girón 2008:233,297)

(a)   *jǎ-oɬ*   *i-yiḱ-oɬ*   (b)   *naɬ   yoɬ-oɬ   i-piḱ-oɬ*
         canoe-PL   ATTR-big-PL   DEM   dog-PL   ATTR-black-PL
         'big canoes'   'these black dogs'

6.5.2.3. Agreement in physical properties

Agreement in physical properties is found in Yanesha', Kanoê, optionally in Karo, and as mentioned earlier, in Cubeo, Desano, Tariana and Miraña.

Example (36) is from Karo. Classifiers in Karo are optional in general, but Gabas (1999:176) notes that if a noun is modified by a property word, a classifier has to occur in agreement. In this case, it occurs twice: right after the noun and after the property word. Example (37) from Tariana shows agreement in physical properties realized by class markers.

(36)   Karo (Tupian; Gabas 1999:176)
         wayo   pap   cú   pap
         alligator   CLF:cylindric.big   big   CLF:cylindric.big
         'big alligator'

(37)   Tariana (Arawakan, Aikhenvald 2003:85)
         heku-na   pana-phe   maʧa-phe-na
         tree-CLF:vert   leaf-CLF:leaf.like   good-CLF:leaf.like-CLF:vert
         'a tree which has beautiful leaves'

Example (38) illustrates agreement between noun and property word in Kanoê, expressed by nominalized verbal roots.

(38)   Kanoê (unclassified; Laercio Bacelar, p.c.)
         mĩ   oroe-tinu   topi-tinu   tapa-pe-tinu
         2S   mud-CLF:pasty   rotten-CLF:pasty   step-2-CLF:pasty
         'You stepped into rotten mud.'

6.6. Summary

In this chapter, I examined how property words of four core semantic classes are encoded in the languages of the sample. The four semantic classes are: *dimension, age*, *value,* and *color,* i.e. those for which Dixon (1982, 2004b, 2010) argues that they are typically found in both large and small dedicated classes of adjectives, morphosyntactically distinct from other word classes in a language.

It was shown that, whereas a distinct class of adjectives is found in more than half of the languages in the sample (33 of the 55), it is not present in all sample languages as would be predicted by Dixon (2004, 2010). In some of these languages, the class is big and open and in others it is very small, comprising just a few members. The data show that languages without an adjective class that use verbs are much more widespread than those that use nouns or adverbs to express property concepts. Furthermore, those languages in which the adjective class is small and does not cover property concepts of the four core semantic classes, tend to use verbs as the main strategy. Therefore the present study does not support Payne's (1987:41) observation for languages "within and without the Western Amazon region" that "[d]escriptive modifiers within noun phrases are usually nominal". However, the study does support another observation by Payne (1987:41) that "[i]n various South American languages, the class of adjectives is extremely small". At the same time, as shown in this study, a distinct class of adjectives is found in more than half of the sample languages. Plotting these patterns on a geographic map does not result in robust areal divisions (see map 5 in appendix 4). The presence of an adjective class (large or very small) is geographically widely scattered across the continent, and does not suggest any particular area. Nevertheless, numerous languages in which property words are encoded by verbs are predominant in the Northwest Amazon and the Southwest Amazon regions; they are also found in Tapieté and Wichi in the Chaco, Timbira and Bororo (eastern and southern part of Brazil) and in Tehuelche in the Southern Cone. Hardly any language of the Andean sphere encodes property words through verbs. Exceptions here are Mosetén and Tsafiki. These two languages do have a separate adjective class although it is very small, and use verbs to express many of the core property concepts.

Furthermore, the chapter discussed the use of property words as attributive modifiers within the NP. The strategies used for noun modification are as follows. For noun-like property words the most common strategy is direct modification; one language (Wari') uses possessive constructions. For verb-like property words, the strategy is to use a relative clause construction or nominalization of the verb. It should be mentioned here that a large number of the languages in the sample also use nominalization as a strategy for relative clause formation.

The most common order of noun and property word is the noun preceding the modifier. This order is found across categories, which shows that morphological characteristics of property words do not play a role here. The order [N-property word] is found in 26 of the 55 languages, while the opposite order is found in 12 of the 55 languages. A further 11 languages have no dominant order or show a variable order depending on the properties of the head noun or the modifier (i.e. animacy or pragmatic status of the head noun, derived/underived status of the modifier, and native / borrowed nature of either forms). In five languages, property words cannot be part of the NP.

The final section of this chapter deals with the realization of agreement between nouns and property words. It was shown that agreement in gender is realized in 10 out of 55 languages. In addition, 10 out of 55 can show agreement in number, and 8 out of 55 can have agreement in physical properties.

Chapter 7. The NP as a unit

7.1. Identifying an NP

The definition of a *noun phrase* (NP) was introduced in chapter 2 as follows: 'an NP is a series of words, with a noun as its central constituent, which behaves as a single syntactic unit, and typically functions as an argument in a clause.' Chapters 3-6 discussed the morphosyntactic characteristics of constructions with modifiers of four types, i.e. adnominal demonstratives, numerals, lexical possessors, and property words. What was not discussed, however, is the question to what degree NPs form one single unit, with the modifiers and the head noun unified in a single phrase. A related question concerns the integration of specific modifier categories: what types of modifiers more often form a unit with their head noun, and what types do so less typically? I will argue that, although the degree of cohesion is highly language-specific, *lexical possessors* as modifiers are generally more likely to be integrated with their head nouns than *demonstratives* as modifiers, which in turn are more likely to be integrated in the NP than *property words* and *numerals*.

In the literature, we find a range of criteria that are used to identify whether constituents form a unit (Givón 1995:177; Meira 1999:49, Radford 1981:69, referred to in Fleck 2003:755):

(1) A first set of criteria relates to the presence of so-called boundary markers or phrasal delimiters. These are morphological markers that occur either before the first element or after the final element of what can be considered as one phrase. Given that they always occur at the edges, they allow us to identify a phrase as a single unit. In the languages of the sample, these markers include:
- articles and specifiers;
- adnominal demonstratives, especially those with a different form from the pronominal demonstratives in the same language;
- case markers (core and/or peripheral cases);
- discourse markers (focus, topic markers);
- markers of different nominal categories, e.g. plural markers;

(2) A second set of criteria relates to the adjacency of constituents and their fixed linear order. If there is a strong preference for a string of constituents to occur in a certain order, we can also use this as an indication that we are dealing with a unit. As I will discuss in this chapter, applying this criterion to different types of modifiers within the NP shows that some modifiers more often occur in a fixed order relative to the head than others. This suggests that such modifiers form a 'tighter' unit with the head than other types. It should be repeated here that data on constituent order for this study were collected focusing on the

frequency or *dominance* of a particular order. As already mentioned in chapter 2, this may have a number of drawbacks, but it is the optimal solution for the information we have available.

(3) A third set of criteria relates to morphologically marked agreement for an inherent property of a noun, e.g. gender (as apposed to agreement feature imposed by a predicate, e.g. agreement in case). The presence of morphological agreement serves as evidence for a dependency relationship between constituents, thus pointing to their status as a unit. However, as is clear from the previous chapters, if agreement is found in a language at all, it often occurs with some modifiers but not with others, or with a subgroup of elements of a particular modifier (e.g. gender agreement only with numerals for 'one', but not with others). Thus, this criterion should be best used in combination with other criteria and not exclusively. In addition to morphological agreement, the dependency of elements can also be signaled by linker morphemes and classifiers.

(4) A fourth criterion relates to the possibility of being separated by constituents like predicates or adverbs. This is a criterion for non-unity. Only fragmentary data are available on the potential for different NP constituents to occur discontinuously. Whenever available, this information is taken into account.

The application of the criteria to the data in the sample suggests a certain hierarchy among the criteria. For instance, constituents may still form a unit in cases where a modifier occurs next to the head but does not show a fixed order. In those cases, various kinds of boundary markers can be diagnostic for identifying a unit. Another example is the potential for constituents to occur discontinuously (e.g. separated by a predicate), which suggests that the elements do not form a unit - unless the criterion of the agreement is satisfied and the elements are overtly marked for agreement.

In this chapter, I will use these criteria to distinguish between three different types of NPs. The basic distinction is between *integral* and *non-integral NPs*. An integral NP is a hierarchically structured phrase with a head noun and a fully integrated attributive modifier (cf. Rijkhoff 2002:19). Boundary markers and second position markers, if available, are good indicators of integral NPs.

A non-integral NP is used here as a cover-term for two distinct types of NPs, even though it is not always easy in practical terms to distinguish them: discontinuous NPs and appositional NPs. *Appositional NPs* are actually sets of co-referential NPs: each NP in an appositional construction refers to one and the same entity, and thus can occur as independently referring element by itself. Rijkhoff (2002:22) describes appositional modifiers as "elements which semantically speaking serve the same purpose as their non-apposed, integrated counterparts, but which from a syntactical point of view are not part of the

(integral) phrase containing the head noun." Appositional modifiers occur with the same morphological markers as their semantic head, and can therefore be regarded as forming a separate NP in apposition to the head rather than simply a discontinuous modifier. For instance, in languages with phrasal boundary markers, such a marker will occur on both the appositional modifier and the 'head'. Among constructions described as 'apposition', there can be close apposition, when constituents are juxtaposed to each other, and loose apposition, where constituents are found separate from each other. The term *discontinuous NP* is used here to refer to constituents which form one unit semantically, with some evidence for a dependency relationship among each other, but which occur discontinuously, i.e. separated by another constituent. However, unlike with appositional NPs these constituents are not all independently referring and do not have the formal marking of a separate NP. A criterion that can signal a dependency relationship is morphologically marked agreement.

If we apply these distinctions to our sample, it is clear that the possibility to form integral NPs may also vary within languages, mainly depending on the type of modifying category that is involved (lexical possessors, demonstratives, numerals and property words). Some languages show evidence for integral NPs with some categories of modifiers but not with others. Within the category of non-integral NPs, many (probably most) of the languages in the sample allow for apposition constructions, while discontinuity occurs to a much lesser degree. The use of non-integral NPs can in some cases be motivated by pragmatic factors (e.g. to focus on constituents) or structural (e.g. to avoid long string of modifiers).

The rest of this chapter will be structured as follows. Section 7.2 discusses languages where all four modifier categories form a syntactic unit with their head nouns. Section 7.3 deals with the languages where specific modifier categories do not have properties of integral NPs. Section 7.4 compares the different modifier categories, and investigates which types are most likely to be integrated with their head nouns, and which types are least likely to be integrated. Section 7.5 discusses the order of the modifiers inside the NP and their order relative to the head noun. Section 7.6 summarizes the observations made in the chapter.

7.2. Languages with evidence for integral NPs

In this section I discuss a number of languages in the sample that show evidence for integral NPs with all four modifier categories considered in this study. The analysis is based on one of the criteria for constituency status, or on a combination of criteria. For instance, a combination of the criterion of boundary marking and the preference for a fixed order relative to the head holds for a

number of sample languages: Awa Pit, Aymara, Huallaga Quechua, Imbabura Quechua, Leko, Trumai, Warao, Hup, and Mapuche. In a number of other languages the combination of realized morphological agreement and fixed constituent order can be used as evidence for integral NPs, for instance in Chamacoco, Tehuelche, Itonama, Miraña, Cubeo. In other languages like, for instance, Mosetén, only the criterion of agreement suggests that we are dealing with elements of one NP, since constituent order is relatively free.

The first combination of parameters is illustrated below by Trumai, Awa Pit, Hup and Huallaga Quechua.

In Trumai, constituent order inside the NP is fixed as *demonstrative / numeral - possessor - noun – property word*. Among the morphosyntactic criteria that signal NP boundaries are number markers, case markers, and a special morpheme *(i)yi*, all of which occur at the end of an NP. Examples in (1) illustrate constituent order and some of the boundary markers.

(1)   Trumai (unclassified; Guirardello 1999:40,29)

(a)   [*huch*   *kasoro*   *da[*]   ***a***   ***yi***
         two   dog   black   DU   yi
         'two black dogs'

(b)   [*ka'natl*   *dinoxo*   ***yi***]=***ki***   *chï(in)*   *ha*   *fa*
         DEM:DIST:F   girl   yi=DAT   FOC/TENS   1SG   beat
         'I beat that girl.'

In the second language discussed here, Awa Pit, an NP can similarly consist of a nominal head and several types of modifiers. Demonstratives, lexical possessors, numerals and property words, all occur in a fixed order with respect to the head noun. The order is modifier preceding the head, except for the instances when a noun is modified by a derived ('deverbal') property word, in which case the head noun precedes the derived property word. Curnow (1997:145) notes that any marking associated with the NP, either the topic marker or a case marker, can occur only once for each NP, on the final element of the NP. Example (2a) shows such markers on NPs involving numerals; (2b) illustrates an NP with underived property words, while (2c) illustrates a derived property word, with a different order inside the NP.

(2)   Awa Pit (Barbacoan; Curnow 1997:60,127,121)

(a)   *na=na*   [*maza   atal*]=***na***
         1SG.(NOM)=TOP   one   chicken= TOP

         [*paas   pollo   pashpa*]=***kasa***   *mazh-ta-w*
         two   chicken   DIM=with   change-PST-LOCUT:SBJ
         'I traded one chicken for two little chicks.'

(b)   [*pijtam   libro*]=***na***
         green/blue   book=TOP

         [*kwaŋtam   libro   pula*]=***mal***   *tu-y*
         red   book   below=LOC   be.in.place-NONLOCUT
         'The green book is under the red book.'

(c)   [*shap   ayna-ta*]=***na***   *kwashmayŋ   i*
         ripe.plantain   cook-PFV.PRT=TOP   tasty   be.(NONLOCUT)
         'Cooked ripe plantain is tasty.'

The following Awa Pit example shows that topic markers can occur only once in an NP:

(3)   Awa Pit (Barbacoan; Curnow 1997:145)
         katsa(*=na)   ampu=na
         big(*=TOP)   man=TOP
         'the big man'

Hup is another language used here to illustrate constituent order and boundary markers as criteria for integral NPs. While demonstratives, possessors and numerals precede the head in Hup, property words normally follow it. Object markers and plural markers are among the morphological markers that occur on a phrase level in Hup, and can therefore be used as evidence for NP boundaries. Example (4) illustrates an NP involving the 'intangible' demonstrative *yúp*.

(4)   Hup (Nadahup; Epps 2008:179,204)
         [*yúp   yŭd*]-***ăn***=*mah   yúp   tɨh   cud-d'óʔ-ay-áh*
         DEM:itg clothes-OBJ=REP   DEM:itg   3SG be.inside-take-INCH-DECL
         'It was these clothes that he put on.'

In Huallaga Quechua, constituent order inside the NP is generally fixed, with modifiers preceding the head noun (cf. Weber 1989:249). There is no agreement

in gender or number inside the NP. In possessive NPs, the head noun occurs with a personal possessive suffix indexing the possessor, but I do not treat this as agreement in the study (cf. section 2.1.2 in chapter 2). Phrasal markers, e.g. case markers and number markers, are among the main criteria for recognizing an NP in Huallaga Quechua. The following examples illustrate this.

(5)   Huallaga Quechua (Quechuan; Weber 1989:254,269)
(a)   [*Hwan-pa   uma-n*]-***ta***   *rika-:*
        Juan-POS   head-3-ACC   see-1
        'I see John's head.'

(b)   *chay-pita   ashi-pa-sha*
        DEM:MED-ABL   seek-BEN-3PERF

        [*kimsa   chusku   awkis   muula*]-***kuna-ta***-*shi*
        three   four   old   mule-PL-ACC-IND
        'After that, he looked for three or four old mules.'

While Trumai, Awa Pit, Hup, Huallaga Quechua and a number of other languages mentioned earlier show clear evidence for integral NPs, in some cases these languages also allow 'head' and 'modifying' constituents in apposition. There is some variation in the modifier categories that can occur apposed to the semantic head and under what conditions this is the case. For instance, it may be possible for numerals and property words but ungrammatical for adnominal demonstratives, and it may be syntactically unrestricted or available only for a direct object position. There seem to be, at least, two motivations for the use of an appositional construction instead of an integral NP: (i) pragmatic, when a certain aspect should be highlighted, and (ii) structural, when the number of modifiers exceeds a maximum.

    To illustrate the first motivation, we can return to Trumai. Numerals and quantifiers can occur in the beginning of the sentence, in a focused position; in that case they are also followed by one of the Focus/Tense particles, which are boundary markers in Trumai (6a). Guirardello (1999:55) mentions that numerals and quantifiers can also occur at the end of the clause. If this happens, they are separated from the clause by a pause, and thus represent an NP on their own (6b).

(6)   Trumai (unclassified; Guirardello 1999:51,55)
(a)   ***huch***   *ka in*   *ha*   *elka*   ***tahu-s***
        two   FOC/TENS   1SG   buy   knife-DAT
        'I bought two knives.' (Lit: 'Two I bought knives.')

(b)   *ha   elka   ka in   **tahu-s,   huch***
        1SG   buy   FOC/TENS   knife-DAT   two
        'I bought knives, two.'

In Awa Pit, constituents of one NP can also occur separated by another constituent. In that case they represent NPs in their own right, which is confirmed by their capacity to take phrasal markers (e.g. the topic marker) (7b).

(7)   Awa Pit (Barbacoan; Curnow 1997:145,146)
(a)   *ampu   pyan-ta-w,   katsa*
        man   hit-PST-LOCUT:SBJ   big
        'I hit the man, the big one.'

(b)   *ampu=**na**   pyan-ta-w,   katsa=**na***
        man=TOP   hit-PST-LOCUT:SBJ   big=TOP
        'I hit the man, the big one.'

A similar situation is found in Hup. Epps (2008:285) mentions that when demonstrative, numeral or possessor modifiers follow the noun, "they are probably best interpreted as apposition noun phrases in their own right, or even as predicate nominals." In this position, they obligatorily receive the same morphological markers that would normally occur at the final element of the NP. In (8), for instance, the plural marker has to be used with the postposed numeral.

(8)   Hup (Nadahup; Epps 2008:204)
        *tiyĭʔ   pŏg=**d'əh**   mɔ́taʔăp=**d'əh***
        man   big=PL   three=PL
        'big men, three of them'

For Huallaga Quechua, Weber (1989: 250, 282) similarly notes that elements of an NP can be split. However, this seems to be largely restricted to constituents serving as direct objects. If the elements of one NP are split, both the modifier and the head noun occur with a corresponding case marker, which normally occur on the last element of an NP. This has been called 'co-case marking' (cf. Lefebvre & Muysken 1988). Hastings (2003) argues for Cuzco Quechua that integral NPs and appositional NPs are not identical in meaning. She investigates the semantics and syntax of appositional NPs with property words and quantifiers in this variant of Quechua, and concludes that when property words or weak quantifiers (e.g. *ashka* 'a lot / many', *pisi* 'a few / a little') occur co-case-marked outside the NP, the appositional NP receives an indefinite interpretation. No such difference in meaning is found for appositional NPs with

strong quantifiers (e.g. *llipin* 'all / every', *tukuy* 'all'). An exception is the strong quantifier *sapa* 'each', which shows a different pattern (cf. Hastings 2003:50 for discussion).

The following examples show some appositional NPs in Huallaga Quechua.

(9)   Huallaga Quechua (Quechuan; Weber 1989:255,250)
(a)   *hipash-nin-ta*   *kuya-:*   *hwan-pa-ta*
           daughter-3-ACC   love-1   Juan-POS-ACC
           'I love Juan's daughter.'

(b)   *runa-ta*   *hatun-ta*   *rika-:*
           man-ACC   big-ACC   see-1
           'I see the big man.'

Constituents can occur as appositional NPs because long structures with several modifiers within a single NP are generally dispreferred. Splitting these into relevant pieces makes them easier to process. Weber (1989:282) mentions similarly for Huallaga Quechua that splitting NPs by a predicate is one of the strategies to ease the processing of an utterance.

Some languages also show a limitation on the number of modifiers of *one type* occurring in a single NP. For instance, in Hup, if several modifying property words are used, they all receive the form *tɨh=* ('3sg'). A property word occurring with this form is a nominalization which forms an NP on its own. Therefore, a series of property words in Hup represent appositional NPs rather than a single NP with several modifiers (cf. Epps 2008:332).

(10)   Hup (Nadahup; Epps 2008:332)
            núp=tat   *tɨh=pŏg*   *tɨh=păy*   *nɔh-yɨʔ-ɨy*
            this=fruit   3SG=big   3SG=bad   fall-TEL-DYNM
            'This big ugly fruit fell.'

For the four languages considered so far, the main criteria for NP integrity were phrasal markers and fixed constituent order. Another combination of criteria is realized morphological agreement between the constituents, together with adjacency and a preference for a particular constituent order. This is illustrated below by Itonama, Cubeo and Miraña.

In Itonama, the NP template is demonstrative and native numeral preceding the noun, and property word and lexical possessor following the noun. The order of modifiers with respect to the head noun is fixed; numerals are the only category that shows restricted flexibility in the order relative to the noun: while borrowed Spanish numeral forms can precede or follow the head, the two native

numeral forms always precede it (Mily Crevels, p.c.). In (11a) the possessed noun can occur on its own, but if the lexical possessor is realized, it must occur right after the possessed noun. Another piece of evidence for constituency in Itonama is agreement. Example (11b) shows a demonstrative and an adjective agreeing in gender with the noun *wabï'ka* 'woman'. The feature of gender, which is an inherent feature of a noun, can thus indicate syntactic dependency of a modifying constituent on its head noun.

(11)   Itonama (unclassified; Crevels 2012)

(a)   *wase'wa   si-mani-choh-na   **ah-mi-ku   ihwana***
       yesterday   1SG-shade-inside-NEUT   3-RLT-house   Juan
       'I came to Juan's house yesterday.' (Lit.: 'Yesterday I came into the shade of Juan's house.')

(b)   *si-ka-ch'a<h-a>wa'-te*
       1SG-face-love<AND-INTENS>-CNT

       yotah-ka   wabï'-ka   ka-mala'-ka
       DEM:MED-F.SG   woman-F.SG   face-beautiful-F.SG
       'I am loving that beautiful woman.'

The occurrence of classifiers can also suggest that constituents form one unit, since the meaning of the head noun plays a role in the choice of a classifier. The following examples from Itonama and Cubeo illustrate this. In example (12), the demonstrative occurs with a classifier for 'standing' referents specifying the noun *ï-wabï* 'woman'. In (13) from Cubeo, the demonstrative occurs with a classifying element for buildings referring to the head noun *kɨrãbĩ* 'house'.

(12)   Itonama (unclassified; Mily Crevels, p.c.)
       *si-makï   u-waka   **ya-dïlï**   a-chipa   ï-wabï*
       1SG-give   DV-meat   DEM:DIST-CLF:standing.PL   DV-two   DV-woman
       'I give the meat to those two women.'

(13)   Cubeo (Tucanoan; Morse & Maxwell 1999:93)
       dõ-pe   bA-te-'Awɨ
       DEM:PROX-SIM   be-DYNZ-N/H.INAN.3

       di-jãbĩ   *kɨrãbĩ*
       DEM:ANAPH-CLF:building   house
       'That house was like that.'

The following example from Miraña shows another clear case of semantic and syntactic agreement realized by classifying elements. In (14), the noun *kúmu-hɨ* 'turtle' is modified by a demonstrative and a property word, both of which occur with the same classifying element *-hɨ* '2-dimensional round' as the head noun.

(14)   Miraña (Boran; Seifart 2005:169)
        ɛː-hɨ   *múhu-hɨ*
        DEM:DIST-SCM:2d.round   be.big.SUB-SCM:2d.round

        kúmu-hɨ
        turtle-SCM:2d.round
        'that big turtle'

These modifying constituents can be used as referring expressions by themselves. However, the reasons to treat the element *ɛː-hɨ múhu-hɨ kúmu-hɨ* 'that big turtle' as one unit are (i) the agreement assigned to the modifying constituent by the noun, and (ii) the preferred order of modifying constituents relative to the head noun.[70]

So far we have considered languages that satisfy a combination of criteria for integral NPs. In a language like Mosetén, however, we can argue for the existence of the NP constituent on the basis of only one criterion, viz. agreement. In Mosetén, any noun modifier occurs with a so-called linker morpheme, which is gender specific, viz. *-tyi'* 'masculine' and *-si'* 'feminine' (cf. Sakel 2004:105). These linkers have a range of functions in the NP, and are argued by Sakel to signal unity between the constituents involved. At the same time, the order between the head and a modifier is rather free, with a certain tendency for modifiers to appear after the head with animate referents, and before the head with inanimate referents.[71] Constituents can also be split by a predicate. Thus, while gender agreement suggests that we are still dealing with integral NPs where the dependent takes the gender assigned by the head, the relative freedom of the constituent order at the NP level and the clause level may suggest that NPs in Mosetén are less integral than in the languages considered so far. The following examples illustrate NPs with property words (15a,b) and numerals (15c) marked by the linker.

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[70] The constituent order found in NPs in Miraña is reported to be: modifier-noun in 93% cases and noun-modifier in 7% (Frank Seifart, p.c.; the counting was done by Borislava Ilcheva & Elisabeth Oßner (University of Regensburg)).

[71] Sakel (2004:105) mentions that possessive pronouns always occur before the head noun. This does not seem to be the case for lexical possessors as dependent elements.

(15)   Mosetén (Mosetenan; Sakel 2004:115,195,64)
(a)   *jaem'-**si'**   shiish*   (b)   *jaem'-**tyi'**   tyärä'*
       good-L.F   meat[F]   good-L.M   maize[M]
       'good meat'   'good maize'

(c)   *yäe   tye-te   **jiri-s   kirjka**   yäe-tyi'   otyi'*
       1SG   give-3M.O   one-F   book[F]   1SG-L.M   brother
       'I gave a book to my brother.'

The following examples show a predicate occurring between the elements of what can be considered as one NP.

(16)   Mosetén (Mosetenan; Sakel 2004:105)
       *jike   **oye-si'**   ja-yi-'   **phe-ya-k-dye'***
       PS   Oye-L.F   finish-VSM-F.S   talk-VSM-MI-NMZ
       'Then the story of the Oye finishes.'

We have seen similar examples earlier on ((8) from Awa Pit and (10) from Huallaga Quechua), but in these, structures may represent separate NPs in apposition, as shown by the occurrence of phrasal markers. In the case of Mosetén, by contrast, the morphological markers involve agreement in gender, which is assigned by the head noun on the modifier. When constituents are split, these markers remain on the modifier, indicating that we are still dealing with a head and a dependent constituent, and thus have one discontinuous NP rather than two NPs in apposition. Unfortunately, it is not possible to determine conclusively whether such discontinuous NPs have any special semantic properties in Mosetén, and whether NPs with particular modifiers can occur discontinuously more often than NPs with other modifiers (Jeanette Sakel, p.c.).

7.3. Languages that have non-integral NPs

There is a number of languages in the sample where some constituents that form a unit semantically do not do so syntactically. Specifically, such constituents do not seem to differ in their modifying function from constituents that belong to an integral NP, but syntactically speaking they are independent elements, representing separate (appositional) NPs. As mentioned in the beginning of the chapter, each NP in an appositional construction refers to one and the same entity, which means that each can occur as an independently referring element by itself.

It has been noted in earlier chapters that the Cariban languages in the sample, Hixkaryana, Tiriyó and Panare, show this characteristic particularly clearly. As

already mentioned, evidence for syntactic constituency is found only for
possessive NPs in these languages. Example (17) from Panare illustrates a single
NP consisting of the nominal possessor *Toose* (proper name) and the possessed
noun *libro* 'book', connected by the general classifier. The numeral *asa'* 'two',
which also occurs in the utterance, forms an NP on its own (see below for some
evidence). Example (18a) from Tiriyó shows a possessive NP that forms a single
constituent, as shown by the ungrammaticality of (18b), in which the possessor
noun and the possessed are split by the verb.

(17)   Panare (Cariban; Tom and Doris Payne, p.c.)
        Toose   iyu   libro   asa'
        Toose   CLF:gen   book   two
        'Toose's two books'

(18)   Tiriyó (Cariban; Meira 1999:495)
(a)   ***pahko   i-pawana   n-ee-ja-n***
        1:father   3-friend:POS   3S$_A$-come-PRS.IMPFV-DBT
        'Father's friend is coming.'

(b)   **pahko   n-ee-ja-n   i-pawana*

While the possessor and the possessed can form a single constituent in these
languages, demonstratives, numerals, and property words show syntactic
independence from the noun they are semantically bound to. The order of the
'head' and its 'modifier' is free, i.e. a modifier can precede or follow the
semantic head, or be non-contiguous with it, as shown in (19a-b) below. Another
reason to treat these as syntactically independent elements is the occurrence of
postpositions, which are phrasal clitics in these languages, on each element, as
shown in (19c). In Hixkaryana, such constituents are reported to be separated by
a pause. Thus, each of the constituents represents a separate NP in an
appositional relationship.

(19)   Hixkaryna (Cariban; Derbyshire 1985:53, 1979:68,40, examples glossed
        by S. Meira)
(a)   ***ow-otɨ   mosonɨ   Ø-ar-ko   ha***
        2-meat.food   DEM:PROX:AN   3-take-IMP   INTENS
        'Take this meat for you.'

(b) *Kaywana   y-omsï-r   y-oknï   **mokro   kaykusu***
     Kaywana   LK-daughter-POSSD   LK-pet:POSSD   DEM:MED:AN dog
     'That dog is Kaywana's daughter's pet.'

(c) *k-omok-no   moson   **y-akoro**   ro-he-tx   **y-akoro***
     1SA-come-I.PST   DEM:PROX:AN   LK-COMIT   1-wife-POSSD   LK-COMIT
     'I have come with this one, with my wife.'

Numerals and some of the property words belong to the category of adverbs in the Cariban languages (cf. Meira & Gildea 2009), but these constituents are also found in a modifying function adjacent to the 'head' (shown in example 22 below).

A similar pattern is found in Matsés. In this language, demonstratives are used in a modifying function, but no particular order relative to the head noun is required, nor does it have to be adjacent to it. Demonstratives can be found preceding or following the noun, or elsewhere in the clause (Fleck 2003:260). The following example includes a demonstrative *uid* 'that one'.

(20)   Matsés (Panoan; Fleck 2003:261)
       uid   *chështe*   *bed-tan-ø*
       DEM:DIST   machete   get-go-IMP
       'Go get that machete (over there).'

The use of demonstratives (and numerals, which are treated as adverbs in the grammar) in Matsés contrasts with the use of property words and possessors as noun modifiers. When combined with a noun, these show clear indications of NP unity, such as strict constituent order and inseparability. Example (21) illustrates the noun *shupud* 'bag' modified by a non-derived property word *iuë* 'heavy'. While a construction with a noun and a non-derived property word shows strict constituent order, derived property words do not show this property (Fleck 2003:771-772).

(21)   Matsés (Panoan; Fleck 2003:771)
(a)   ***shupud   iuë   dedo-o-mbi***
       bag   heavy   carry.on.back-PST-1A
       'I carried the heavy bag.'

(b)   * ***iuë   shupud   dedo-o-mbi***

(c)   * ***shupud   dedo-o-mbi   iuë***

The examples of Hixkaryana and Matsés illustrate that in some languages constituents which can be expected to form an integral NP are always syntactically independent elements.

In a further deviation from NP unity, some languages have 'modifying' elements that are not even nominal expressions but instead behave as adverbs or verbal predicates. Among the four modifier categories considered in this study, this pattern has so far been observed for property words and numerals.

Example (4.19) from Hixkaryana, repeated here as (22), illustrates the occurrence of numerals as sentential adverbs (cf. Derbyshire 1979:44, Meira & Gildea 2009). In example (22a) the numeral is used as a modifier of the verbal predicate. In (22b) the numeral occurs as an adjunct, semantically modifying the referent of the verb. Example (22c) is a rare case of a numeral modifying a noun directly.

(22)   Hixkaryana (Cariban; Meira & Gildea 2009:101, Derbyshire 1979:44)
(a)   ***asako***   *ɾo*   *nɨ-nɨh-tʃownɨ*
        two   totally   3S-sleep-PST
        'He slept twice (=two nights).'

(b)   *kanawa*   *wenyo,*   ***asako***
        canoe   1-saw-3   two
        'I saw two canoes.'

(c)   ***asak***   *kanawa*   *wenyo*
        two   canoe   1-saw-3
        'I saw two canoes.'

Similarly to the Cariban languages, words which could be considered numerals are also treated as adverbs in the grammar of Kamaiurá, Matsés, Karo and Sabanê (see chapter 5). The following example from Karo shows the adverbial use of numerals.

(23)   Karo (Tupian; Gabas 1999:172)
        maʔwɨt   *ip*   *ʔɨy-t*   *matet*   ***cagárokõm=tem***
        man   fish   catch-IND   yesterday   two-ADVZ
        'The man caught two fish yesterday.'

In a number of languages in the sample, numerals and property words occur preferably, or exclusively, as predicates. For instance, Danielsen (2007:168) mentions for Baure that modifiers are most often used predicatively. "[I]n all the texts there were altogether 173 modifiers in NPs, not more than 1,78% of all

words. […] In addition there are strategies like incorporation and compounding. […] This all leads to little need for modification within the NP, as the predicate already contains most of the information load".

Property words are used mainly predicatively in Yurakaré, Aguaruna, Apurinã, Mamaindê and Baure. In Wari' and Jarawara, numerals are used mainly predicatively. The following example from Mamaindê shows the predicative use of property words.

(24)   Mamaindê (Nambikwaran; Eberhard 2009:382)

(a)   *walonʔ-tu*   *nahohntoʔ*   *aat-latʰa-Ø-wa*
       giant.armadillo-FNS   very   big-S3-PRS-DECL
       'The giant armadillo is very big.'

(b)   *na-wain-tʰã*   *wanũn-jeʔ-let-Ø-nãn-wa*
       3SG-many-CLF:group   good-EMPH-I.PST-S3-PST-DECL
       'His people were real good / beautiful people.'

To conclude, then, the languages discussed in this section show that only particular modifying categories do not belong to the NP. For instance, in Wari' and Jarawara, where numerals are used predicatively, modifying demonstratives can generally be treated as a unit with the head noun on basis of a preferred constituent order and morphologically realized agreement (in gender) on the modifying demonstratives. Similar criteria can be applied to the other modifier categories in these languages. Thus, the languages in the sample vary with respect to how the function of modification is realized with different categories: while in many languages all four categories can modify a noun within an NP and thus form an integral NP, a number of languages use other strategies, like the use of appositional NPs or realization as predicates.

7.4. Syntactic constituency of different modifiers

This section analyses the constituency status of the four modifier categories with respect to their head nouns. For the languages in the sample, there appears to be a scale of degree of integration: *lexical possessor* and *demonstrative* are towards the 'more integrated' end of the scale, i.e. they tend to be more integrated overall, while *numeral* and *property word* are towards the 'less integrated' end.

A full-scale test of integration would imply measuring the syntactic behavior of each modifier category in each language according to the criteria for constituency status outlined in the beginning of the chapter. Unfortunately, there are gaps in the data we have available that make such a full-scale study problematic. Still, this section tries to use the available data to provide an

estimation of the 'integration' of the four modifier categories. Table 7.1 presents the estimates we could make based on the criteria for constituency status we were able to apply. The data in the table are presented in terms of the three basic categories we have used so far:

(1) Evidence for integral NPs (i.e. modification is possible within the NP).
(2) Evidence for non-integral NPs (i.e. modification is not possible within the NP):
    (2a) the modifying constituent is syntactically independent and forms an appositional NP;
    (2b) the 'modifying' constituent has to be expressed predicatively or adverbially.

Several languages (Yurakaré, Aguaruna, Apurinã, Baure and Mamaindê) allow both integral and non-integral NPs for some modifier categories, and are marked as both 1 and 2. This always means that although integral NPs with a particular modifier category are possible, they are not common. Where no good or clear information is available, a question mark is added to the proposed category.

Language	Lexical possessor	Demonstratives	Property words	Numerals
Awa Pit	1	1	1	1
Aymara	1	1	1	1
Bororo	1	1	1	1
Cavineña	1	1	1	1
Chamacoco	1	1	1	1
Cubeo	1	1	1	1
Dâw	1	1	1	1
Desano	1	1	1	1
Embera	1	1 (?)	1 (?)	1 (?)
Emérillon	1	1	1	1
Gavião	1	1	1	?
Hual.Quechua	1	1	1	1
Hup	1	1	1	1
Ika	1	1	1	1
Imb.Quechua	1	1	1	1
Itonama	1	1	1	1
Kanoê	1	1	1	1
Kwaza	1	1	1	1
Leko	1	1	1	1
Mapuche	1	1	1	1
Mekens	1	1	1	1
Miraña	1	1	1	1
Mocoví	1	1	?	1
Mosetén	1	---	1	1

Movima	1	1	1	1
Nasa Yuwe	1	1 (?)	1 (?)	1 (?)
Ninam	1	1	1	1 (?)
Pilagá	1	1	1	1
Puinave	1	1	1	1
Shipibo-Konibo	1	1	1	1
Tapiete	1	1	?	1
Tariana	1	1	1	1
Tehuelche	?	1	1	1
Timbira	1	1	1	?
Trumai	1	1	1	1
Tsafiki	1	1	1	1
Urarina	1	1	1	1
Warao	?	1	1	1
Wichí	1	1	1	1
Yaminahua	1	1	?	1
Yanesha'	1	1	1	1
Jarawara	1	1	1	2b
Kamaiurá	1	1 (?)	1	2b
Karo	1	1	1	2b
Sabanê	1	1	1	2b
Wari'	1	1	1	2b
Matsés	1	2a	1	2b
Yurakaré	1	1	1 / 2b	1
Aguaruna	1	1	1 / 2b	1
Apurinã	1	1	2b	1
Mamaindê	1	1	2b	1 / 2b
Baure	1	1	1 / 2b	1 / 2b
Hixkaryana	1	2a	2a,b	2a,b
Panaré	1	2a	2a,b	2a,b
Tiriyó	1	2a	2a,b	2a,b

Table 7.1: Possibility for modification within the NP by the four categories.

There seem to be no languages in the sample in which the lexical possessor and the possessed noun form syntactically independent elements. There are either morphological means in the language to signal that the two elements belong together (e.g. dependent marking possession), or the syntactic position of the two elements is used to signal this (e.g. obligatory adjacency and/or a specific order in cases of unmarked possession or head-marking possession).

Demonstratives do not form an integral NP with their 'head' noun in four languages of the sample. In Matsés, Hixkaryana, Tiriyó and Panare, demonstratives always show syntactic autonomy from their semantic heads. For the other languages in the sample, at least some criteria for constituency suggest that demonstratives are integrated constituents. It should be noted here that cases in which demonstratives can be used attributively only when combined with a

relative clause marker (e.g. in Cavineña and Bororo), are treated as 'integrated' NPs. Such NPs have a hierarchical structure with a head and a dependent constituent.

Property words do not occur as modifiers within the NP in five languages in the sample: Apurinã, Mamaindê, Hixkaryana, Tiriyó and Panare. In addition, there are at least three languages, Baure, Yurakaré and Aguaruna, in which property words can occur within the NP, but where such uses are uncommon. For the other languages in the sample there is evidence that property words are syntactic constituents of the NP. As discussed in chapter 6, languages in which property words can be used attributively either use a construction of direct modification, or more complex constructions, like a possessive construction or a relative clause construction (e.g. Miraña, Timbira, Wichí).

Numerals do not occur within the NP in nine languages of the sample. In addition, in two further languages, Baure and Mamaindê, numerals can occur as modifiers within the NP but not very commonly.

There appears to be a hierarchy in the potential for lexical possessor, demonstrative, property words and numerals to form a syntactic unit with their semantic heads, represented in figure 7.1 below. The higher on the scale, the more likely it is that a constituent can form an integral NP. Thus, lexical possessors seem to be more likely to form an integral NP with the noun than demonstratives, which, in turn, are more likely to form an integral NP with the noun than property words and, in turn, numerals.

--------------------<------------------------<------------------------<--------------------
Lexical possessor   Demonstrative   Property word   Numeral
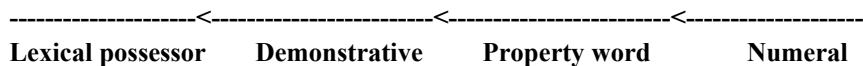
Figure 7.1: Hierarchy in syntactic unity with the semantic 'head'.

There are several languages that are exceptions to the suggested hierarchy. Specifically, in Matsés demonstratives are syntactically separate constituents, whereas property words are fully integrated in the NP (see Fleck 2003:771). In Aguaruna and Apurinã, numerals occur attributively, whereas this is not the case for property words.

A possible explanation for the proposed hierarchy is a different 'specialization' of the categories involved. Lexical possessors and demonstratives are typically used to identify and refer, while property words and numerals are typically used to specify, describe and state. A possessive NP involves two distinct referents (the possessor and the possessed), one of which serves to identify the other (see Willemse et al. 2009). This 'identifying' function may explain why they tend to form a syntactic unit (marked by morphology or

syntactic adjacency). A demonstrative, by contrast, can identify a referent in its own right. This 'referring' function may explain why it can occur as an NP on its own, in co-reference with its semantic 'head' noun (as we saw in Matsés or the Cariban languages). On the other hand, this function may also lead to a higher frequency of adjacency with semantic 'head' nouns than property words or numerals. For instance, in the Cariban languages in the sample, where only lexical possessors form a syntactic unit with a noun, demonstratives appear to occur more often next to a semantic head noun than property words or numerals (Sérgio Meira, p.c.). Because of the frequency with which demonstratives occur adjacent to nouns in discourse they are potentially better candidates for grammaticalized NP constituents than the other two categories. In this proposed hierarchy, property words rank above numerals, but it is not clear whether this ranking can be generalized to other languages, or whether it is specific for South American languages (or even the sample). For instance, Foley (1980), based on a study of Austronesian languages, proposes a Bondedness Hierarchy, which predicts the strength of the syntactic bond between a modifier and its head noun. In this hierarchy, numerals rank above property words (Foley 1980:174). The reason why the two categories are ranked differently here is that my sample has more languages where numerals cannot be part of the NP (9 languages) than languages where property words have to occur outside the NP, i.e. predicatively or adverbially (5 languages).

7.5. Order of modifiers inside the NP

It was first proposed in Greenberg (1963) that there is a correlation between the order of NP modifiers and the head noun and the order of constituents at clause level. In sections 3.2, 4.4, 5.3.2, and 6.5.1, I discussed the order of demonstratives, lexical possessors, numerals and property words relative to the order of clause constituents. Here I will reflect on the ordering of the modifiers inside the NP and their order relative to the head noun.

Rijkhoff (2002, see also 2008) proposes a layered structure for the NP with a hierarchical order for constituents. In addition, he argues that the layered structure for the NP parallels the layered structure of the clause (2002:224). Rijkhoff assigns a specific functional layer in the NP to each of the modifier categories. Specifically, the *quality layer* contains the head noun and modifier categories "that only relate to the property that is designated by the noun" (Rijkhoff 2002:104), viz. adjectives and what Rijkhoff calls nominal aspect markers. A second layer, the *quantity layer*, encloses the quality layer and contains modifier categories expressing nominal number and cardinality. These two layers are enclosed by the *location layer*, which itself contains modifier categories that specify "properties concerning the location of the referent, such

as demonstratives, possessive modifiers, and relative clauses" (2002:337). The hierarchical structure proposed by Rijkhoff can be schematized as follows: [Dem [Num [Adj [Noun] Adj] Num] Dem]. This model is explicitly limited by Rijkhoff (2002) to languages with a clearly articulated configurational structure. In addition, Rijkhoff only takes into consideration non-embedded elements. In this section, I will compare my findings on word order with Rijkhoff's model. Like Rijkhoff, I exclude modifiers that do not form one syntactic unit with their semantic head (such elements are given in the right-most column in table 7.2). Unlike Rijkhoff, however, I have chosen to treat each modifier category as a semantic category for this study, which implies that specific modifier categories (like demonstratives, numerals or property words) can also be morphologically derived elements representing relative clauses.

Before we go on to the discussion of word order tendencies, a few remarks are in order about the nature of the data we have available. First of all, establishing the relative order of modifiers inside the NP appears to be a theoretical exercise for many languages in the sample. In actual speech the number of modifiers inside a single NP is often very limited. To mention just a few explicit statements in the grammatical descriptions: in Northern Embera, the noun is usually modified by just one modifier (Mortensen 1999:33). In Karo, the occurrence of more than two constituents in an NP beside the head is considered to be rare (Gabas 1999:140). In Mapuche, an NP usually does not contain more than two modifiers, though three modifiers seem to be acceptable (Smeets 2008:132). In Cubeo, in over 100 texts the maximum number of modifiers found within a single NP is three (Morse & Maxwell 1999:93). A similar tendency is reported for Wari' (Everett & Kern 1997:158). It is noted for many languages in the sample that long structures with several modifiers within a single NP are dispreferred. As mentioned in section 7.2, a common strategy to make such a structure easier to process is to cut it up, resulting in appositional NPs. In some languages, only a specific number of modifiers can occur in one slot. For instance, in Tariana, no more than one modifier can occur before the head noun (cf. Aikhenvald 2003:479).

Secondly, there can also be a limitation on the number of modifiers of *one type* occurring in a single NP. In Awa Pit, a maximum of two property words has been observed in actual speech, although in elicitation strings of three or four property concepts preceding the head noun were treated as perfectly acceptable by speakers (Curnow 1997:119). In Hup, if several modifying property concepts are used, they all receive the *tɨh=* (see example 10 above). In Shipibo-Konibo, property words may precede or follow the head. However, when two property words are used with the same noun, the preferred order is one property word before the noun and another after the noun. The occurrence of three property words with one noun is highly unusual; in that case at least one will be used

prehead and at least one posthead (Valenzuela 2003:241). If different modifiers co-occur, they can all precede the head noun.

Taking into account these restrictions, we can now move on to table 7.2, which gives an overview of the position of the different modifiers with respect to their head noun. I was able to determine the relative order of modifiers *with respect to each other* for only 23 languages; these languages are highlighted and marked in bold. A slash represents uncertainty in the relative order of two adjacent modifiers (thus, the scope of the slash is only one adjacent constituent). Modifiers that can occur either before the noun or after the noun are marked by curly brackets: e.g. {num}. It should be mentioned that the symbol *possr* stands for the lexical possessor; the position of personal possessive affixes is not included in this table, but can be found in appendix 1.

Language	Position of a modifier with respect to the head noun within the NP [72]			Modifier expressed outside the NP
Aguaruna	dem / num / possr	NOUN		adj
Apurinã	**dem num possr**	**NOUN**		**adj**
Awa Pit	**dem / possr num {adj}**	**NOUN**	**{adj}**	
Aymara	dem / num / possr / adj	NOUN		
Baure	**dem num**	**NOUN**	**possr**	**adj**
Bororo	dem / possr	NOUN	num / adj(?)	
Cavineña	**dem num possr**	**NOUN**	**adj**	
Chamacoco	dem / possr	NOUN	num / adj	
Cubeo	dem / possr /{num} /{adj}	NOUN	{num} / {adj}	
Dâw	**dem num {possr}**	**NOUN**	**adj / {possr}**	
Desano	dem / possr / adj / {num}	NOUN	{num}	
Emérillon	dem / num / possr /{adj}	NOUN	{adj}	
Gavião	dem / possr	NOUN	adj	unknown: num
H.Quechua	**dem possr num adj**	**NOUN**		
Hixkaryana	**possr**	**NOUN**		**dem, num, adj**
Hup	**dem possr num**	**NOUN**	**adj**	
Im.Quechua	**dem possr num adj**	**NOUN**		
Ika	dem / possr / {num}	NOUN	adj / {num}	
Itonama	**dem {num}**	**NOUN**	**possr / adj /{num}**	
Jarawara	dem / possr	NOUN	adj	num
Kamaiurá	dem / possr	NOUN	adj	num
Kanoê	dem / possr / num	NOUN	adj	
Karo	dem / possr	NOUN	adj	num
Kwaza	dem / possr / {adj} / {num}	NOUN	{adj} / {num}	
Leko	**dem / possr num adj**	**NOUN**		
Mamaindê	**possr/num**	**NOUN**	**-dem**	**adj, (num)**
Mapuche	**dem possr num adj**	**NOUN**		
Matsés	**possr**	**NOUN**	**adj**	**dem, num**
Mekens	dem / num / possr	NOUN	adj	
Miraña	dem / num / possr / adj	NOUN		
Mocoví	num dem {possr}/{adj}	NOUN	{adj} /{possr}	
Mosetén	{num} /{possr} / {adj}	NOUN	{num} /{possr} / {adj}	dem
Movima	dem / num / adj	NOUN	possr	
Nasa Yuwe	dem / num / possr	NOUN	adj	
Ninam	dem / num / possr	NOUN	adj	
N. Embera	dem / possr	NOUN	num / adj	
Panare	**possr**	**NOUN**		**dem, num, adj**
Pilagá	**dem num**	**NOUN**	**adj possr**	
Puinave	dem / num / possr	NOUN	adj	
Sabanê	possr	NOUN	dem / adj	num
Shipibo-K.	**dem possr {num} {adj}**	**NOUN**	**{adj} / {num}**	
Tapiete	dem / num / possr	NOUN		unknown: adj
Tariana	dem / possr /{num} / {adj}	NOUN	{num} / {adj}	

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[72] Property words are identified in this table as 'adj' to make the representations more readable.

Tehuelche	dem / num / possr / {adj}	NOUN	{adj}	
Timbira	possr	NOUN	dem / adj	num(?)
Tiriyó	**possr**	**NOUN**		**dem, num, adj**
Trumai	dem / num / possr	NOUN	adj	
Tsafiki	dem / num / possr / adj	NOUN		
Urarina	**dem possr num**	**NOUN**	**adj**	
Warao	possr	NOUN	dem / num / adj	
Wari'	**adj**	**NOUN**	**possr dem**	**num**
Wichí	num / possr	NOUN	-dem adj	
Yaminahua	**dem possr**	**NOUN**	**num adj or adj num**	
Yanesha'	dem / num / possr / adj	NOUN		
Yurakaré	**dem num {possr}**	**NOUN**	**{possr}**	**adj**

Table 7.2: Most frequent position of a modifier with respect to the head noun.

The following observations can be made on the basis of the data presented in the table.

(a) Only 14 languages out of 55 always have the head noun at the boundary of the NP. In a further 10 languages the head noun can occur at the boundary: these are languages where particular modifiers do not have a fixed position with respect to the noun.

(b) Languages of the sample are largely left-branching. In the majority of the languages, demonstratives, lexical possessors and numerals preferably occur before the head noun, while property words tend to occur after the noun.

(c) There are no languages with head-initial NPs in my sample (right branching).

(d) With respect to the flexibility of constituent order relative to the head noun, property words and numerals are more flexible than lexical possessors and which are, in turn, more flexible than demonstratives.

(e) Greenberg's Universal 18 – regarding the position of property word, demonstrative and numeral relative to the head noun – holds for this sample. The universal reads as follows: "When the descriptive adjective precedes the noun, the demonstrative and the numeral, with overwhelmingly more than chance frequency, do likewise" (Greenberg 1963, 1966). Among 11 languages in the sample in which the property word precedes the head noun, there is just one exception: Wari'. In Wari', property words precede the head noun, while demonstratives follow it (see Everett & Kern 1997:151,153,158).

The following set of observations are made on the basis of the 22 languages for which the order of modifiers with respect to each other and the head noun is known (these languages are highlighted and marked in bold in the table).

(f) The property word is always adjacent to the head noun, with one exception out of 22: Yaminahua (see Faust & Loos 2002:95). Thus, this confirms a prediction of the *Principle of Head Proximity* that adjectives always appear

adjacent to the head noun, either directly preceding or directly following the noun (Rijkhoff 2002:266). However, it should be noted that Rijkhoff focuses only on languages that have a distinct and separate class of adjectives. In this study, I have taken adjectives as a semantic category ('property words'), which can thus include complex constructions like minimal relative clauses.

(g) The demonstrative is always found at the boundary of the NP. Here there may be one exception: Mocoví. In Mocoví, the numeral (which is a borrowing from Spanish) precedes the demonstrative in the NP (see Grondona 1998:91).[73]

(h) The internal order of modifiers in the NP confirms to the hierarchical structure proposed in Rijkhoff (2002:218-224): [Dem [Num [Adj [Noun] Adj] Num] Dem]. Among 22 languages there are possibly two exceptions: Yaminahua and Mocoví. In Yaminahua, numerals and property words occur after the head noun. In cases when both the numeral and the property word occur in one NP, either the numeral or the property word can occur adjacent to the head noun. Thus, the NP template in Yaminahua can be either of the following (Faust & Loos 2002:95): dem-possr-NOUN-num-adj, or dem-possr-NOUN-adj-num. In Mocoví, the numeral precedes the demonstrative as noted above. However, the order of the lexical possessor and the property word relative to each other is unknown for Mocoví (see footnote 73).

7.6. Summary

Among the types of criteria used for identifying NP units, category boundary markers, adjacency and fixed constituent order, and the realization of agreement were the most important. It was difficult to divide languages in the sample into those which have integral NPs and those which do not, because it was difficult to generalize over all modifier categories. A particular modifier may form a syntactic unit with its semantic head noun, while another modifier may not. In table 7.1, I presented an overview for each modifying category, which suggests that there is a certain hierarchy: lexical possessors are more likely to form an integral NP with the noun than demonstratives, demonstratives are, in turn, more likely to form an integral NP with the noun than property words and, in turn, these are more likely than numerals. A possible explanation suggested for this

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[73] However, no information is found with respect to the order of the lexical possessor and the property word relative to each other. Both the lexical possessor and the property word can occur either preceding or following the head noun with no semantic change in meaning (Grondona 1998:66,86). From an example available in Grondona (1998:66) we can observe that the order 'demonstrative - lexical possessor - head noun' is possible, but the position of the property word in this particular template is unknown. Another template which is available does not include the lexical possessor as modifier: num-dem-{adj}-NOUN-{adj} (see Grondona 1998:43).

hierarchy is a different 'specialization' of the categories involved, which is reflected in different frequencies of co-occurrence with a head noun and thus makes it a more suitable target for grammaticalization as an NP constituent (Sérgio Meira, p.c.).

Flexibility of ordering is not the same for all modifier categories. In the sample, property words and numerals are more flexible in position than lexical possessors and these are more flexible than demonstratives. This may be due in part to the fact that ordering of these categories is sensitive to the pragmatic status of the nominal referent, e.g. whether it is definite / specific or not. The order of the noun with respect to demonstratives and lexical possessors does not seem to depend on these factors. NPs with lexical possessors and demonstratives as modifiers generally have an interpretation of definite or specific NPs (see Haspelmath 1999:231).

In about half of the languages in the sample, the noun is found at the boundary of the NP. In 14 languages out of 55 the noun *always* occurs at the boundary, and in a further 10 languages the noun *can* occur at the boundary. The majority of the languages in the sample show a preference for prehead modification by demonstratives, lexical possessors and numerals, and a preference for posthead modification by property words.

For the languages for which we could determine the order of modifiers relative to each other, the results largely confirm the prediction of the *Principle of Head Proximity*: adjectives always appear adjacent to the head noun, either directly preceding or directly following the noun (Rijkhoff 2002:266). For the same set of languages, I also showed that the demonstrative is almost always found at the boundary of the NP. In addition, the data confirm the predictions made by Rijkhoff (2002:218-224) about the hierarchical structure of modifiers, with only two possible exceptions in 22 languages.

Chapter 8. Nominal classification

South American languages are interesting for the study of nominal classification for several reasons. There is a number of language families that have the prototypical categories of either gender / noun class or classifiers, but a very widespread system of nominal classification in this part of the world falls in between the classic typological categories as distinguished by Dixon (1986). Specifically, this type of system combines some essential properties of noun classes and classifiers. In addition, it also has properties that cannot be attributed directly to either noun classes or classifiers, specifically their derivational potential. This type of system has been reported for pockets of languages spoken in different parts of the Amazon region (Payne 1987, Derbyshire & Payne 1990, Aikhenvald 2000, Grinevald & Seifart 2004, Seifart & Payne 2007, Van der Voort 2004, 2005). I will use the term 'multifunctional classifier' system because of the three main functions that classifying elements have in such a system: (i) the function of semantic categorization, (ii) the function of derivation, and, to a lesser extent, (iii) the syntactic function of agreement. Although these functions are manifested to different degrees in different languages discussed here, this particular combination of properties is what makes a multifunctional classifier system different from the more prototypical categories of nominal classification. This has been argued in a more general way by Aikhenvald (2000:204), who offers an overview of languages where the same or almost the same set of classifiers can be used in more than one classifier environment, and who also refers to their derivational properties and their use in agreement (2000:220,228). In this chapter, I integrate the suggested properties of multifunctional classifier systems that set them apart from prototypical noun classes and classifier systems.

The chapter has the following structure. In section 8.1, I provide some background to the question of nominal classification by discussing the basic types of nominal classification as distinguished in the typological literature. Section 8.2 considers languages with a prototypical gender system. Section 8.3 considers languages with a prototypical classifier system. Section 8.4 discusses the characteristics of multifunctional classifier systems, and Section 8.5 offers a summary of observations.

8.1. Introduction

The phenomenon of nominal classification has a long tradition of research, with, among others, important contributions by Royen (1929, referred to in Senft 2000), Fodor (1959), Allan (1977), Greenberg (1978), Dixon (1982, 1986), Craig (1986), Senft (1996, 2000, 2007), Aikhenvald (2000), Grinevald (2000), and

Seifart (2005, 2007, 2010). Grinevald (2000) proposes a continuum of nominal classification based on a range of morphosyntactic criteria.[74] I will briefly discuss this continuum, because it provides a clear analysis of different types of nominal classification and because it establishes the terminology that will be used further on in this chapter. Grinevald's continuum runs from purely lexical to purely grammatical means of classification, allowing for overlap. With 'lexical' she means "(a) part of the lexicon and its word-building dynamics and (b) semantically compositional", while the 'grammatical' end of the continuum stands for "part of the morphosyntax of a language" (Grinevald 2000:55).

At the lexical end of the continuum Grinevald places *measure terms* and *class terms*, which she differentiates as follows: "Measure terms are lexical in the sense that they are semantically compositional / analytic noun phrases, and class terms are lexical in the sense that they operate like derivational or compounding morphology at word level" (Grinevald 2000:58). Measure terms are terms that provide a measure of the quantity of an entity referred to by mass nouns or count nouns, as in English *a pound of sugar*, *a slice of bread*, *a line of cars*, and *a pile of books*. Class terms are classificatory elements of a clear lexical origin, which can have different degrees of productivity in a language (Grinevald 2000:59). A common semantic domain involves botanical classes, e.g. a class of plants or fruits. Example in English can be *-tree* or *-berry*, as in *palm tree* or *apple tree*, *strawberry* or *blackberry*.

At the grammatical end of the continuum, Grinevald places *gender* and *noun class* systems. The term 'gender' was originally used to refer to the three classes in Greek, namely, 'masculine', 'feminine', and 'inanimate', which is nowadays called 'neuter' (Aikhenvald 2004:1031). In languages with a similar system, the assignment of gender to nouns denoting humans and animals is often based on the biological gender of the referent, whereas the rest of the nouns are assigned masculine, feminine, or neuter gender based on semantic properties (transparently or in a more opaque way) and / or formal properties. The term 'noun class' has been traditionally used for languages with systems that are functionally similar to gender systems, but with larger inventories, as in the Bantu languages. Gender and noun class systems are treated as one type of noun categorization device in the literature, because both systems (i) obligatorily divide all (or nearly all) nouns into rigid classes and (ii) are realized on other constituents in the form of agreement (Dixon 1982, 1986, Grinevald 2000:56; Corbett 1991:5). The difference between the two relates to the number of classes, as just mentioned, and the fact that the head noun itself is often marked for class

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[74] See Senft (2000:17) for accentuating the idea of a scale in nominal classification and the presence of "transitory zones" between the types, and for comments on earlier suggestions of a continuum.

membership in a noun class system. Good examples of a prototypical noun class system are from languages in the Bantu family (Grinevald 2000:57). In these languages, nouns fall into about eight classes (the number depends on whether one counts singular / plural alternations as one class) that are manifested in the agreement patterns within the NP and on the predicate. Nouns referring to humans can but need not be assigned to classes on the basis of biological sex. Nouns can be assigned to classes on semantic criteria, or formal morphological or phonological criteria, or a combination of these. Although there is a certain amount of irregularity and variation in individual languages of this family, as discussed in Grinevald & Seifart (2004), the following example from Swahili gives an impression of a prototypical noun class system.

(1)   Swahili (Niger-Congo; Seifart 2010:721, referring to Katamba 2003:111
         and A. Abdalla, p.c.)
(a)   ***ki**-kapu*   ***ki**-dogo*   ***ki**-lianguka*
         CL7-basket   CL7-little   CL7-fell.down
         'The little basket fell down.'

(b)   ***vi**-kapu*   ***vi**-dogo*   ***vi**-lianguka*
         CL8-basket   CL8-little   CL8-fell.down
         'The little baskets fell down.'

Here I reserve the term *gender* for smallish systems which distinguish two or three classes like masculine vs. feminine vs. neuter, or masculine vs. feminine, or common vs. neuter, and use *noun class* as a cover term for both gender and noun classes.[75]

   The term *classifier* refers to a free or bound morpheme that classifies and categorizes a nominal referent according to its specific characteristics. While both gender and noun class systems are grammaticalized agreement systems, classifiers are characterized by their "incomplete grammaticalization" (Grinevald 2000:61). Classifiers fall into several types according to the construction in which they occur: numeral classifiers, noun classifiers, verbal classifiers, possessive classifiers, and deictic classifiers. Section 8.3 below deals with prototypical cases of these classifier types.

   A clear theoretical distinction between gender / noun class on the one hand, and classifiers, on the other hand, is highly relevant for many South American languages under discussion. I include the summary of properties proposed by

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[75] 'Gender' is used as a cover term for both systems in Corbett (1991) and Aikhenvald (2004:1031), while 'noun class' is used as a cover term in Aikhenvald (2000:19), Grinevald (2000) and Seifart (2010).

Dixon (1982, 1986) to distinguish a prototypical classifier system from a prototypical gender / noun class system (cf. Grinevald 2000:62).

Noun class / gender system	Classifier system
1. classify *all* nouns	do not classify all nouns
2. into a smallish number of classes (from 2 to ~ 20)	into a largish number of classes
3. of a closed system	of an open system
4. may be fused with other grammatical categories (Def, Num, Case)	independent constituent
5. can be marked on noun	not affixed to noun
6. realized in agreement patterns	marked once
7. N uniquely assigned to a class with no speaker variation	N possibly assigned to various classes at speaker's will
8. no variation in register	formal / informal uses

Table 8.1: Characteristics of prototypical noun class / gender vs. classifiers (slightly adapted from Grinevald 2000:62, referring to Dixon 1982, 1986).

To round off this brief introduction of noun categorization devices, it should be mentioned that purely lexical means of noun categorization, such as measure terms and class terms, are not the main focus of this study. Measure terms are found in a great many languages of the world (Grinevald 2000:58), and not considered further here. Class terms are not treated further either, but they are potentially interesting because, as shown in a number of studies, they may develop into classifiers (which can further grammaticalize into noun classes) (DeLancey 1986; Epps 2007; Seifart 2010:728, among others).

8.2. Languages with prototypical gender systems and noun classes

The present section reflects on the prototypical cases of gender and noun class systems found in the languages of the core sample.

As mentioned in the previous section, gender is a system that obligatorily divides all nouns into a smallish number of classes (e.g. masculine vs. feminine vs. neuter, or masculine vs. feminine, or common vs. neuter), and is realized in the form of agreement. Gender agreement can be realized in different domains: (i) on constituents of an NP, e.g. demonstratives, articles, adjectives, numerals, possessives; (ii) on a predicate; (iii) in pronominal forms, e.g. personal pronouns, relative pronouns, question words; (iv) elsewhere in the clause, e.g. on adpositions or adverbs. In this study, I focus exclusively on languages where gender is realized within the NP.

In the following languages of the sample, all nouns are obligatorily divided into *two* classes, feminine and masculine (or non-feminine, in case of Jarawara):

Mosetén, Chamacoco, Apurinã, Baure, Jarawara, Mocoví and Pilagá. In the Cariban languages Tiriyó, Hixkaryana and Panare, nouns are divided into two classes, animate vs. inanimate, a division that is visible in the choice of the demonstrative form. A division of nouns into *three* classes, feminine, masculine and neuter or inanimate, is found in the following languages of the sample: Wari', Tehuelche, Movima, Miraña, Cubeo, Desano, Tariana.

In some languages, gender distinctions are realized not on the noun itself but exclusively on other constituents within the NP. This is the case for Mosetén, Apurinã, Baure, Jarawara, Tiriyó, Hixkaryana, Panare, Tehuelche, Wari', Movima, Mocoví and Pilagá. Languages where gender is marked on the noun itself as well as on other constituents of the NP are: Chamacoco, Miraña, Cubeo, Desano and Tariana.

Table 8.2 summarizes the information about gender classes in the sample languages.

	Gender realized *only* on modifiers	Gender realized on the noun + modifiers
Languages with *two* gender classes		
Mosetén, Apurinã, Baure, Jarawara, Mocoví, Pilagá, Tiriyó, Hixkaryana, Panare	V	-
Chamacoco	-	V
Languages with *three* gender classes		
Wari', Tehuelche, Movima	V	-
Miraña, Cubeo, Desano, Tariana	-	V

Table 8.2: Languages with gender system.

Example (2) from Tehuelche shows gender agreement within the NP, in this case on a property word. Gender agreement is marked by the suffixes -*K* 'masculine', Ø 'feminine' / 'neuter' on the modifying constituent.

(2)   Tehuelche (Chonan; Fernández Garay 1998:192)

(a)   *le⌐   t´a:rte-n-**K***   (b)   *ka:rken   k´ete-n-Ø*
        water   dirty-NMZ-M   woman   beautiful-NMZ-F
        'dirty water'   'beautiful woman'

Example (3) from Chamacoco shows gender marking on the noun itself and on modifying constituents in the NP, in this case the numerals 'one' and 'two'. While gender is marked by a suffix on the numeral 'one', the numeral 'two' encodes gender distinction in the root.

(3)   Chamacoco (Zamucoan; Luca Ciucci, p.c.)
(a)   *kuchɨ-t*   *nohme-t*   (b)   *hm-e*   **otiyer**
        thing-M.SG.FF   one-M.SG.FF   hand-F.PL   two.F
        'one thing'   'two hands'

Miraña offers a very interesting case. All nouns in this language can be divided
into three classes: 'animate masculine', 'animate feminine' and
'inanimate/neuter'. Thus all nouns take one of three markers: animate masculine
markers, animate feminine markers, and general inanimate markers. So far, this
system has properties of a gender system (cf. Seifart 2005:310). However, the
inanimate/neuter class in Miraña can be further subdivided into a large number
of classes, identified by specific markers which can be used for each class. As
with the animate and general inanimate markers, the specific inanimate markers
participate in agreement within the NP and on the predicate. Taking into account
the large number of classes that are realized in agreement, Miraña is analyzed as
having noun class system (Seifart 2005). Example (4a) shows agreement with
the noun *pihhú-**ko*** 'fishing rod', realized by the specific class marker -*ko* on the
modifying demonstrative and on the verbal predicate. Example (4b) shows that
agreement can also be realized by the general inanimate class marker -*nɛ* instead
of a specific one (Seifart 2005:80).

(4)   Miraña (Boran; Seifart 2005:80)
(a)   *kátú:βɛ-**ko***   *ɛ:-**ko***
        fall-SCM:1d.pointed   DEM.DIST-SCM:1d.pointed

        *pihhú-**ko***
        fish.NMZ-SCM:1d.pointed
        'It (pointed) fell, that (pointed) fishing rod.'

(b)   *kátu:βɛ́-**nɛ***   *ɛ:-**nɛ***   *pihhú-**ko***
        fall-GCM:inan   DEM.DIST-GCM:inan   fish.NMZ-SCM:1d.pointed
        'It fell, that fishing rod.'

Among the languages in the core sample, Cubeo, Desano and Tariana have
similar systems of nominal classification. Whereas Miraña is presented in this
section as a language with a 'prototypical' gender or noun class system
according to the agreement criterion, the system is actually more complex, and
diverges from a prototypical noun class system in a number of ways (see Seifart
2005:310,312). Characteristics of classifying elements in Miraña, Cubeo,
Desano, Tariana and a large number of other languages are discussed in section
8.4, which deals with multifunctional classifier systems. Before turning to the

discussion of such systems, I first consider languages with prototypical classifier systems.

8.3. Languages with prototypical classifier systems

Grinevald (2000) and Aikhenvald (2000) propose a subdivision of classifiers into several types, according to the construction in which they are used: numeral, noun, possessive, verbal, and deictic classifiers. Additionally, a type of locative classifiers is distinguished in Allan (1977:287) and discussed in more detail in Aikhenvald (2000). If we take into consideration the properties of classifiers in table 8.1, a number of languages in the core sample have classifier systems that conform to these particular criteria. Most of these, supplemented with a few languages outside the sample, will be discussed here as the illustration of different classifier subtypes.

Numeral classifiers are used in constructions with numerals and expressions of quantity. Depending on the morphological profile of a language, numeral classifiers can occur as independent lexemes (often in isolating languages) or as affixes (often in polysynthetic, agglutinating and fusional languages) (Aikhenvald 2000:99). Semantically, numeral classifiers most often categorize referents according to physical properties, such as shape, consistency, size and boundedness (Grinevald 2000:72). More or less prototypical numeral classifiers are found in the core sample in two languages, Tsafiki and Itonama. Example (5) from Tsafiki illustrates the use of classifiers in constructions with numerals. Numerals other than 'one' obligatorily take a classifier in Tsafiki. There are five classifiers, which are used exclusively with numerals. Semantically, four classifiers refer to shape (small grain-like objects, long / rigid, hard / planular, and flexible), and one classifier is general and can also be used with human referents (Dickinson 2002:75).

(5)   Tsafiki (Barbacoan; Dickinson 2002:57)
(a)   *peman-ka   sona=la*   (b)   *palu-de   ano*
        three-CLF:gen   woman=PL   two-CLF:long.rigid   banana
        'three women'   'two single bananas'

(c)   *palu-ki   ano*
        two-CLF:flexible banana
        'two banana leaves'

In Itonama, there are eight classifiers, which are used exclusively in constructions with the native numerals 1-2. Classifiers are used on these numerals, if the head noun is inanimate. However, if the head noun is animate, a

classifier is absent. Borrowed Spanish numerals do not take classifiers at all
(Crevels 2012, p.c.).

(6)   Itonama (unclassified; Crevels 2012)
         nik'abï   *o-si-lo*   ***ni-****chïpa*   *uwu*
         DEM:ADV:DIST   DV-EX-CLF:winding   CLF:winding-two   river

         wa'ihna   *o-si-du*   ***chas-****k'a'ne*   *iskuwela*
         DM   DV-EX-CLF:oval.SG   CLF:oval-one   SP.school
         'There are two rivers and one school.'

Another subtype of classifiers are *noun classifiers.* Prototypically noun
classifiers are "realized as free morphemes standing in a noun phrase, next to the
noun itself or within the boundaries of the noun phrase with other determiners of
the noun" and they "are crucially found independently of the operation of
quantification" (Grinevald 2000:64). The semantics of noun classifiers relates to
the inherent nature of the referent; human referents are often categorized
according to parameters like age, gender, kinship relation, social status and
respect (cf. Grinevald 2000:72, Aikhenvald 2000:82).
    Among the languages of the core sample, noun classifiers are found in Pilagá,
Mocoví, Karo and Dâw.[76] Example (7) from Pilagá illustrates noun classifiers.
This language has one general classifier *hen* and six specific classifiers, which
fall into two semantic categories, 'deictic' and 'positional'. The classifiers of the
'deictic' category encode distance and movement, whereas classifiers of the
'positional' category encode posture and shape in terms of extendedness. The
following examples illustrate the occurrence of some of these classifiers
preceding the nouns.

(7)   Pilagá (Guaycuruan; Vidal 1997:72,74, Vidal 2001:115)
(a)   ***soʔ***   *seraki*   *ya-cangi*   *ha-****ñiʔ***   *kaxa*
         CLF:going.away   seraki   3SG-put   F-CLF:non.ext   box

         diʔ   *ganaat*
         CLF:horiz.ext   knife
         'Seraki put the knife in the box.'

(b)   ***hen***   *tareik*   *ketaqayk*
         CLF:gen   big   hard.wood.tree
         'the big hard wood tree'

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[76] An 'incipient' system of noun classifiers is also reported for Hup (see Epps 2008:279).

(c) **ñi'**   *pyok* *neta-we* **ñi'**   *emek*
     CLF:non.ext dog   be-DIR   CLF:non.ext house
     'The dog is inside the house.'

It should be mentioned that the same classifiers can also be used in one other morphosyntactic environment in Pilagá, viz. with demonstratives. However, this may be a logical development given that demonstratives can stand in for a noun.

Possessive (or *genitive*) *classifiers* form yet another subtype of classifiers. These are classifiers that are used in possessive constructions. Semantically such classifiers tend to characterize the referent in terms of its function, physical properties, its relation to the speaker, and often in terms of its social status and function (Grinevald 2000:72; Aikhenvald 2000:82). Among the languages of the core sample, possessive classifiers are found in Panare, Bororo and Wichí. This classifier type is exemplified by Panare in (8).

(8)   Panare (Cariban; Tom and Doris Payne, p.c.)

(a)   *Toose* **iyu**   *libro* *asa'*
      Toose   CLF:gen   book   two
      'Toose's two books'

(b)   *yu*   **wúto-n**   *uto'*
      1SG   CLF:manioc-POS   manioc
      'my manioc / cassava / yuca (not yet prepared)'

As already mentioned in section 4.2.1 of chapter 4, Panare has a set of 21 classifiers that are used in constructions with alienably possessed nouns (Carlson & Payne 1989:11, referring to Mattéi Müller 1974). Sérgio Meira (p.c.) notes that in Tiriyó and Hixkaryana, two other Cariban languages in the core sample, elements that might be called classifiers should instead be regarded as generic nouns in an appositional relationship to the head noun. Meira (1999:530) gives two main reasons for this analysis for Tiriyó. Some of the nouns that occur in constructions with these generic nouns, can also take possessive morphology directly, and thus are not really non-possessible. Second, there are no syntactic differences between constructions with elements that might be analyzed as classifiers and other nouns.[77] In Panare, by contrast, constructions with generic nouns have already grammaticalized (Meira, p.c.). This is evident from the

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[77] For instance, Tiriyó (Cariban; Meira 1999:530):

(a)   *ji-otï*   *pai*   (b)   *ji-pawana*   *tarëno*
      1-meat.food   tapir   1-friend:POS   Tiriyó
      'my tapir meat'   'my Tiriyó friend'

occurrence of constructions like 'my-arrow arrow', 'my-canoe bike', where *kanowa* 'canoe' is used as the classifier for vehicles.

As mentioned in chapter 2, a number of languages in the core sample have one or two classifiers that are obligatory in possessive constructions with domesticated animals or food items. However, since the number of classifiers is very small, and the situation in which they are used is highly specific, it may be questionable to call this a possessive classifier system. On the other hand, if we take into account the wide spread of this specific usage, such cases should definitely be noted. For instance, in Mekens, there are two classifiers: one used with food items and the other used for nouns referring to pets.

(9)   Mekens (Tupian; Galucio 2001:33)
         *o-**iko***   *apara*   (**o-apara*)
         1SG-food   banana
         'my banana'

In the following languages, there is just one classifier form in possessive constructions with nouns referring to domesticated animals: Emérillon, Mocoví, Baure, Yurakaré and Trumai. Such nouns belong to the category of indirectly possessed nouns in these languages.[78]

(10)   Yurakaré (unclassified; Van Gijn 2006:74)
         *ti-**tiba***   *talipa*   (**ti-talipa*)
         1SG.POS-pet   chicken
         'my chicken'

Another subtype of classifiers are *verbal classifiers*. Such classifiers are found inside the verb form and are used to classify one of the nominal arguments of the verb (Grinevald 2000:67). Derbyshire & Payne (1990:245) describe these as "lexical items incorporated into the verb stem which signal some classifying characteristic of the entity referred to in an associated noun phrase". Semantically, verbal classifiers often categorize the referent in terms of physical properties, position and animacy (Aikhenvald 2000:150). Among the languages of the core sample, a set of verbal classifiers is found in Itonama. In this language, there are 17 classifiers that are used in existential constructions and with locational and positional verbs (Crevels 2012, p.c.). It should be mentioned that the same set of classifiers is used in one other syntactic environment in

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[78] See also constructions from Bororo and Wichí that are discussed in section 4.2.1 of Chapter 4.

Itonama, namely with demonstratives (i.e. as deictic classifiers, see below).[79] The choice of a verbal classifier is based on animacy, shape and position of the referent (11).

(11)   Itonama (unclassified; Mily Crevels, p.c.)
    nik'abï   *o-si-**du***   *upala*   *karomaya*
    DEM:ADV:DIST   DV-EX-CLF:oval.SG   stone   black
    'There is a black stone over there.'

Yet another subtype of classifiers are *deictic classifiers*. These are classifiers that occur in constructions with demonstratives or articles. Grinevald (2000:68) mentions that deictic classifiers are less well-known and less described than the types of classifiers discussed so far. The languages in the sample suggest that semantically, deictic classifiers characterize the referent in terms of its number, shape, animacy and position in space. Among the languages of the core sample, deictic classifiers are found in the Guaycuruan languages Pilagá and Mocoví, and in Itonama. This type of classifier is exemplified in (12) by Pilagá, which, as noted earlier, uses the same set of classifiers with nouns and demonstratives. While a noun is not necessarily preceded by a classifier, two of the three demonstratives obligatorily occur with a classifier.

(12)   Pilagá (Guaycuruan; Vidal 1997:73)
    an-toñi-igi   ***diʔ-mʔe***   *dole*
    2SG-warm-MOD   CLF:horiz-DEM.MED   fire
    'Warm yourself up by the fire.' (pointing at it)

It should also be remembered that the set of verbal classifiers in Itonama is also found on demonstratives (also example 11):

(13)   Itonama (unclassified; Mily Crevels, p.c.)
    *nu'u-**du***   *k'ipala*
    DEM:PROX-CLF:oval.SG   egg
    'this egg'

The last subtype of classifiers, *locative classifiers,* is defined by Aikhenvald (2000:172) as "morphemes which occur in locative noun phrases". The following information about this type is from Aikhenvald (2000:172). She mentions that in "in all the known cases, locative classifiers are 'fused' with an

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[79] The set of classifiers used with native numerals in Itonama is different from the set of classifiers used with verbs and demonstratives (Crevels 2012).

adposition (preposition or postposition)". The choice of a locative classifier depends on the physical properties of the referent, like its shape or consistency. Aikhenvald suggests that this type of classifier is found in the following languages of South America exclusively: Palikur and Lokono (Arawakan), Apalaí, Hixkaryana and Macushi (Cariban) and Dâw (Nadahup). I will not consider this type further as it is not clear whether these morphemes can be distinguished from adpositions.

Table 8.3 summarizes the languages of the core sample in which 'prototypical' instances of classifier subtypes are found.

Numeral classifiers	Itonama, Tsafiki.
Noun classifiers	Dâw, Karo, Mocoví, Pilagá
Possessive classifiers	Bororo, Panare, Wichí. *Classifiers for pets/food items:* Emérillion, Baure, Mekens, Mocoví, Trumai, Yurakaré.
Verbal classifiers	Itonama.
Deictic classifiers	Itonama, Mocoví, Pilagá.

Table 8.3: Languages in the core sample with 'prototypical' classifiers.

8.4. Multifunctional classifier systems

8.4.1. Properties of multifunctional classifier systems

The topic of special interest in this chapter concerns the systems of nominal classification that I refer to as 'multifunctional classifier systems'. There is a term 'multiple classifier system', introduced by Aikhenvald (2000:204) for languages where the same or almost the same sets of classifiers can be used in more than one classifier environment (e.g. as numeral, demonstrative or verbal classifiers). I opt for the term *multifunctional* classifier system, however, for the following reason. The properties characterizing such systems can be generalized to three main functions: the function of semantic categorization (prototypical classifiers), the function of derivation (neither prototypical classifiers nor class markers), and, to a lesser extent, the function of agreement (prototypical noun classes). These functions are manifested to different degrees in the languages under discussion, but their presence is what distinguishes the multifunctional classifier system from the more prototypical categories of nominal classification.

Payne (1987) was the first to draw attention to the type of nominal classification in a number of related and unrelated languages in the Western Amazon that do not conform to the classic typological categories of 'noun classes' and 'classifiers' (Dixon 1986). In these languages, classification systems combine certain typical characteristics of noun classes (a highly grammaticalized

nominal classification device) with some typical characteristics of classifiers (a 'lexico-grammatical device', in the words of Grinevald 2000:61). More specifically, classifying elements can participate in grammatical agreement between constituents (although to a different degree in different languages), but at the same time one noun is not necessarily assigned to one particular semantic class and can be reassigned to a number of classes at the speaker's will. This suggests that such systems occupy an intermediary position between 'noun classes' and 'classifiers', showing the fuzzy boundaries of these categories (Grinevald 2000). In addition to the functions of agreement and categorization, Payne also illustrates their capacities for derivation, a function that is much less central in both noun class and classifier systems.

Several studies on individual languages of the Northwest Amazon offer further discussion of this issue (Derbyshire & Payne 1990, Aikhenvald 2000, Grinevald & Seifart 2004, Seifart 2005, Seifart & Payne 2007). In addition, Van der Voort (2004:179, 2005) reports a number of unrelated languages in the Southwestern Amazon region that have similar mixed traits of nominal classification. While some languages have distinct sets of classifying elements used in some of the morphosyntactic slots, the majority of these languages use the same or almost the same set of classifying elements in all environments and functions (see also Aikhenvald 2000:204). In their discussion of a number of languages from the Northwestern Amazon, Seifart & Payne (2007:384) observe that the classifier systems in these languages "are entirely logical and plausible as instantiating a coherent system type in their own right, based on how classifiers are integrated into the grammar of each language".

In table 8.4, I suggest a list of properties of multifunctional classifier systems taking into account Dixon's criteria, with some modification and building upon the earlier work noted above.[80] Each suggested property will be discussed in more detail in the following section. As already noted, there is some variation in the degree to which the properties are manifested in specific languages, including for languages that are genetically related.

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[80] Dixon's (1982, 1986) criteria are marked with 'D' in table 8.4.

Properties of a multifunctional classifier system	Properties *typical* of		
		noun class	classifiers
ASSOCIATED WITH SEMANTIC FUNCTION			
1. Nouns can be assigned to various classes at speaker's will	D	-	+
2. Form largish number of classes	D	-	+
3. Constitute an open system	D	-	+
ASSOCIATED WITH DERIVATIONAL FUNCTION			
4. Can derive noun stems			
(4a) Either derive *new* noun stems from noun stems or roots		-	-
(4b) Or nominalize and / or form noun stems from verbal stems or roots		-	-
5. Can form a full NP when occurring on a modifying constituent		-	- / +
ASSOCIATED WITH AGREEMENT FUNCTION			
6. Can occur on predicates to mark core arguments			
(6a) Either on *any* predicate to mark core argument(s)		+	- / +
(6b) Or only on a subclass of predicates (e.g. nominal predicates, stative verbs)			
7. Can participate in agreement within the NP	D	+	-
Problematic feature : 8. Classify all nouns	D	+	-

Table 8.4: Properties of the multifunctional classifier system.

Key: 'D' = Dixon 1982, 1986.

In the present sample, the following languages have strong characteristics of multifunctional classifier systems: Miraña, Cubeo, Desano, Tariana, Baure, Yanesha', Mamaindê, Sabanê, Kwaza, Kanoê, and Movima. Ninam is not included in this list as new data are studied at the moment with respect to the properties of its classifier system (Gale Goodwin Gomez, p.c.).

For the discussion in the following section, I take a wider range of South American languages into account than the core sample used in the other chapters. Appendix 2 gives an overview of the languages studied, with the languages of the core sample marked in bold. The aim of the table in the appendix is to show the range of properties of the classification systems in these languages. The table should be read as follows. The first column provides information about a language family, while the second column specifies the languages in the family that have a particular combination of properties. The third column gives 'yes / no' information on whether the language(s) have the category of gender (making the *masculine / feminine / neuter* distinction). The fourth column provides 'yes / no' information on whether the languages or language family has classifying elements. If there are classifying elements in the language(s), the fifth column specifies in which constructions they are used (e.g. with numerals, property words, demonstratives). If classifying elements are used in various

morphosyntactic environments, this is identified as 'multiple'. The next ten columns are devoted to properties of the nominal classification system. Plus (+) stands for the presence of a particular property, while minus (-) stands for its absence. The combination of the plus and minus symbols (+/-) stands for the presence of a particular property but to a limited degree. A question mark next to the plus or minus symbol, or by itself, indicates uncertainty, or that no information is available. Finally, the last column in the table provides information on the source of the information or the source for the data on the basis of which the judgments were made.

8.4.2. Discussion of the properties

I will now exemplify the characteristic properties of multifunctional classifier systems, and I will discuss some variation shown by the languages. I will also indicate how the features are combined in specific languages under discussion; the reader is referred to appendix 2 for a complete overview.

Property 1: Nouns can be assigned to various classes at the speaker's will
This is a feature that is characteristic of prototypical classifier systems. In general, there is a fair proportion of lexical items that is not restricted to one particular class. There are often also lexical items that can take only one particular classifying element. This can be a 'regular' classifier or a so-called 'repeater', which is morphologically part of the noun stem that is classified.

However, there are also languages like Baure, where each lexical item allows only one particular classifying element. This is a feature that is characteristic of noun classes. Example (13a,b) illustrates the classifier *-se* used for oval objects, the classifier *-e* used specifically for a non-sweet type of fruit, and the classifier *-i*, which is used for sweet fruit and also birds. Danielsen (2007:141) notes that reclassification of the referents in a different class is not possible. For instance, the classifier *-e* cannot apply to a fruit which is sweet, even if it is not yet ripe (14c).

(14)   Baure (Arawakan; Danielsen 2007:142)

(a)   *po-e-š*   *rekirok*   *po-e-š*   *mokovis*
       one-CLF:unsweet-one   tutuma   one-CLF:unsweet-one   pumpkin
       'one tutuma, one pumpkin'

(b)   *po-i-š*   *mokovore'*   *po-se-š*   *senti*
       one-CLF:fruit&bird-one   papaya   one-CLF:oval-one   watermelon
       'one papaya, one watermelon'

(c)   *po-e-š   mokovore'
          one-CLF:unsweet-one   papaya

Even if the characteristic of assigning a noun to just one class is typical of a noun class system, the existence of a large number of such classes in Baure, and the potential to add more classes, are atypical of noun classes. Again, this points to a somewhat different type of classifier system.

Property 2: Form largish number of classes
Dixon (1986:106) suggests that noun class systems are characterized by a smallish number of classes and gives an estimate of "usually, from 2 to around 20", whereas classifiers are characterized by a larger number of classes. The majority of languages with multifunctional classifiers correspond to the profile of classifiers with respect to this feature, as they often have a much larger number of classes than 20. I mention just a few. For Kwaza, Van der Voort (2004:138-175) gives a list of 29 etymologically opaque classifiers, in addition to 22 etymologically transparent classifiers and about 100 classifiers that show no relation to an independent noun, but can form a free lexical noun when combined with the empty root *e-*. In Miraña over 60 classifying elements are identified (Seifart 2005:3), while in Witoto proper, a related language, there are more than 100 classifying elements (Petersen de Piñeros 2007:389). The Tucanoan language Cubeo has at least 150 classifying elements (Morse & Maxwell 1999:73).

Nambikwaran languages, which are regarded here as having multifunctional classifiers, are exceptions because they have smaller inventories. While for Mamaindê 24 classifying elements are recorded (Eberhard 2009:335), Lakondê / Latundê has eight (Telles 2002:187) and Sabanê has seven classificatory elements (Araujo 2004:114). While the classifier systems in these languages are relatively small and do not constitute an open system (properties typical of noun classes), classifying elements do not participate in agreement, do not classify all nouns and can assign nouns to various classes, which are properties typical of classifiers. Moreover, classifying elements in Nambikwaran languages can also derive new nouns, either from noun stems or verb stems, they can form a full NP when occurring on a modifying constituent, and they can occur on, at least, a subclass of predicates.

Property 3: Constitute an open system
An open system of semantic classes is characteristic of classifiers and not of noun classes. Since noun classes constitute a highly grammaticalized system, the number of classes to which nouns are assigned is usually very stable. A classifier system, as a much less grammaticalized device of noun categorization, typically

allows for new classes to emerge. Among the common mechanisms is the use of 'repeaters' (i.e. parts of the noun stem that is classified used as classifying elements). The following example from Movima shows the use of the repeater -*mo* on the verb cross-referencing the noun.

(15)   Movima (unclassified; Haude 2006:215)

      n-os   *jayson*   *peɬ-a-**mo**-wa=as*   *buka'*

      OBL-ART.N.PST   seem   tear-DR-TRC.bush-NMZ=N.AB   DUR.mov

      os   *cham**mo***

      ART.N.PST   bush

      '… as it [the jaguar] seemed to be breaking through the forest.'

This feature is related to a certain degree to Property 2, in that multifunctional classifier systems often form an open system and have a large number of classes.

Property 4: Can derive noun stems.
This property is not typical of either noun class or classifier systems, but it is very prominent among languages with a multifunctional classifier system. The sets of classifying elements in these languages have an important derivational function. Derivational capacity will be discussed here in terms of two possibilities: (i) derivation of new nouns from noun roots or stems, and (ii) derivation of new nouns from verbal roots or stems.

   Property 4a: Can derive new noun stems from noun stems or roots
Classifying elements in a multifunctional classifier system can derive new nouns from existing noun stems or roots. Although this derivational function has also been noted for noun classes, its use is very limited (Grinevald & Seifart 2004:254). A derivational function plays a prominent role among multifunctional classifiers and is, therefore, considered to be a characteristic feature. The derivational function of the classifying elements is demonstrated next by Mamaindê and Harakmbut.

(16)   Mamaindê (Nambikwaran; Eberhard 2009:333)
      *nahon-**sa̰**-tu*
      water-CLF:liquid-FNS
      'chicha / sweet drink in general'

Example (17) from Harakmbut illustrates the option of stacking several classifying elements to form a new noun.

(17)   Harakmbut (Harakmbut-Katukinan; Hart 1963:3, cited in Adelaar with
         Muysken 2004:460)
         *wa-**pa-pi-kɨ-ti-pi***[81]
         WA-CLF:rod-CLF:stick-CLF:head-CLF:extension-CLF:stick
         'shin'

   *Property 4b: Can nominalize and / or form noun stems from verbal stems or
roots*
Classifying elements in multifunctional classifier systems frequently occur on
verbal roots. They function as nominalizers or as derivational elements creating
new nouns from verbal roots. For instance, example (18) from Kwaza
demonstrates the use of a semantically neutral classifier which functions as a
nominalizer on verbal roots. As noted earlier, property words, numerals and
demonstratives are expressed by verbal roots in Kwaza. These roots can only be
used as modifiers of nouns when they are nominalized by a classifier, either the
semantically neutral one or a specific one (Van der Voort 2004:131).

(18)   Kwaza (unclassified; Van der Voort 2004:214)
         awy-'hỹ
         be.cold-NMZ
         'cold (one)'

Example (19) is from Arabela, illustrating the role of classifiers in derivational
processes. In this example, the verb 'to go up' is used with a classifier resulting
in the noun 'ladder'. According to Payne (1987:29), classifying elements in this
language do not occur in constructions with numerals or with demonstratives.
However, classifying elements can derive noun stems from verbs (19), or they
can occur on modifying nouns within the NP.

(19)   Arabela (Zaparoan; Payne 1987:30 referring to Edgar Pastor, p.c.)
         taka-tu
         go.up-CLF
         'ladder'

Another example of the use of classifying elements to derive nouns from verbs is
from Chayahuita (20).

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[81] The nature of the element *wa-* is uncertain. It can be an empty root, or a nominalizer.

(20)   Chayahuita (Cahuapanan; Payne 1987:33)
(a)   *na'në-i'*   (b)   *shipi-ro'*
         cry-CLF:liquid   get.wet-CLF:earth
         'tear'   'mud'

There are also languages that do not allow derivation of nouns from verbal roots.
For instance, Seifart (2007:419) mentions for Miraña that verbal stems "have to
be nominalized by a low tone on their first syllable prior to further derivation
with classifiers". Example (21) illustrates the case.

(21)   Miraña (Boran; Seifart 2007:419 referring to Leach 1969)
         ka:túnu-i:ʔo
         paint.NMZ-CLF:small.stick
         'pencil'

Property 5: Can form a full NP when occurring on a modifying constituent
Another property typical of multifunctional classifier systems is that classifying
elements on modifying constituents can form an NP on their own. This primarily
depends on the type of classifying element: it has to be semantically specific
enough in order to allow this use. This is demonstrated by the examples in (22a-
c) from Kwaza, where modifying constituents together with a classifying
element form a full NP. The classifying morphemes are very specific, making
the head noun redundant. Example (22d) illustrates the use of a semantically
neutral classifying element; in such cases the presence of the head noun is
important for a complete statement.

(22)   Kwaza (unclassified; Van der Voort 2004:223,182,131)
(a)   *ỹ-ũ*   (b)   *'si-dy-mãi*
         this-CLF:flower   1-POS-CLF:tooth
         'this flower'   'my teeth'

(c)   *(a'xy)   haka-'xy*   (d)   *a'xy   arwa-'hỹ*
         (house)   be.old-CLF:house   house   new-NMZ
         'old house'   'new house'

A similar use of specific classifiers can be found in Movima.

(23)   Movima (unclassified; Haude 2006:347)
         *oyka-**dy**   di'   kwajta'   kis   am-na=n   ja'a*
         four-BR:grain   REL   maize   ART.PL.AB   enter-DR=2   just
         'Just four grains of maize (is what) you put in.'

A somewhat different situation where classifying elements on modifying constituents form an NP on their own is when they are used anaphorically. This use is also widely attested in languages with prototypical numeral or noun classifiers. Anaphoric use is possible in appropriate discourse conditions, namely, when the referent has already been introduced. Such anaphoric use of classifying elements can be exemplified by Miraña: an example like (24) can only be used when the head noun *pi^hhú-ko* 'fishing rod' has been introduced earlier.

(24)   Miraña (Boran; Seifart 2007:422)
          e:-ko   *(pi^hhú-ko)*
          DEM.DIST-CLF:pointed   fish.NMZ-CLF:pointed
          'that (fishing rod)'

Example (25) and (26) illustrate a similar property of classifier elements in Lakondê and Cubeo.

(25)   Lakondê (Nambikwaran; Telles 2002:200)
          *'laʔ-**ni**-'te*
          be.new-CLF:hemispheric-REF
          'new house'

(26)   Cubeo (Tucanoan; Morse & Maxwell 1999:84)
          i-boxi-A
          DEM:PROX.INAN-CLF:bundlelike-PL
          'these brooms'

The available data suggest that the languages discussed here probably have a range of classifying elements, some of which can be used to form a complete non-anaphoric NP, while others only allow anaphoric use.

Property 6: Can occur on predicates to mark core arguments.
This feature is not atypical for noun classes and verbal classifiers, but it is quite typical for a multifunctional classifier system. The occurrence of classifiers on predicates is discussed here in terms of two options: occurrence on *any* predicate to mark core arguments, and occurrence only on a subclass of predicates, for instance, on nominal predicates or on stative verbs.
    Property 6a: Can occur on any predicate to mark core argument(s)
This feature is also characteristic of verbal classifiers, as discussed in section 8.3. However, unlike verbal classifiers, classifying elements in multifunctional classifier systems are not restricted to verbal predicates and can occur elsewhere

in the clause. For instance, the same set of classifying elements can be used on verbs, nouns, numerals (and other constituents) in either attributive or predicative positions. In addition to occurrence in different syntactic environments, the same set of classifying elements can show other properties which are suggested here as characteristic of multifunctional classifier systems, like their derivational function.

In example (27) from Harakmbut, the classifying element *-po* 'round' is used as a derivational marker on the nominal root *pera'* 'rubber' and it is incorporated in the verb to cross reference the object argument.

(27)   Harakmbut (Harakmbut-Katukinan; Hart 1963, cited in Payne 1987:36)
         pera'-po   *o'-**po**-yakai'e*
         rubber-CLF:round   3SG-CLF:round-kick:try
         'He tries to kick the ball.'

Example (28a) from Aikanã also illustrates the use of classifying elements on verbs to refer to an object argument. In (28b) a property word expressed by a stative verb takes a classifying element.

(28)   Aikanã (unclassified; Van der Voort 2011, Van der Voort 2004:180)
(a)   *hi'tsa*   *'vikere*   *taw-'ka-**pa**-ẽ*
         I   peanut   crack-1SG-CLF:big.thin-DECL
         'I cracked peanuts.'

(b)   *ka'pe(-**mũ**)*   *'vi-**mũ**-'ẽ*
         coffee-CLF:liquid   black-CLF:liquid-3.DECL
         'The coffee is black.'

In the following example from Baure, the verbal predicate incorporates the classifying element that categorizes the referent of the object NP. Danielsen (2007:208) mentions that "classifying incorporation on intransitive verbs, involving the subject, is less frequent".

(29)   Baure (Arawakan; Danielsen 2007:139)
         *vi=eh-**po**-a-wo*   *to*   *etip*
         1PL=wash-CLF:tiny-LK-COP   ART   manioc.starch
         'We wash the manioc starch.'

The reason to treat Baure as having multifunctional classifiers is that the same set of classifiers can occur on other constituents, they have derivational potential,

and they combine some properties of noun classes and some properties of classifiers (cf. Danielsen 2006:140).

Property 6b: Can occur only on a subclass of predicates to mark the argument (e.g. nominal predicates, stative verbs)

While in some languages any predicate can occur with a classifying element, in others only a nominal predicate or stative verbs can incorporate a classifier. This is the case, for instance, for Arabela (Payne 1987:30), as shown below.

(30)   Arabela (Zaparoan; cited in Payne 1987:30 as Edgar Pastor, p.c.)
(a)   *nio   riuriuquiu   seca-**jajau***
         DEM:PROX   egg   small-CLF:small.round
         'This egg is small.'

(b)   *nio   toque   mueru-**que***
         DEM:PROX   cloth   black-CLF:cloth
         'This cloth is black.'

For Lakondê it is not clear whether all predicates can incorporate a classifying element or only a subclass of it. Example (31) shows the use of a classifying element on an intransitive predicate.

(31)   Lakondê (Nambikwaran; Telles 2002:191)
         *'mãn-**ka'loh**   'la?-**ka'loh**-'tãn-ta*
         clothes-CLF:flat   be.new-CLF:flat-IMPFV-ANT
         'The clothes are new.'

The same set of classifiers is used on nouns, numerals, demonstratives, and verbal predicates; and thus is an important component in the morphology of Lakondê (cf. Telles 2002:185).

Property 7: Can participate in agreement within the NP
The realization of agreement is an essential criterion for identifying a noun class system as opposed to prototypical classifier systems. In some of the languages discussed here, overt realization of agreement is more often obligatory than in others. And again in some languages, agreement is realized on a larger range of constituents than in others.

Example (32) from Cubeo illustrates agreement on demonstratives by means of classifying elements. Example (33) from Tariana shows agreement by means of classifying elements on modifying property words.

(32)   Cubeo (Tucanoan; Morse & Maxwell 1999: 93)
*aru   di-**bɨ**   kobo-**bɨ**   korika-I*
and   this-CLF:oblong   kind.of.fish.trap-CLF:oblong   middle-LOC
'And in the middle of that fish trap…'

(33)   Tariana (Arawakan; Aikhenvald 2003:88)
*kule-**kha**   matʃa-**kha***
fishing.tool-CLF:curved   good-CLF:curved
'a good fishing line'

Example (34) from Tariana demonstrates the use of -*phi* 'hollow' for noun derivation and as an agreement marker with the modifying numeral.

(34)   Tariana (Arawakan; Aikhenvald 2003:217)
*kephunipe-**phi**-pe   **surupe-phi**-pe*
four-CLF:hollow-PL   clay-CLF:hollow-PL
'four clay pots'

However, as noted above, agreement is not always present. For instance, in the following examples from Desano, agreement with the classifying element is found in some cases but not in others. All three constructions involve numerals as modifiers. The difference may depend on both the head noun and the morphological form of the modifying numeral. This 'optionality' in the realization of agreement may indicate that "this is not a true inflectional agreement process" (Payne 1987:39). This points once again at the fact that a system like the one in Desano is neither a prototypical noun class nor a prototypical classifier system.

(35)   Desano (Tucanoan; Miller 1999:4)
(a)   *yuhu-**ru**   wɨ-ri-**ru**   wɨa-ri-**ru***
one-CLF:spherical   fly-DVBZ-CLF:spherical   large-DVBZ-CLF:spherical
'one large plane'

(b)   *suʔri   pe-**yẽ**   opa-a*
clothes   two-CLF:flat   have-NON3.PRS
'I have two dresses.'

(c)   *ɨʔre   wiʔi*
three   house
'three houses'

Another characteristic observed for such agreement marking is the frequent redundancy of the head noun. For instance, in Miraña agreement patterns realized with classifier elements on modifying constituents are ubiquitous. However, as Seifart (2007:425) points out, such constructions are different from canonical cases of agreement in that "the expressions in which agreement is realized (numerals, demonstratives, adjectives, etc.) can also be used independently of a full noun". This is treated as another general characteristic feature of this multifunctional classifier system (feature 5 discussed above).

Problematic property: 8: Classify all nouns
The property to obligatorily divide *all* nouns into categories distinguishes a prototypical noun class system from a prototypical classifier system. The languages discussed here in terms of multifunctional classifiers, however, are less uniform for this feature than for the features considered so far. There is a split between languages that also have a gender system (i.e. a smallish systems of classes which include masculine / feminine and sometimes neuter distinction), and those which do not have a gender system. The languages discussed here that also have a gender system, divide all nouns into rigid gender classes 'human/animate masculine', 'human/animate feminine', and 'inanimate/neuter' (as discussed in section 8.2 for Miraña). The latter class can then be further subdivided into a large number of classes, the number of which varies from language to language. Languages that do not have a gender system often have a more or less substantial part of the lexicon obligatorily divided into classes, but this does not seem to involve *all* nouns.

There is another point that needs to be mentioned here. The fact that it is possible to use a semantically neutral classifying element, may suggest that it is not the noun that requires classification, but rather the modifying constituent which needs to be nominalized in order to occur in a particular syntactic position. This can be illustrated by Kwaza and Movima. In example (36a) from Kwaza, the semantically neutral classifying element *-hỹ* (glossed as 'nominalizer') can be used instead of a semantically specific classifying element. In any case, either a neutral or a specific classifier is obligatory on the modifying constituent which is a verbal root. In example (36b), a semantically specific classifying element is used, which implies that the head noun is optional.

(36)   Kwaza (unclassified; Van der Voort 2004:467, 157)
(a)   *'mangka   'ki-**hỹ**   'ja-da-ki*
          mango   ripe-NMZ   eat-1SG-DECL
          'I ate a ripe mango.'

(b)   *(nũ'ty)   jẽjẽkydy-'**mũ***
        honey   bee-CLF:liquid
        'oropa bee honey'

Example (37) from Movima illustrates the use of the semantically neutral classifying element *-ra* on the numeral root instead of the more specific one *-poy* 'animal'.

(37)   Movima (unclassified; Haude 2006:208)
(a)   *tas-ra*   *is*   *paj'i*
        three-BE:neutral   ART.PL   dolphin
        'There are three dolphins.'

(b)   *tas-poy*   *is*   *paj'i*
        three-BR:animal   ART.PL   dolphin
        'There are three dolphins.'

Unlike features 1-7 discussed so far, we cannot treat this feature as part of the distinctive properties of a multifunctional classifier system, since it is only found in some of the languages under discussion. The reason why we discuss this feature at all is that it is diagnostic of prototypical noun class systems when compared with prototypical systems of classifiers. Thus, while I suggest that the languages under discussion have multifunctional classifier systems, such systems clearly constitute a continuum.

   Appendix 2 offers an overview of the languages, and an overview of the combinations of properties shown by classifying elements in each language. There is some diversity in the degree to which the properties are manifested in each language. However, we can say that the languages have multifunctional classifier systems based on a number of features that they share, specifically properties that pertain to several classification systems: prototypical noun classes, prototypical classifier systems, and to some degree, class terms.

8.4.3. Geographical distribution of nominal classification systems

Plotting languages with nominal classification systems on a map makes particular geographical areas stand out (see map 6 in appendix 4). The gender system is found in many (but not all) languages of the sample spoken in the Northwest Amazon, the Chaco area, and some languages of the Southwest Amazon. Moreover, we find the gender system present in Tehuelche spoken in the Southern Cone and Jarawara spoken in Central Amazon. The three Cariban

languages of the sample have the animacy distinction in demonstrative forms, which was here included among gender distinctions.

The languages in the sample with prototypical classifier systems are scattered rather widely. Some are found in the Chaco (e.g. Pilagá and Mocoví), in the Southwest Amazon (e.g. Karo, Itonama), one language is spoken in the western part of Ecuador (Tsafiki). While the line between prototypical and multifunctional classifier systems is blurred, the survey here confirms the Northwest Amazon, reported by different scholars,[82] and the Southwest Amazon, reported in Van der Voort (2005), as two separate 'epicenters' of multifunctional classifier systems. Interestingly, languages spoken in between these areas (e.g. Shipibo-Konibo, Urarina, Matsés, Yaminahua, Apurinã) lack classification systems.

With few exceptions a larger geographic split stands out, where gender distinctions and classifier systems are largely *absent* in the languages spoken in the western part of the continent (with the exception of Tsafiki and Yanesha'), but are largely *present* in the North, Northwest and Southwest Amazon regions, in the Chaco and the Southern Cone. This is consistent with observations by Adelaar (2008:31) and Dixon & Aikhenvald (1999:8,10) that many languages spoken in the Andean region lack systems of nominal classification, whereas many languages spoken in the Amazonian region do have these.

8.5. Summary

In many languages of South America we find gender distinctions, as well as prototypical and multifunctional classifier systems. In this chapter I mostly focused on the latter type, due to its wide occurrence (and maybe predominance over the other types) in South America.

It was discussed that classifying elements in the multifunctional classifier system combine some essential properties of prototypical noun classes and of prototypical classifiers. In addition, they also have properties that are not characteristic of either noun classes or classifiers, such as wide-ranging derivational potential (see Payne 1987, Derbyshire & Payne 1990; Aikhenvald 2000:204, Grinevald & Seifart 2004, Seifart & Payne 2007, Van der Voort 2004, 2005). The three main functions of classifiers in these systems are semantic categorization (prototypically classifiers), derivation (neither classifiers nor class markers), and, to a lesser extent, agreement (prototypically noun classes). While these functions are manifested to different degrees in the languages under discussion, their presence is what distinguishes multifunctional classifier systems from its better-known counterparts in the typological literature.

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[82] Payne (1987), Derbyshire & Payne (1990), Aikhenvald (1999, 2000), and Seifart & Payne (2007).

Chapter 9. Morphosyntactic and semantic properties of demonstratives

In a major cross-linguistic study on demonstratives by Holger Diessel (1999), South America is represented with eight languages out of a total sample of 85.[83] Since the current sample comprises languages not included in Diessel's sample (with the exception of Hixkaryana and Wari'), this chapter complements it by offering an analysis of new South American data with respect to several aspects of the semantic and morphosyntactic status of demonstratives. The aspects investigated here go beyond the study of adnominal uses reported in chapter 3, which focused specifically on their use as modifiers within an NP. Instead, this chapter focuses on (i) syntactic and morphosyntactic properties of demonstratives beyond the NP, specifically their distribution in the clause and their structure in different syntactic contexts; and (ii) semantic properties, specifically the features which can be encoded by demonstratives, and their morphological realization. The second question is the main focus of this chapter.

In section 9.1, I examine the occurrence of demonstratives in the following three syntactic positions: pronominal, adnominal and adverbial. On the basis of the morphosyntactic characteristics of demonstratives in different syntactic positions, four basic language types are identified. From the perspective of Diessel's (1999:3) distinction between distribution and categorical status, the majority of the languages in this sample have only two categories, one involving demonstrative pronouns and demonstrative determiners in Diessel's terms, and the other category involving demonstrative adverbs. This is in parallel with the results shown by his sample. Another result emerging from the South American data concerns the morphological status of adverbial demonstratives. Approximately half of the sample languages have adverbial demonstratives composed of an oblique case marker used with the same demonstrative root as pronominal and adnominal demonstrative roots. It is not clear whether this also parallels Diessel's findings and whether this pattern is cross-linguistically common, but it is definitely informative for South American languages, as it suggests the absence of a grammaticalized category of demonstrative adverbs.

In section 9.2, I deal with the semantic features that can be encoded by demonstratives. First, I show that the range of semantic features reported in Diessel (1999) can be extended with the following features: (i) perceived physical properties (shape, consistency, structure, etc.), (ii) posture (standing,

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[83] The eight languages from South America in Diessel's sample are as follows: Apalai and Hixkaryana (Cariban), Barasano (Tucanoan). Canela-Krahô (Ge-Kaingang), Epena Pedee (Chocoan), Urubu-Kaapor (Tupi-Gurani), Wari' (Chapacuran), and Yagua (Peba-Yaguan).

sitting, lying, hanging), (iii) possession (possession or control over the referent), and (iv) temporal distinctions (presence vs. absence, ceased existence). While the first two features were briefly mentioned in a study on demonstratives by Dixon (2003), the latter two have not received any attention in typological studies so far. I use Diessel's (1999) division of semantic features into *deictic* and *qualitative* to try and classify the features found in the sample. While some of the features fit one of these two established categories, other features suggest that this dichotomy is not sufficient. Therefore, I propose to postulate an additional category, labeled *positional*, which involves (i) distinctions like 'standing', 'sitting', 'lying', when used in reference to animate referents, and (ii) a feature like 'hanging', when used in reference to any kind of referent.

Second, I suggest on basis of the data in the sample that although the languages vary considerably in the richness of their demonstrative systems, this variation seems to be highly structured. The semantic features encoded by demonstratives represent a continuum running from prototypically nominal categories (number, gender, shape, animacy) to prototypically verbal categories (visibility, temporal distinctions, posture, movement, possession).

As already noted in chapter 3, I follow the definition of demonstratives given by Diessel (1999:2), as "deictic expressions which are used to orient and focus the hearer's attention on objects or locations in the speech situation".

9.1. Syntactic properties of demonstratives

9.1.1. Syntactic distribution of demonstratives

As noted in chapter 3, according to Diessel (1999:3-4) demonstratives can occur in four syntactic contexts in the clause. These are exemplified next by Hup.

(i) Demonstratives can be used as independent pronouns in argument positions for verbs and adpositions, in which case they form full NPs. These uses will be referred to as pronominal demonstratives.

(1)   Hup (Nadahup; Epps 2008:292)

     núp   *ʔăn*   *péʔ-éy=hɔ̃*

     DEM.PROX   1SG.OBJ   hurt-DYNM=NONVIS

     'This (one) hurts.'

(ii) Demonstratives can co-occur with a noun in a noun phrase, i.e. as modifiers on nouns. These uses, which were discussed in detail in chapter 3, will be referred to as adnominal demonstratives.

(2)   Hup (Nadahup; Epps 2008:292)

núp   **tǝg**   *ʔăn*   *péʔ-éy=hɔ̃*
DEM.PROX   tooth   1SG.OBJ   hurt-DYNM=NONVIS
'This tooth hurts.' (Lit. 'hurts me')

   (iii) Demonstratives can function as a verb modifier, i.e. for the specification of location. These uses will be referred to as adverbial demonstratives.

(3)   Hup (Nadahup; Epps 2008:297)

n'ít   *tɨh*   *g'ǝç-ní-h,*   **n'ít**!
there   3SG   bite-INFR-DECL   there
'Over there it (snake) bit him, over there! […]'

nút   *tɨh-ăn*   *tɨh*   *mæh-ní-h,*   **n'ít**
here   3SG-OBJ   3SG   kill-INFR-DECL   there
'Over there it (snake) bit him, over there! […]'

   (iv) Demonstratives can occur in copular and nonverbal clauses, i.e. for purposes of identification. These uses will be referred to as identificational demonstratives.

(4)   Hup (Nadahup; Epps 2008:296)

nɨ̌   *dápi*   **núw-ū´h**
1SG.POS   pencil   this-DECL
'This is my pencil.'

Diessel (1999:3) argues that "one has to distinguish between the distribution and the categorial status of demonstratives". He notes that the use of a demonstrative in a specific construction is not enough to posit a separate category of demonstratives. Instead, categorial status is defined by the combination of two features: (i) a certain distribution, and (ii) a specific form. Diessel (1999:4) argues that "[t]wo demonstratives belong to different categories, if they are distributionally *and* formally distinguished". Thus, if the same demonstrative forms are used in some or all of these contexts, then there is no reason to distinguish the corresponding categories. Table 9.1 gives an overview of the distinctions proposed by Diessel.

Distribution	Category
pronominal demonstrative	demonstrative pronoun
adnominal demonstrative	demonstrative determiner
adverbial demonstrative	demonstrative adverb
identificational demonstrative	demonstrative identifier

Table 9.1: Distribution and categories of demonstratives (Diessel 1999:4).

To illustrate this distinction on basis of the examples from Hup (see 1-4), it can be said that Hup has a category of demonstrative adverbs, but it does not have a separate category of demonstrative determiners or demonstrative pronouns, because the same form is used in these two positions (see Diessel 1999:4).

Diessel (1999:79) observes that while the first three categories shown in table 9.1 are generally recognized, the fourth category of demonstrative identifier is not commonly distinguished. He notes further that "most studies consider the demonstratives in copular and nonverbal clauses demonstrative pronouns" (1999:79). However, in many languages, demonstratives used in these two syntactic contexts are formally distinct.

In this study, I will consider the use of demonstratives in the first three distributional positions only. Since demonstrative forms can be identical in some of these slots, and thus do not form separate categories, I will refer to demonstratives simply by the syntactic contexts in which they occur, i.e. pronominal, adnominal or adverbial demonstratives.

Table 9.2 is an overview of templates of demonstrative forms in the sample languages. The symbols 'X' and 'Y' stand for *distinct* demonstrative roots or stems used in different syntactic positions. The semantic feature of distance often expressed by root or stem alternations is *not* specified in this table, with the exception of one language, Timbira, where the distance contrast is expressed by personal pronoun prefixes on the distance-neutral demonstrative root. These are separated by a slash: '1SG/2SG-X'.

Demonstrative roots or stems can either occur on their own, or they can take additional morphology allowing them to occur in a particular syntactic position. This table shows the minimally required morphological markers for the three syntactic contexts investigated here.[84] If additional morphology is required, it is shown in a template (for example, 'X-OBL', contains a root X that requires an oblique marker). Templates separated by commas represent alternatives existing in a language (for example, 'X-OBL, Y' would mean that there is a root X with an oblique marker, and a root Y, which can be used in that syntactic position).

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[84] I avoid using the distinction between derivational and inflectional morphology here, as in a number of languages (especially those employing classifying morphemes, e.g. Miraña, Kwaza) this distinction is not straightforward.

Finally, the question mark in table 9.2 stands for uncertainly about a form, or uncertainty in the analysis of form as relevant. A lack of information available to answer a specific question is indicated by 'no data'.

Language	Pronominal use	Adnominal use	Adverbial use (for location)
Tariana	X	X	X, Y-(OBL)
Jarawara	X	X	Y
Emérillon	X	X	Y
Nasa Yuwe	X	X	Y (?)
Trumai	X	X	Y (related to X)
Baure	X	X	Y (possibly related to X)
Yanesha'	X	X	Y
Karo	X	X	Y
Chamacoco	X	X	Y
Embera	X	X	X-OBL,Y
Dâw	X	X	X-OBL, Y
Puinave	X	X	X-OBL,Y
Tsafiki	X	X	X-OBL
Hual.Quechua	X	X	X-OBL
Imb.Quechua	X	X	X-OBL
Shipibo-Konibo	X	X	X-OBL
Aguaruna	X	X	X-OBL
Leko	X	X	X-OBL
Yurakaré	X	X	X-OBL
Aymara	X	X	X-OBL
Tapiete	X	X	X-OBL
Ika	X	X	X-OBL
Tehuelche	X	X	X-OBL
Urarina	X	X	X-OBL
Kamaiurá	X	X	X-OBL
Kanoê	X(?)	X	X-OBL
Mekens	(3SG=)X	(3SG=)X	X=OBL,Y
Yaminahua	X-3SG	X-3SG	X-OBL
Timbira	1SG/2SG-X	1SG/2SG-X	1SG/2SG-X-OBL
Hup	X-DEP	X-DEP	X-OBL
Miraña	X-CL	X-CL	X-OBL,Y
Cubeo	X-(CLF) *(inan)* X-GEND/NUM *(an)*	X-(CLF) *(inan)* X-GEND/NUM *(an)*	X-OBL
Desano	X-(CLF) *(inan)* X-GEND/NUM *(an)*	X-(CLF) *(inan)* X-GEND/NUM *(an)*	X-OBL
Kwaza	X-CLF	X-CLF	X-CLF-(INSTR) X-CLF:area
Pilagá	CLF-X	CLF-X	CLF:gen-X (?)
Itonama	X-CLF	X-CLF	Y (related to X)
Mocoví	CLF-X	CLF-X	no data
Bororo	X-REL	X-REL	Y
Cavineña	X-REL	X-REL	Y-OBL (Y related to X)

Wichí	REL=X	=X	REL=X
Wari'	GEND/NUM=X	X	GEND/NUM=X (?)
Awa Pit	X-TOP *(grammaticalized)*	X	Y
Warao	X-NMZ	X	X-OBL
Movima	X	X=DET	OBL-X
Mapuche	X	X-ADJZ	X-OBL, Y(?)
Ninam	Z	X	Y
Mamaindê	3-X (?)	-X (?)	Y (some forms related to X)
Sabanê	no data	X (?)	Y (?)
Gavião	X (?)	X	no data
Hixkaryana	X	---	Y
Panaré	X	---	Y
Tiriyó	X	---	X-OBL
Matsés	X-NMZ *(grammaticalized)*	--- (?)	X
Apurinã	--- (?)	GEND-X	Y
Mosetén	--- (?)	--- (?)	X (3P.PRO+ LOC)

Table 9.2: Morphosyntactic properties of demonstratives.

It emerges from the data examined that in several sample languages demonstratives are not used in some of the syntactic slots studied here. These languages are highlighted in table 9.2: they include Hixkaryana, Tiriyó and Panare, and probably Mosetén and Apurinã.

For Apurinã, Facundes (2000:358) notes that some speakers consider the pronominal use of demonstratives ungrammatical. In the Cariban languages Hixkaryana, Tiriyó and Panare, demonstratives are regarded as syntactically independent constituents which are bound to the noun only semantically (Sérgio Meira, p.c., see also discussion in section 3.1.3). They do not seem to have a fixed position in the clause and, thus, can occur adjacent to a noun or separated from it by another constituent.[85] Therefore, demonstratives are not considered part of the NP in these languages, and, when occurring adjacent to a noun, are analyzed as two NPs in apposition (5) (see also example 13 in chapter 3).

(5)   Hixkaryana (Cariban; Derbyshire 1979:132, example glossed by Sérgio
        Meira)
        nuxe   ***mokro***   *r-ahe-no*
        1.younger.brother   DEM:MED:AN   3OBJ-touch-I.PST
        'That younger brother of mine seduced me.'

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[85] As already mentioned, my primary source for Tiriyó is Meira (1999). Carlin (2004:151), in her analysis of Trio (Tiriyó), notes that particular inanimate demonstratives (*serë* 'demonstrative proximate inanimate' and *ooni* 'demonstrative distal inanimate') can be used as nominal modifiers.

A similar situation is reported for Matsés, where demonstratives occur neither in a particular order relative to the noun nor necessarily adjacent to the noun (Fleck 2003:260).

In some languages in the sample, for instance Cavineña, demonstratives are reported to be used adnominally when occurring with a relative marker (Guillaume 2004:621). Here I treat these forms as instances of adnominal demonstratives, since the relativized demonstrative and the noun form one NP unit with a head and a dependent constituent. This sets them apart from demonstratives that are not part of the NP in the Cariban languages and probably in Matsés.

In Mosetén, a distance and visibility contrast is encoded only in the forms that are used as demonstrative adverbs. Forms which are used pronominally and adnominally, *iits* (M) and *öi* (F) exclusively encode a gender distinction, and do not make any reference to either distance or visibility. The definition of demonstratives used in this study does not per se involve a reference to distance or visibility. However, it is not easy to determine whether these forms in Mosetén are used to orient and focus the hearer's attention in a speech situation and thus can be treated on a par with demonstratives in other languages in the sample. For this reason, table 9.2 shows question marks in the pronominal and adnominal use. The following example illustrates the adverbial demonstrative form *mö-* occurring with a locative suffix *-wë* 'downriver'. The demonstrative form *mö-* refers to places 'rather far away, usually not visible'. As can be seen, the adverbial root agrees in gender with the noun to which it is related contextually (the proper noun *Maria*, in this case).

(6)   Mosetén (Mosetenan; Sakel 2004:155)

      mi'   *jen'*   *mi'*   *ji-te-'*   *Maria*   **mö-wë**

      3M.SG father 3M.SG send-VSM.DT-3F.O Maria(F)   DIST.F-DR

      'The father sent Maria there.'

Similarly to Mosetén, Nambikwaran languages in the sample seem to lack a distance-contrasting demonstrative set used within the NP. However, as far as the available information allows us to determine this, the forms in Nambikwaran languages can be treated as demonstratives, as they confirm to the criteria specified at the outset of the chapter. (See section 3.1.1 in chapter 3 for discussion of demonstratives in the Nambikwaran languages).

9.1.2. Language types according to the morphosyntax of demonstratives

Based on the morphosyntactic characteristics of demonstratives in the three syntactic contexts studied here, four basic types can be identified.

Type (1): Languages in which the same demonstrative form is used pronominally, adnominally and adverbially. From the perspective of Diessel's (1999:3) distinction between distribution and categorical status, this suggests that the languages of this type do not have separate categories of demonstrative pronouns, determiners and adverbs (see table 9.2 above). This pattern is schematized in table 9.3. There is only one language in my sample which shows this pattern, viz. Tariana. The pattern seems to be rare, though it has been attested elsewhere. For instance, Dixon (2010:233) reports it for the Boumaa dialect of Fijian. Diessel (1999:5,14) observes a similar use of demonstratives in Guugu Yimidhirr and a few other languages in his sample.

Example of a language	Pronominal use	Adnominal use	Adverbial use
Tariana	X	X	X, Y

Table 9.3: Type 1

Example (7) illustrates the use of demonstratives in the three syntactic contexts: pronominally, adnominally and adverbially. I did not find good examples with one and the same demonstrative, which is why the pronominal use is illustrated with the proximal animate demonstrative *hĩ* in example (7a), and the adnominal and adverbial uses with the distal demonstrative *hane* (ex. 7b and 7c, respectively). However, there is no restriction to proximal or distal forms for either of these contexts (see Aikhenvald 2003:207).[86]

(7)   Tariana (Arawakan; Aikhenvald 2003:207, 106, 207)

(a)   *nhua*   **hĩ**   *nu-sape-de*   *[...]*
        I   DEM:PROX:AN   1SG-tell-FUT.CERT
        'I will tell this. [...]'

(b)   *di-ayha-ka-pidana*   **hane**   *itʃiɾi*
        3SG.NF-swim-SUB-R.PST.REP   DEM:DIST   animal
        'While that animal was swimming'

(c)   **hane**-*sika*   *nu-nu*
        DEM:DIST-PRS.INFR   1SG-come
        'I am probably coming from there (said the man).'

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[86] Tariana has also an alternative form for adverbial use involving a different demonstrative root. The morphological composition of adverbial demonstratives is subject to dialectal variation (see Aikhenvald 2003:208,624).

Type (2): Languages in which pronominal and adnominal forms are the same and adverbial forms are morphologically distinct. This suggests that the languages of this type do not have separate categories of demonstrative pronouns and determiners (see Diessel 1999:60-61). 37 out of the 49 languages belong to this type.[87] These languages fall into two subtypes (marked as type 2-a and 2-b) depending on whether different demonstratives stems or inflectional affixes are employed for adverbial use. A number of languages allow both possibilities (e.g. Miraña, Mekens, Northern Embera, Dâw, Puinave). The subtypes are as follows:

Subtype (2-a): Languages where the adverbial demonstrative uses a different stem than pronominal and adnominal demonstratives, i.e. form X versus form Y. This pattern is found in 10 out of the 37 languages.

Subtype (2-b): Languages where adverbial demonstratives can use the same stem as pronominal and adnominal demonstratives, but with an oblique case marker. This pattern is found in 24 out of the 37 languages.[88]

Some languages of type (2) have pronominal and adnominal demonstratives as underived roots (e.g. Tsafiki, Leko, Yurakaré, Tehuelche), whereas in others pronominal and adnominal demonstratives are roots that require further derivation (e.g. Itonama, Desano, Miraña, Pilagá). The pattern shown by type (2) languages is schematized in table 9.4.

Example of a language	Pronominal use	Adnominal use	Adverbial use
Emérillon (type 2-a)	X	X	Y
Tsafiki (type 2-b)	X	X	X-obl

Table 9.4: Type 2

The following example from Ika illustrates the morphological composition of adverbial demonstratives (8c). It consists of a locative marker *-eki* occurring on the same demonstrative root which is used pronominally (8a) and adnominally (8b).

(8)   Ika (Chibchan; Frank 1990:26,24,39)

(a)   *bema   me-ʔdžun-o, kua **eima**   kua **žama***
       which.one 2O-want-Q   or   DEM:PROX/DIST   or   DEM:DIST
       'Which one do you want, this one or that one?'

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[87] Here only 49 languages are taken into account in which demonstratives are reported to be used in all three syntactic contexts.

[88] The adverbial use is not clear for two languages (Mocoví and Pilagá), and one language (Kwaza) has a different construction for adverbial demonstratives (see table 9.2).

(b)   ***eima***   *guioma*   *geirota*   *ni*
       DEM:PROX/DIST   snake   coral.snake   CERT
       'This snake is a coral snake.'

(c)   ***eim-eki***   *itšun-nik-ž-eʔ-ri*
       DEM:PROX/DIST-LOC   go.up-when-MED-then-TOP
       'When it goes up there…'

Type (3): Languages in which the same demonstrative form is used pronominally and adverbially, with adnominal demonstratives being formally distinct. This suggests that the languages of this type do not have separate categories of demonstrative pronouns and adverbs. This pattern is found in two languages in the sample, Wari' and Wichí. This pattern was also encountered in Diessel's sample, e.g. for Ponapean (Diessel 1999:75). Table 9.5 illustrates the pattern.

Example of a language	Pronominal use	Adnominal use	Adverbial use
Wichí	rel=X	=X	rel=X

Table 9.5: Type 3

The following example from Wichí shows that both pronominally used demonstratives (9a) and adverbially used demonstratives (9c) occur with the relative clause marker *tox*, whereas adnominally used demonstratives are clitics (9b).

(9)   Wichí (Matacoan; Terraza 2009:103,73,104)
(a)   *ha-t'ep*   *to*   *y-enłi*   ***tox-a***
       INT-INT.PROF   SUB   3-do   SUB-DEM:PROX
       'Who did this?'

(b)   *n-p'u-łam-hu*   *wahat-**a***
       1-grill-REFL-APPL   fish-DEM:PROX
       'I roast this fish for myself.'

(c)   *nekʸa a-ł-wenhat-hi-hen-[l]a*   *la-hu-hila*   ***tox-li***
       then   2-REFL-separate-FUT-PL-FUT   2-go-LOC-FUT   SUB-DEM:DIST
       'Then you will separate and walk over there.'

Type (4): Languages with distinct demonstrative forms for the three syntactic contexts. This suggests that the languages of this type have separate categories of

demonstrative pronouns, determiners and adverbs (see Diessel 1999:60). There are five languages in the sample which show this pattern, with various morphological means. Some of them are presented in Table 9.6.

Example of a language	Pronominal use	Adnominal use	Adverbial use
Mapuche	X	X-adjz	X-obl
Awa Pit	X-top (grammaticalized)	X	Y
Ninam	Z	X	Y

Table 9.6: Type 4

The following example from Mapuche illustrates the occurrence of the proximal demonstrative *tüfá* in three syntactic contexts: pronominally (10a), adnominally (10b), in which case the demonstrative forms have to be followed by the adjectivising suffix *-chi*, and adverbially (10c). There are special forms for adverbial use: *faw* 'here' and *tɨyew, yɨyɨw* 'there'.

(10)   Mapuche (Araucanian; Smeets 2008:83,84,85)

(a)   ***tüfá***   *nor-küle-y*
          DEM.PRO:PROX   straight-ST-IND-3
          'This is straight.'

(b)   ***tüfa-chi***   *pichi   ruka   müle-n*
          DEM:PROX-ADJZ   small   house   be-IND1S
          'I live in this small house'

(c)   ***fey-tüfa-mew***   *mule-y   ta-yu*
          DEM.ANAPH:DIST-DEM:PROX-INST   be-IND-3   the-POS1D

          küɖaw-pe-ye-m
          work-PX-CF-IVN
          'Here is [the place] where we work.'

The following example shows demonstratives in Awa Pit. Pronominal demonstratives contain a grammaticalized topic marker (*-na*), adnominal demonstratives are uninflected stems, and adverbial demonstratives are expressed by a different demonstrative root.

(11)   Awa Pit (Barbacoan; Curnow 1997:244,188,344)

(a)   ***ana***   *izh-ti!*
         DEM.PRO:PROX   see-IMP.SG
         'Look at this!'

(b)   ***an***   *kɨh*
         DEM.ADJ:PROX   leaf
         'this leaf'

(c)   ***akki***-*na*   *maza*   *año*   *ma-mtu-s*
         DEM.ADV:PROX-TOP   one   year   stay-IMPFV-LOCUT
         'I'm staying here for a year.'

Although these languages are grouped together, the patterns they exhibit are all rather different. In Mapuche and Movima, pronominal demonstratives are uninflected stems, while adnominal demonstratives require additional morphology. The morphological markers used on adnominal demonstratives (the adjectivizing suffix in Mapuche and the determiner clitic in Movima) signal their use as modifiers. In Warao and Awa Pit, on the other hand, adnominal demonstratives are uninflected stems, while pronominal demonstratives contain additional morphology. These morphological markers are a nominalizing suffix in Warao and the grammaticalized topic marker in Awa Pit. In Ninam, unlike all other languages in the sample, three different demonstrative stems are reported for the three syntactic contexts (see Goodwin Gómez 1990:57).

   One of the questions that arise from the overview in table 9.1 is whether the presence or absence of distinct categories of demonstratives in specific languages correlates with other properties in these languages. This question was also raised by Diessel (1999:161) in a section on future research topics. His hypothesis was that "the distinction between demonstrative pronouns, determiners, adverbs, and identifiers is motivated by the division between more general word classes that occur in a particular language". However, this hypothesis is difficult to test as, to my knowledge, there is no study on word classes in South American indigenous languages with a sample remotely similar to the one used here.

   To summarize, this section considered the use of demonstratives in three syntactic positions: pronominal, adnominal and adverbial. The majority of languages in the sample do not distinguish between the categories of demonstrative pronouns and demonstrative determiners in Diessel's terms (1999:4). Specifically, demonstrative forms in these two syntactic positions are identical. What stands out in the present sample is the wide occurrence of adverbial demonstratives that are composed of an oblique case marker used with

the same demonstrative root as pronominal and adnominal demonstratives. As mentioned earlier, it is not clear whether this parallels Diessel's findings for his cross-linguistic study. However, it is informative for South American data, suggesting the absence of a grammaticalized category of demonstrative adverbs in these languages.

9.2. Semantics of demonstratives

9.2.1. New semantic features

Diessel (1999:35,51) reports the following list of semantic features encoded in and on demonstratives in his sample, which he groups in terms of two kinds of features (referring to Lyons 1977, Fillmore 1982, Rauh 1983, Hanks 1989, 1990):

(i) *deictic features*, i.e. information about the location of the referent in the speech situation relative to a deictic center:
    (a) distance (neutral, proximal, medial, distal);
    (b) visibility (visible, invisible);
    (c) altitude (up, down);
    (d) geography (uphill, downhill, upriver, downriver);
    (e) movement (toward the speaker, away from the speaker, across the visual field of the speaker),

(ii) *qualitative features*, i.e. information characterizing the referent itself:
    (f) ontology (location, object / person);
    (g) animacy (animate, inanimate);
    (h) humanness (human, nonhuman);
    (i) sex (female, male);
    (j) number (singular, plural, etc.);
    (k) boundedness (bound, unbound).

All of these semantic features are found in the languages in the sample used here, except for the feature of 'boundedness' in the sense used in Diessel (1999). This feature involves the distinction bound vs. unbound, where bound forms make reference to object or location "whose entire extent is comprehensible to the eye in a single glance", and unbound forms refer to objects or locations "whose entire extent is not comprehensible to the eye in a single glance" (Diessel 1999:49, referring to Denny 1982:360).

    It should be mentioned that in the sample used here, some of these features are found only with adverbial demonstratives (e.g. the feature of 'geography'),

and some features only with pronominal and adnominal demonstratives, but not adverbial demonstratives (e.g. the feature of 'movement', and all but one of the qualitative features listed above).[89]

In addition, however, the languages in this sample also show a number of features that do not occur in Diessel's (1999) sample. These features are listed next and discussed in the following sections.

    A. *Physical properties*: shape, consistency, structure, etc.
    B. *Posture*: standing, sitting, lying, hanging.
    C. *Possession*: possession or control of a non-speech-act participant.
    D. *Temporal distinctions*: past vs. non-past, presence vs. absence vs. anticipated absence.

9.2.1.1. Physical properties

The feature of physical properties overlaps to some extent with the feature of boundedness as reported in Diessel (1999:49). Whereas, as specified above, Diessel's feature of 'boundedness' involves a more general interpretation of shape, the present feature of physical properties encodes more specific information on the perceived physical characteristics of the referent. The encoding of information on physical properties can be divided into two types here:

(i) *specific* information on physical properties, such as shape, material, structure, etc. In the sample, such information is morphologically realized by classifiers obligatorily occurring on demonstrative roots;

(ii) information on physical properties in terms of extendedness (vertically extended, horizontally extended, non-extended. In the sample, this is realized morphologically either by classifiers, or it is encoded in the demonstrative roots themselves.

The following languages are of the first type, i.e. with demonstratives encoding specific information on physical properties of the referent by means of classifiers: Itonama, Kwaza, Yanesha', Tariana, Cubeo, Desano and Miraña.

The examples in (12) are from Itonama, where demonstratives are roots that require further derivation by a classifier in order to be used pronominally or adnominally. The language has 17 classifiers used on the demonstratives,[90] the choice of which depends on number (singular or plural), animacy, posture and shape of the referent (Crevels 2001, 2012). The demonstrative roots encode

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[89] Adverbial demonstratives in Mosetén agree in gender (masculine, feminine) with the noun related contextually.
[90] The same set of classifiers is used also on verbs (Crevels 2012, p.c.)

degrees of distance (*nV* (*'V)* 'proximal', *yV* 'medial', and *k'V* 'distal'), whereas classifiers are portmanteau morphemes that express a combination of features, which include combinations like animacy + position + number (+ gender, if number is singular), shape + number, position + number, shape, and consistency.

(12)   Itonama (unclassified; Crevels 2001)
(a)   **no'o-tyo**   *wanu'we*   *da<na~>na'-na*
         DEM:PROX-CLF:liquid   water   be.cold<ITE~>-NEUT
         'This water is very cold.'

(b)   **nu'u-du**   *walele*   *si-sa-ne*
         DEM:PROX-CLF:oval.SG   pot   1SG-possess-NEUT
         'This pot is mine.'

The examples in (13) show demonstratives in Miraña, which are also bound roots that must combine with class markers for derivational and inflectional purposes. The language is characterized by a large inventory of class markers, with more than 60 of such morphemes predominantly denoting shape (Seifart 2005:3). The following examples illustrate the use of the proximal demonstrative root *í-* and the distal demonstrative root *ɛ:-* combined with class markers for 2-dimensional straight and 2-dimensional round objects respectively.

(13)   Miraña (Boran; Seifart 2005:126)
(a)   *í-gwa*
         DEM:PROX-SCM:2d:straight
         'this (e.g. plank, bench, etc.)'

(b)   *ɛ:-hɨ*
         DEM:DIST-SCM:2d:round
         'that (e.g. coin, button, etc.)'

Examples (14a,b) are from Cubeo, where demonstratives used with inanimate referents must also use a classifier encoding the shape and structure of the referent.

(14)   Cubeo (Tucanoan; Morse & Maxwell 1999:83,84)
(a)   **i-boxi-*A***
         DEM:PROX.INAN-CLF:bundlelike-PL
         'these brooms'

(b)   *'je-bA*   ***i-we***
        what-be.INT   DEM:PROX.INAN-CLF:flat
        'What is this (flat, thin object)?'

The languages discussed next are of the second type, where information on the physical properties of an inanimate referent is expressed in terms of postural orientation or extendedness (vertically extended, horizontally extended and non-extended). For inanimate referents the postural orientation is inferred from their shape or other physical properties, e.g. flat objects would prototypically be horizontally extended, or lying, and high objects would prototypically be vertically extended, or standing.

Morphologically, this feature can be realized either by a classifier obligatorily used for derivational purposes (as in Mocoví and Pilagá), or it can be encoded in a demonstrative root (as in Mekens). The following example from Pilagá illustrates the use of classifiers for this purpose.

(15)   Pilagá (Guaycuruan; Vidal 1997:73,77)
(a)   *an-toñi-igi*   ***diʔ-mʔe***   *dole*
        2SG-warm-MOD   CLF:horiz.ext-DEM:MED   fire
        'Warm yourself up by the fire (pointing at it).'

(b)   ***diʔ-ca***   *qaʔ-pi*   *tareik-pi*
        CLS:horiz.ext-DEM:DIST   stone-COL   big-COL
        'all those stones'

Demonstratives in Mekens encode the feature of physical properties in terms of postural orientation in the demonstrative roots. The whole paradigm of demonstratives in Mekens is given in table 9.7. Galucio (2001:44) notes that demonstratives can occur by themselves, but more generally they combine with the third person singular pronoun *te*.

The following example illustrates the use of demonstrative *teʔẽ* 'proximal, vertically extended' with the referent *ek* 'house' (16a) and a distance-neutral demonstrative *teita* 'vertically extended' with the referent *kɨpkɨba* 'tree' (16b). The choice of these demonstratives is determined by the shape and therefore also the postural orientation of these inanimate referents.

(16)   Mekens (Tupian; Galucio 2001:45)
(a)   *peyarõ*   *pogab-ek-pit*   *te*   ***teʔẽ***   *ek*
        first   door-house-part   FOC   DEM:PROX.vert.ext   house
        'First they opened this house.'

(b)   ***teita***   *kɨpkɨba*
      DEM:vert.ext   tree
      'It's this standing tree (here).'

The choice of demonstratives based on posture is discussed next. The distinction between the category of posture (B) and the category of physical properties in terms of extendedness (A), is made for animate vs. inanimate referents. For animate referents, information on postural orientation of the referent is primary, whereas for inanimate referents it is the information on physical characteristics of the referent that is primary.

Demonstrative	*te* '3SG' + Demonstrative	Semantics
yẽ	*teyẽ / peyẽ*	Seated
ita	*teita*	Vertical
ʔẽ	*teʔẽ*	Vertical near
op	*teop*	Lying / horizontal
ʔe	*teʔe*	Hanging
eke	*teke / peke*	Default
yẽrõ	n/a	Seated far
tarõ	n/a	Vertical far
ʔerõ	*teerõ*	Hanging far
ikão	n/a	Generic far
ekerõ	n/a	Default far
eme	*teme*	Plural

Table 9.7. Demonstratives in Mekens (slightly adapted from Galucio 2001:43-44).

9.2.1.2. Posture

Postural orientation or exact posture distinctions like *sitting, standing, lying* and, in some languages, *hanging*, are encoded by demonstratives in the following languages in the sample: Mekens, Movima, Pilagá, Mocoví and Itonama. As with the previous feature, information about posture can be realized morphologically either (i) in a demonstrative root, or (ii) by obligatorily used classifiers.

   In Mekens and Movima, posture is encoded in demonstrative roots. In (17) the use of the demonstrative *op* 'lying' is illustrated, which is combined with the third person singular pronoun *te*.

(17)   Mekens (Tupian; Galucio 2001:45)
          kõm-ap   poret õep
          sad-NEG   then   already

          *ib-a-t   poot te   **teop**   i-no*
          return-THEM-PST   old   FOC   3SG-DEM:lying   3SG-other
          'It is no longer lonely here, that one (lying there) is back.'

In a related Tupí-Guaraní language Yuki,[91] demonstratives are portmanteau
elements which are reported to encode posture along with several other semantic
features: distance, number, presence or absence, interrogation or assertion
(Villafañe 2004:64). The following posture distinctions can be made: standing,
sitting, lying, and moving. The following example shows the use of the
demonstrative *a*, which refers to entities with the properties 'proximal; plural;
sitting' (18a) and the demonstrative *kio*, which is used to refer to entities with the
properties 'proximal; singular; present; lying' (18b). The reduplication of the
form accounts for the interrogative form of the utterance (18b).

(18)   Yuki (Tupian; Villafañe 2004:64,63)
(a)   *de-riki   **a***
          2SG.POS-son   DEM:PROX
          'Are these your sons?' (those sitting here)

(b)   *de-toa   **kio**-kio*
          2SG.POS-clothes   DEM:PROX.1-RED
          'Are these your clothes?' (these next to you)

Demonstratives in Movima encode a distinction between entities on the ground
and entities that are not on the ground (Haude 2006:178). Reference to entities
that are not on ground will be discussed in more detail further on. With reference
to entities on ground, a posture distinction is made between standing on the
ground and non-standing on the ground, with the latter used also for referents
that are lying or sitting on the ground. Example (19) shows the use of a
demonstrative *kine'e*, referring to a woman (standing on the ground).

(19)   Movima (unclassified; Haude 2006:141)
          *u'ko   ulchał-a=**kine'e**=s   kwe:ya*
          PRO.M   in.law-LV=DEM:stand.F=DET   woman
          'He is the son-in-law of that (standing) woman.'

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[91] Yuki is not part of the sample but is used here for comparative purposes.

In Movima, the exact posture distinction is not just conveyed by demonstratives, as in other languages considered in this section, but is further specified by a combination with posture verbs. While demonstratives can co-occur with verbs encoding the same posture, they cannot be used with verbs encoding a posture that contradicts the one expressed in the demonstrative.

(20)   Movima (unclassified; Haude 2006:178-179)
(a)   ***kore'***   *en-ła:bał*   *as*   *bote:liya*
         DEM:stand.N   stand-BE:earth   ART.N   bottle
         'The bottle is standing on the ground.'

(b)   ***kinede:***   *as-ła:bał*
         DEM:nonstand.F   sit-BE:earth
         'She is sitting on the ground.'

(c)   ***kode:***   *day-ła:bał*
         DEM:nonstand.N   lie-BE:earth
         'It is lying on the ground.'

(d)   **kode:*   *en-cheł*
          DEM:nonstand.N   stand-R/R

In Itonama, Pilagá and Mocoví, posture is expressed by classifiers attached to demonstrative roots.

In Itonama, humans and animates are classified in terms of their canonical positions, namely standing or sitting. Reclassification of animates into the category of lying entities is possible, though. In such cases, the classifier which is normally used for flat, horizontally extended objects is employed. The following examples illustrate the use of the classifier *di* 'animate, seated, plural' on the distal demonstrative *nik'o* (21a) and the demonstrative form *k'ota'na* in which the distance parameter, animacy, number, and posture are merged (which implies that it does not have the form of a demonstrative root plus a classifier) (21b).

(21)   Itonama (unclassified; Crevels 2001)
(a)   ***nik'o-di***   *umu-ke*   *nik'abï*   *chilipihcha'ke*
         DEM:DIST-CLF:sitting.PL   man-PL   ADV:DEM:DIST   machetero
         'Those men seated over there are macheteros.'

(b)   ***k'ota'na***   *ubuwa*   *yaspamala'-na*
       DEM:DIST.standing.SG   person   be.good-NEUT
       'That (standing) man is good.'

In Pilagá (and similarly in Mocoví)[92], there is one general classifier and six specific classifiers, which fall into two semantic categories, 'deictic' and 'positional'. The deictic classifiers encode proximity, distance, and movement, whereas the positional classifiers encode distinctions like 'standing / vertically extended', 'sitting / non-extended' and 'lying / horizontally extended' (Vidal 1997:75). Classifiers in Pilagá can occur as free forms preceding a noun or as prefixes attached to a demonstrative. While a noun is not necessarily preceded by a classifier, two of the three demonstratives have to take a classifier for derivational purposes.

   With human referents the classifier 'standing / vertically extended' or 'sitting / non-extended' is used, depending on the posture at the moment of speaking. The classifier 'sitting / non-extended' is prototypically used with buildings, mammals, birds and insects. The classifier 'lying / horizontally extended' is common with names of places, small towns, plain surfaces, and elongated animals. The term is also used in reference to ancestors, dead people or dead animals (Vidal 1997:77).

(22)   Mocoví (Guaycuruan; Grondona 1998:83)
       *e-**da-keram***   *yale*
       M-CLF:vert.ext-DEM:DIST   man
       'that man quite far'

(23)   Pilagá (Guaycuruan; Vidal 1997:84,71)
(a)   ***dyaʔ-hoʔ***   *lograe-l*   *yawo-ʔ*
       CLF:horiz.ext.PAUC-DEM:PROX   tall-PAUC   woman-PAUC
       'these (lying) tall women'

(b)   ***ñi-caʔ***   *weta*   *diʔ*   *noik*   *sekaet*
       CLF:non.ext-DEM:DIST   LOC   CLF:horiz.ext   town   yesterday
       'That one (who is sitting far from me - I can hardly see him) was in the town yesterday.'

In Movima, Mekens and Itonama, there is an additional semantic distinction within the posture paradigm, viz. 'hanging / elevated / suspended'. In Movima

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[92] Grondona (1998:85) treats these as deictic roots instead of classifiers. These deictic roots occur with demonstrative roots to express distance.

and Mekens, this is encoded in the demonstrative stems, while in Itonama it is expressed by classifiers obligatorily used with demonstratives. Example (24) from Mekens shows the use of the demonstrative *Ɂe* 'suspended' combined with the third person singular pronoun *te*.

(24)   Mekens (Tupian; Galucio 2001:45)
      arob   *a=ẽp*   **tee**
      what   fruit=really.indeed   DEM:suspended
      'What fruit is that?' (hanging on the tree branch)

In Movima, the use of the demonstrative encoding 'elevation' is used for reference to entities that are not on the ground (see ex. (19-20) for reference to entities on ground). This can either mean that they are suspended in the air or that they are located on top of another object (Haude 2006:177), as illustrated in (25).

(25)   Movima (unclassified; Haude 2006:182)
      kowa   *as*   *mi:chi*   *n-as*   *wanko*
      DEM:el.N   ART.N cat   OBL-ART.N   bench
      'The cat is lying on the bench.'

It can also mean that there is no contact with the ground. If, for instance, a referent is swimming or floating on the water, the 'elevated' demonstrative is used, since the referent does not touch the ground.

(26)   Movima (unclassified; Haude 2006:182)
      kowa=*s*   *bi:law*   *n-is*   *to:mi*
      DEM:el.N=DET   fish   OBL-ART.PL   water
      'That fish is in the water.'

In example (27) the demonstrative form *kuwa* 'elevated, masculine' occurs together with a positional verb, which specifies the exact posture of the referent.

(27)   Movima (unclassified; Haude 2006:182)
      kuwa   *de:cheł* *n-as*   *se:le*
      DEM:el.M   lie-R/R   OBL-ART.N   hammock
      'He is lying in the hammock.' [With feet in hammock]

9.2.1.3. Possession

Movima is the only language in the current sample for which encoding of the feature of 'possession' by demonstratives has been reported. Haude (2006:186) argues that in Movima, there is a set of demonstratives that refer to objects "in the temporary possession or under control of a non-speech-act participant". As Haude (2006:186) notes, a crucial factor for the use of these demonstratives is "a certain kind of control". These forms are treated as demonstratives because syntactically and morphologically they are part of the paradigm of demonstratives in this language (Katharina Haude, p.c.).

(28)   Movima (unclassified; Haude 2006:186)
(a)   ***kopa**=s*   *kolcha*   *n-u'ko*
         DEM:POS.N=DET   blanket   OBL-PRO.M
         'He has the blanket.' [lit. 'That blanket is with him.']

(b)   *kipa*   *n-i'ne*   *is*   *dichi:ye*
         DEM:POS.PL   OBL-PRO.F   ART.PL   children
         'She has the children / the children are with her.' [i.e. at her house]

By way of comparison, two examples of standard possessive constructions in Movima are given in (29) below.[93] For all persons except the 1st person singular, the possessive personal pronouns are cliticized to the possessed. The possessor can also be expressed by a free pronoun or by an NP. In that case the free pronoun or NP can be unmarked, or marked as an oblique, or most commonly, expressed as a relative clause containing the oblique-marked pronoun (Haude 2006:228).

(29)   Movima (unclassified; Haude 2006:228)
(a)   *as*   *roya=n*
         ART.N   house=2
         'your house'

(b)   *as*   *roya=n n-ulkwań*
         ART.N   house=2 OBL-PRO.2SG
         'the house of yours'

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[93] See Haude (2006:296) for possessive clauses expressing definite and indefinite possession.

9.2.1.4. Temporal distinctions

Finally, there are languages in the sample in which demonstratives encode what we will call 'temporal distinctions'. These include semantic distinctions like 'no longer existing', 'no longer usable', 'former', and 'absent'. Quite a few South American languages are characterized by the capacity to mark temporal distinctions within the NPs. Nordlinger & Sadler (2004:776) offer a cross-linguistic comparison of this phenomenon which, as they argue, "is far less marginal than the general paucity of discussion in the literature might lead one to expect". This section deals exclusively with the encoding of temporal distinctions on demonstratives (thus narrowing the range of elements within the NP domain that can encode temporal distinctions specifically to demonstratives). Since it is important to determine what exactly is meant by temporal distinctions here, I will briefly comment on this first.

Nordlinger & Sadler (2004) postulate two types of nominal tense-aspect-mood (TAM) marking: (i) independent and (ii) propositional. *Independent* nominal tense markers serve to locate the time at which the property denoted by the nominal holds. *Propositional* nominal tense markers, on the other hand, provide temporal information for the whole sentence Nordlinger and Sadler mention that independent nominal tense markers are inflectional affixes, which should be kept apart from derivational affixes like the affix *ex-* in English. The major difference is that derivational affixes like English *ex-* are usually restricted in their semantics and can occur with a limited number of words, like nouns denoting occupations (ex-president) and non-kin relationships (ex-wife). The use of this prefix with nouns like 'cat' (?ex-cat) or 'house' (?ex-house) is much less appropriate. Nordlinger & Sadler (2004:780) argue that 'true' tense markers are different in that they are not constrained by the semantics of the noun.

This semantic category is quite complicated, especially if we focus exclusively on demonstrative forms as potential targets for expressing it. However, there is evidence from the data that it is worthwhile to look at this category. In the following languages in the sample, demonstratives are reported to be able to express temporal distinctions: Movima, Pilagá, Mocoví, Wari', Tiriyó, Hixkaryana and Panare.[94] Morphologically, these distinctions are realized

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[94] The list of languages in which temporal distinctions are encoded within the NP (thus not limited to demonstratives) is much larger, and includes, for instance, such languages in the sample as Wichí (Terraza 2009:80), Baure (Swintha Danielsen, p.c.), Tariana (Aikhenvald 2003:183), Puinave (Girón 2008:188-189), Mamaindê (Eberhard 2009:343).

See also Carol (2011) for a discussion of demonstratives in Chorote, which encode temporal distinctions and pragmatically affect the interpretation of the clausal tense, aspect, mood and evidentiality.

either by separate morphemes occurring on demonstrative roots, or they are encoded by the demonstrative roots themselves.

In Tiriyó, for instance, there are two suffixes meaning 'past' *-npë* and *-hpë*, which are used on nominals "to signal that the referent in question can no longer be accurately described by that stem" (Meira 1999:160). When used on non-possessed forms, the semantic distinctions made by the suffixes can include 'degraded', 'no longer usable', 'ex-' or 'former'. When used with possessed forms, the interpretation of past possession is more frequent, i.e. "something which used to belong or be related to the possessor" (Meira 1999:160-161). Example (30) illustrates the use of either of the suffixes *-npë* and *-hpë* 'past' on a possessed noun *ji-pakoro* 'my house'. This can be an example of the so-called independent nominal tense markers as specified above.

(30)   Tiriyó (Cariban; Meira 1999:219)
         *ji-pakoro-**hpë** / ji-pakoro-**npë***
         1-house:POS-PST / 1-house:POS-PST
         'my ex-house; the ruins of my house'

The following set of examples shows the use of the suffixes on demonstratives in Tiriyó. In (31a) the suffix *-npë* 'past' occurs on the proximal demonstrative *mëe* for animate referents (in this case, a part of a dead cow). In (31b) the 'past' suffix occurs on the proximal demonstrative *senï* for inanimate referents (in this case treated as a piece of meat).

(31)   Tiriyó (Cariban; Sérgio Meira, p.c.)
(a)   ***mëe-npë***   *Ø-apëh-too=me*   *wï=ja*   *irë*
         DEM:PROX:AN-PST   3-get-C.NMZ=ESSIVE   1=AGT   DEM:ANAPH:INAN
         'In order for me to get that one (a part of a dead cow).'

(b)   ***i-punu–npë**=se=rëkene*   *mëërë*   *pananakiri-tomo*
         3-meat-PST=DESID=only   DEM:MED:AN   foreigner-COL

         ***senï-npë**=rëkene*   *kura-kura-no-npë*
         DEM:PROX:INAN-PST=only   RED-good-NMZ-PST

         'The foreigners (= missionaries) just want its (= cow's) meat, only that, the good parts.' (Lit. 'They're only desirous of its 'past' meat, that one, the foreigners, only that past one, the past good one.')

The following example of a past marker on a demonstrative is from the description of Trio (Tiriyó) by Carlin. Carlin (2004:157) mentions that in (32) the demonstrative with the past tense marker expresses a former something.

(32)   Trio (Tiriyó) (Cariban; Carlin 2004:157)
   mënïrï-npë   *kokoinjarë*   *ë-warë,*   *m-eta-Ø,*
   DEM.INAN.AUD-PST   yesterday   2-know   2→3-hear-I.PST

   meinjarë   *ji-warë*
   today   1-know
   'Remember you heard something yesterday? Now I know (what it was).'

Carlin (2004:157) also notes that the demonstratives marked with the past tense marker are frequently used as lexicalized discourse markers.

(33)   Trio (Tiriyó) (Cariban; Carlin 2004:157)
   irë-npë-*pëe*   *irë-mao*   *ainja*
   DEM.INAN.ANAPH-PST-SOU   DEM.INAN.ANAPH-TEMP   1+3.PRO

   nï:-të-Ø-e
   3→3.1TR-go-PRS-CERT
   'After that, then we leave.'

In Movima, a set of so-called 'absential' demonstratives (the terminology used by Haude 2006) encodes past vs. non-past distinctions. *Absential non-past* demonstratives are used when the referent is not perceived, or being looked at, by the speaker at the moment of speaking, even though (s)he knows that the referent is present.

(34)   Movima (unclassified; Haude 2006:190)
(a)   **koro'**   *do'-cho*
        DEM:AB.N   put.on-BR:inside
        'It is hanging (on a hook).'
        [The speaker does not look at the object, but it is visible.]

(b)   **koro'**   *no-kode:*   *kos*   *yana:we, jankwa=us*
        DEM:AB.N   OBL-DEM:nonstand.N   ART:N.AB   anaconda   say=M.AB
        'There is an anaconda over there.'
        [Not being looked at, seen, or perceived, though it is there.]

Absential past demonstratives, on the other hand, are used when "the situation is not continuing during the moment of speaking, or when the speaker does not know if it is continuing or not" (Haude 2006:191) (35a,b). The sentence given in (35c) illustrates the contrast between absential non-past (*kiro'*) and absential past demonstratives (*iso'*). Haude (2006:189) mentions, however, that demonstratives which encode temporal distinctions are prototypically used as predicates in existential or locative clauses, but do not occur as demonstrative modifiers.

(35)   Movima (unclassified; Haude 2006:190,295,192)
(a)   ***oso'o***   *ł*   *dewaj-na*   *bań-sasa:-neł*
          DEM:PST.N   1   see-DR   put-TRC:table-APPL
          'I saw it on the table.' [But it is not there any more.]

(b)   *che*   ***iso'***   *is*   *chinał a*
          and   DEM:PST.PL   ART:PL   manioc
          'And there was manioc.'

(c)   […] *di' joy* ***kiro'***   *ite'ni kabo di' joy* ***iso'***   *kayni*
          […] HYP SPC DEM:AB.PL alive or   HYP SPC DEM:PST.PL   die
          '[You want to see] whether they are alive or whether they have died.'

Wari' must be mentioned here as well. In Wari', the set of demonstratives includes forms which encode distance degrees, and forms which encode temporal distinctions, namely "how long the person or thing referred to has been absent" (Everett & Kern 1997:153). The latter have the following forms: *paca* 'that just occurred', *cara ne* 'that recently absent', and *cara pane* 'that long absent' (Everett & Kern 1997:153, 305). Everett & Kern (1997:153) mention, however, that "it is hard to say whether *ne* and *pane* are actually part of the demonstrative", but they include these forms because "they always accompany *cara* when used as a demonstrative".[95] They also mention that *ne* and *pane* are sentence-final temporal particles denoting 'recent past' and 'remote past', respectively (Everett & Kern 1997:153).

(36)   Wari' (Chapacuran; Everett & Kern 1997:153,154)
(a)   *ja'*   *na*   *wari'*   ***paca'***
          shoot   3SG:RP/P   person   DEM:that:just.occurred
          'Somebody just shot.'

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[95] Everett & Kern (1997:153) also note that *cara* also occurs as a postverbal modifier, with meanings 'always' or 'forever'.

(b)   *cain'*   *cain'*   *ne*   *wixi-con*
       DEM:DIST.N   DEM:DIST.N   3N   name-3SG.M

       tarama'   **cara ne**
       man   DEM:rcnt.absent
       'What was that recently absent man's name?'

(c)   *coromicat*   *'ina-on*   *nem*   **cara pane**
       think   1SG:RP/P-3SG.M   sister's.husband.1SG   DEM:long.absent
       'I am remembering my long absent brother-in-law.'

The Pilagá case is an example of a language where temporal interpretations are extensions from demonstratives from a non-temporal domain. In Pilagá, there is a set of positional classifiers, as described above, and a set of deictic classifiers that encode proximity, distance, and movement. The semantics of deictic classifiers, which encode movement in the spatial domain, can be extended to express movement of an entity in the temporal domain. As with the languages discussed earlier, the relevance of classifiers in this case is their obligatory use on two of the three demonstratives in the language. These demonstratives are roots which take classifiers for derivational purposes. The classifiers can also occur as free forms preceding a noun, but they are not obligatory as with demonstratives.

The deictic classifier *soʔ* 'going away / past' is used with a referent which is 'becoming absent' or 'now absent', in other words "not present anymore but the speech participants know that it once was" (Vidal 1997:80,93). The following example is an illustration of the use of such classifiers as free forms preceding a noun, since the source does not include an example of this particular use in combination with a demonstrative.

(37)   Pilagá (Guaycuruan; Vidal 1997:71)
        ami-i   *qaʔli*   *wʔo*   **soʔ**   *noop*
        PRO.2PL   before   EX   CLF:going.away   water
        'You had water.'

Another deictic classifier, *gaʔ* 'absent / distal', encodes the semantic features of 'distalness' and 'absence'. It is used to convey the meaning of "absent prior to the speech event", i.e. "anticipated absence" (Vidal 1997:80). In the discussion of Pilagá classifiers in Kirtchuk (2000:38), the term *gaʔ* (given as /Φa-/) is described as referring to entities which are non-existent, of an uncertain existence, or missing.

The semantics of positional classifiers in Pilagá, i.e. those which encode posture distinctions, can be also extended to convey temporal interpretation when used in existential or possessive constructions. For instance, mammals (excluding humans) are prototypically classified by the term *ñiʔ* 'sitting / non-extended'. However, when such a referent is classified by the term *diʔ* 'lying / horizontally extended' in existential constructions, its state is interpreted as 'past' (Vidal 1997:93). Table 9.8 summarizes the meanings expressed by the classifiers in Pilagá.

Classifier	Semantics	Proximity	Distance	Presence	Absence		Motion	Past tense interpretation
					Becoming absent	Anticipated absence		
DEICTIC								
naʔ, /ða-/ [96]	Coming / proximal	X		X			X	
soʔ, /so-/	Going away / past		X		X		X	X
gaʔ, /ɣa-/	Absent / distal		X			X		X
POSITIONAL								
daʔ, /ðo-/	Vertical / extended							
ñiʔ, /ɲə-/	Sitting / non-extended							
diʔ, /ði-/	Lying / horiz.extended							X[97]
GENERAL								
hen, ?	General	X						

Table 9.8. Semantics of classifiers in Pilagá.

9.2.2. Classification of new semantic features

To round off our discussion of the four new semantic features, I will try to classify them in terms of Diessel's (1999) general semantic distinction between deictic and qualitative features.

The feature of *physical properties* (A) can be regarded as *qualitative*, since it encodes information about the inherent properties of the referent, e.g. round, flat, flowing, etc. The feature of *posture* (B) conveys information about the position of the referent, i.e. whether the referent is standing, sitting, lying, or hanging. When demonstratives encoding posture are used with human referents, the choice is primarily motivated by the current position of the human referent,

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[96] Classifiers given first are found in Vidal (1997), the forms that follow are from Kirtchuk (2000).
[97] In existential constructions (Vidal 1997).

whether s/he is standing, sitting or lying at the moment of speech. This feature is not regarded as deictic, since reference to posture does not vary from the perspective of the speaker, hearer, or a bystander, and cannot be anchored to a particular point in the spatial or temporal domain. Nor do I consider it to be qualitative, since it generally does not express information on the properties of the human referent. However, when demonstratives encoding posture or orientation are used with inanimates, the reference to postural orientation is predominantly determined by the physical characteristics of the referent, such as its shape or extendedness. For instance, when the vertical dimension exceeds the horizontal, objects are associated with the 'standing' position. If the horizontal dimension exceeds the vertical one, objects are 'lying', when the two dimensions are roughly the same objects tend to 'sit' (cf. Croft 1994, Ameka & Levinson 2007). It is difficult to speak of a tendency with respect to non-human animates, since my data on the use of demonstratives encoding posture with other animates is very limited. It is possible to think of some classes of animates that can be seen as having 'canonical' postures, whereas it is also possible to think of cases when the reference to posture of an animate is made on the basis of its current posture. To summarize, I suggest that the feature of posture is *qualitative* when it is encoded by demonstratives referring to inanimate referents, and what I would like to call *positional* – neither qualitative nor deictic – when posture is encoded by demonstratives referring to animates.

Within the posture paradigm, some languages have an additional semantic distinction 'hanging / elevated / suspended'. Its properties seem to be slightly different from the properties of the other posture distinctions, and the animacy of the referent does not play a role here. We can hardly treat this feature as qualitative, since the reference to an object as 'hanging / elevated / suspended' is unlikely to depend on the physical parameters of the referent. On the other hand, a deictic center is required in order to refer to an entity as 'hanging', with the ground serving as such a deictic point. As shown in section 9.1.2.2, the languages in the sample that make this semantic distinction within the posture paradigm have slightly different requirements for an entity to be referred to as 'hanging'. While in Itonama and Mekens referents which are simply 'in the air' are referred to as 'hanging / elevated / suspended', in Movima it is used for entities that do not have contact with the ground, which also covers referents located on another object, or swimming or floating on the water (Haude 2006:182) (see examples 25-26). Thus, this semantic distinction could be categorized as deictic with an absolute point of reference, i.e. the ground. However, since it is conceptually part of the posture paradigm, this semantic distinction can probably best be treated as *positional*, used in reference both to animate and inanimate entities.

The feature of *possession* (C) is not qualitative, since no information on the inherent properties of the referent is encoded, but it can be argued to be deictic, since the reference has a deictic point, in this case the possessor.

The feature of *temporal distinction* (D) involves distinctions like 'no longer existing', 'no longer usable', 'former', 'absent'. The feature does not seem to be qualitative, since it does not refer to inherent properties of the referent. I regard it to be *deictic* because it indicates a location of the referent, not in the spatial but in the temporal domain, but still relative to a deictic center that is the moment of speaking.

To conclude, I propose to introduce an additional category labeled *positional* to the Diessel's (1999) classification of semantic features for demonstratives into deictic and qualitative. This category is needed in order to accommodate the feature of posture encoded by demonstratives in reference to animates. The fuzzy edges of these semantic categories suggest an interrelation between them, in that some of the categories may be closer to each other than others:

-   Posture and orientation definitely correlate with the parameter of shape. This is visible in cases where reference to posture and orientation of a referent is determined by its physical characteristics, such as its shape or extendedness.
-   Posture can also be semantically close to the feature of tense, for instance as a metaphorical extension of posture 'lying' leading to the interpretation 'dead' in existential constructions in Pilagá, and ultimately conveying the meaning of past tense.
-   The feature of (in)visibility and movement can interact with the feature of tense: in a metaphorical extension, absence in the visual field, or movement away from the deictic center, like the speaker, can be used to refer to entities moving away in the temporal perspective (cf. Haspelmath 1997).

9.2.3. Overview of all semantic features in the sample

So far, this section has been devoted to the discussion of four semantic features not reported in Diessel (1999) but found in the languages of my sample. A full overview of semantic features that can be encoded by demonstratives in the sample are shown in appendix 3. The overview specifies the exact values for each semantic feature, and also indicates, whenever relevant, whether a feature is found only on pronominal, adnominal or adverbial demonstratives. For example, a distance degree encoded by adnominal demonstratives can differ from that encoded by adverbial demonstrative, as is the case in Trumai and Puinave. Another example is the plural marker that can occur only on demonstratives used pronominally but not adnominally, as is the case in Emérillon and Imbabura and Huallaga Quechua. In cases when the syntactic context of demonstratives is not

indicated in the overview, adnominal demonstratives are taken as the point of reference.

Table 9.9 below is a simplified schematic version of the overview in appendix 3 presented in the form of a scale. It is given in this section in order to provide an accessible overview of the occurrence of the semantic features in the sample languages.

Language	Distance	Number	Gender	Animacy	Physical properties	Visibility + perception	Temporal distinctions	Posture	Movement	Possession	Altitude	Number of features
Feature occurs in # of lang-s	53	29	16	10	10	10	7	5	4	1	1	
Movima	x	x	x	x		x	x	x	x	x		9
Pilagá	x	x	x		x	x	x	x	x			8
Mocoví	x	x	x		x	x	x	x	x			7
Itonama	x	x	x	x	x			x				6
Tiriyó	x	x		x		x	x					5
Wari'	x	x	x	x			x (?)					5
Cubeo	x	x	x	x	x							5
Desano	x	x	x	x	x							5
Miraña	x	x	x	x	x							5
Tariana	x	x	x	x	x							5
Hixkar.	x	x		x			x					4
Panare	x	x		x			x					4
Mekens	x	x			x			x				4
Baure	x	x	x									3
Trumai	x	x	x									3
Chamac.	x	x	x									3
Tehuelche	x	x	x									3
Hup	x	x				x						3
Puinave	x	x				x						3
Mosetén	x		x			x						3
Kwaza	x				x	x						3
Jarawara	x		x			x						3
Kamaiurá	x	x				x						3
H.Quechua	x	x									x(?)	3
Timbira	x	x										2
Matsés	x	x										2
Embera	x	x										2
Warao	x	x										2
Tapiete	x	x										2
Leko	x	x										2
Emérillon	x	x										2
Im.Quech.	x	x										2

Apurinã	x		x									2
Yanesha'	x				x							2
Wichi'	x								x			2
Aymara	x											1
Shipibo-K.	x											1
Dâw	x											1
Tsafiki	x											1
Awa Pit	x											1
Yurakaré	x											1
Cavineña	x											1
Kanoê	x											1
Bororo	x											1
Mapuche	x											1
Nasa Yuwe	x											1
Ika	x											1
Yaminahua	x											1
Aguarua	x											1
Karo	x											1
Urarina	x											1
Ninam	x											1
Gavião	x											1
Mamaindê	(?)											(?)
Sabanê	(?)											(?)

Table 9.9. Distribution of semantic features in the current sample.

The occurrence of semantic features encoded by demonstratives is shown in table 9.9 in the form of a scale. This distribution suggests that even if the languages of the sample vary considerably in the richness of their demonstrative systems, the variation seems to be structured. Interestingly, the semantic features given in the first row of the table, except for the feature of distance, can be placed on a continuum running from prototypically nominal categories (number, gender, animacy, physical properties) to prototypically verbal categories (visibility, temporal distinctions, posture, movement, possession) and an adverbial category (altitude). The scale is shown in figure 9.1. The categories on the left end are prototypically used in acts of reference, while the categories to the right are used much less as such. The feature of distance at the left end does not fit in this continuum very neatly, but its appearance there is logical, since this feature is one of the defining semantic properties of demonstratives (see Diessel 1999:2). Pieter Muysken (p.c.) notes that this hierarchy very roughly correlates with the degree of lexicalization, with some exceptions.

prototypically nominal   **prototypically non-nominal**

←---→

Distance	Number	Gender	Animacy	Physical properties	Visibility + perception	Temporal distinctions	Posture	Movement	Possession	Altitude
53	29	16	10	10	10	7	5	4	1	1
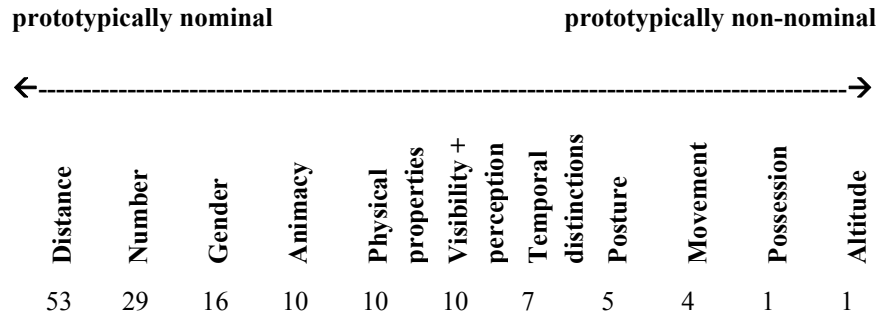
Figure 9.1: Scale of semantic features encoded by demonstratives.

This picture emerges on basis of data from the 55 languages in the sample. A brief look at several additional languages does not change the general tendency in the distribution of semantic features, but only confirms it. To my knowledge, this has not been noted before, and therefore may deserve further cross-linguistic comparison.

As can be seen from figure 9.1, semantic categories like distance and number, are much more frequently instantiated in demonstratives than others, like posture or movement. The latter categories are less expected on demonstratives than the former, since this kind of information is prototypically encoded by lexical verbs. It can be observed that in some of these cases demonstratives are related to lexical verbs. For instance, Galucio (2001:43,58) mentions for Mekens that demonstrative stems encoding posture are semantically and formally related to auxiliaries, e.g. the auxiliary *-top* 'lying (present progressive)' / *-toa* 'lying (past progressive)'. Example (38a) illustrates the use of the auxiliary 'lie' combined with the lexical verb 'to sleep', whereas example (38b) shows the use of a pronominal demonstrative with the semantics 'that one, lying'.

(38)   Mekens (Tupian; Galucio 2001:56,45)
(a)   *o-er-a*   *o-**toop***
         1SG-sleep-THEM   1SG-AUX:LYING.PRS
         'I am sleeping.'

(b)   *kõm-ap   poret   õep*
         sad-NEG   then   already

         ib-a-t   poot   te   te-op   i-no
         return-THEM-PST   old   FOC   3SG-DEM:lying   3SG-other
         'It is no longer lonely here, that one (lying there) is back.'

Similarly, in Movima demonstratives meaning 'standing on ground' seem to be related to the verb *en-* 'stand', and demonstratives meaning 'non-standing on ground' are related to the verb *de:* 'lie' (see Haude 2006:143,558). As noted earlier, demonstratives encoding posture distinctions in Movima can co-occur with verbal predicates encoding the same basic position or a more specific one (see example 23c,d). Demonstratives that encode temporal distinctions are reported by Haude (2006:189) to be prototypically used as predicates in existential / locative clauses, but never as modifiers.

In Itonama, posture distinctions are generally expressed by classifiers derived from posture verbs. These classifiers are obligatorily used on demonstrative roots and certain verbs (e.g. the existential root *si*) (Crevels 2012).

A question for further research is whether the articulation of prototypical verbal categories in the NP domain in a particular language, specifically by demonstratives, can result in a more limited occurrence of such categories on the verb in the same language.

9.2.4. Morphological realization of semantic features

In this section I will briefly comment on the main tendencies in the morphological realization of semantic features. There is no clear-cut correlation between deictic and qualitative features and their morphological realization with demonstrative roots / stems or additional morphology. However, a relatively strong tendency can be observed for the semantic features of *distance*, *number* and *gender*, which are present in the larger number of languages in the sample.

The feature of *distance* is predominantly encoded in the root of a demonstrative. There is one language in the sample, Timbira, which marks distance by means of person markers: the 1st person prefix on a demonstrative root *ta* encodes proximity, while the 2nd person prefix encodes distance (Alves 2004:78).

The features of *number* and *gender* are mainly encoded by affixes or enclitics, though there are several languages where the feature is expressed in the root (e.g. Mekens for number, Itonama and Baure for gender, Movima for number and gender).

The feature of *animacy* is mainly encoded in the root.

The feature of *physical properties* falls into two subtypes: (i) expressing specific information, like shape, structure, consistency, etc., encoded exclusively by classifiers; and (ii) expressing physical characteristics in terms of extendedness, like vertically extended, horizontally extended, non-extended, realized either by classifiers or in demonstrative roots.

The feature of *visibility* is also predominantly encoded in the root of the demonstratives. One language, Kwaza, expresses visibility with an obligatorily used classifier.

Temporal distinctions are encoded in a rather diverse way in the languages in the sample, with no particular tendency standing out. The feature can be encoded in the root of the demonstrative (Movima), by suffixes (the Cariban languages), particles (Wari') and with classifiers (Pilagá and Mocoví).

The feature of *posture* is encoded both in the root of the demonstrative or by means of obligatorily used classifier.

The feature of *movement* is encoded in the root of the demonstrative in two languages, Mekens and Movima, and with classifiers in two further languages, Pilagá and Mocoví.

The features of *possession* and *altitude* are each found in only one language, and in both cases the features are encoded in the root of the demonstrative.

9.3. Summary

This chapter dealt with two main issues. One was the syntactic and morphosyntactic properties of demonstratives in the sample languages, and the other were the semantic features encoded by the demonstratives.

In the first part of the chapter, which dealt with syntactic and morphosyntactic properties, I considered the occurrence of demonstratives in three syntactic positions: pronominal, adnominal and adverbial. Based on their morphosyntactic characteristics in these positions, the following four basic language types were identified. (i) Languages in which the same demonstrative form is used pronominally, adnominally and adverbially; (ii) languages in pronominal and adnominal forms are the same and adverbial forms are morphologically distinct. Morphological distinctiveness of adverbial forms can be a matter of using a different demonstrative stem, or using the same stem but with on oblique (locative) case marker. Type (iii) concerns languages in which the same demonstrative form is used pronominally and adverbially, with adnominal demonstratives being formally distinct. And type (iv) includes languages with distinct demonstrative forms for all three syntactic contexts studied here.

The majority of the sample languages belong to type (ii). 37 out of the 49 languages show a pattern in which pronominal and adnominal forms are

identical, and adverbial forms are morphologically distinct. What also emerges from this survey is that about half of the languages in the sample have adverbial demonstratives composed of an oblique (locative) case marker occurring on the same demonstrative root as pronominal and adnominal demonstratives. This suggests a general absence of a grammaticalized category of demonstrative adverbs in many South American languages. Finally, at least for South America, this observation also gives support to the arguments by Brown (1985) and Woodworth (1991) (referred to in Diessel 1999:28), who show that a higher morphological complexity of demonstrative adverbs (compared to demonstrative pronouns and determiners) may suggest that demonstrative adverbs are "derived from demonstrative pronouns or noun modifiers that combined with some other morpheme" (Diessel 1999:28). However, this study also offers evidence supporting the argument that demonstrative pronouns and determiners are derived from demonstrative adverbs (Anderson & Keenan 1985:279, Greenberg 1985:277, Himmelmann 1996:246, referred to in Diessel 1999:28). Diessel's study similarly includes examples supporting either of these claims, therefore suggesting no unidirectional developments.

In the second part of the chapter, which dealt with semantic properties, I presented a discussion of semantic features encoded by demonstratives in the languages of the sample, which are not reported in Diessel's (1999) major cross-linguistic study on demonstratives. The analysis showed that the range of semantic features given in Diessel (1999) can be extended with the following: (i) perceived physical properties (shape, consistency, structure, etc.), (ii) posture (standing, sitting, lying, hanging), (iii) possession (possession or control over the referent), and (iv) temporal distinctions (presence vs. absence, ceased existence). While the features of physical properties and posture were briefly mentioned in a study on demonstratives by Dixon (2003), the latter two have not received any attention so far in typological studies. I proposed a classification of the newly encountered features using Diessel's (1999) division of semantic features into *deictic* and *qualitative*. While most of the features fit one of these two categories, other features suggest that this two-fold division may not be sufficient. To deal with this problem, I proposed postulating an additional category, labeled *positional*, which involves (i) distinctions like 'standing', sitting', 'lying', when used in reference to animate referents, and (ii) distinctions like 'hanging', when used in reference to any kind of referent.

Finally, on basis of the distribution of semantic features I suggested that although the languages in the sample vary considerably in the richness of their demonstrative systems, this variation seems to be highly structured. Specifically, semantic features encoded by demonstratives represent a continuum running from prototypically nominal categories (number, gender, shape, animacy) to

prototypically verbal categories (visibility, temporal distinctions, posture, movement, possession) and an adverbial category (altitude).

Chapter 10. Conclusion

This dissertation is the first cross-linguistic analysis of the Noun Phrase in the indigenous languages of South America. It is exploratory and makes use of the considerable amount of data that have become available on South American languages through fieldwork and documentation projects in the last twenty years or so. The study was conceived with three main goals in mind:

- To give an account of the **syntactic**, **morphosyntactic**, and **semantic** properties of the NP and its constituents in the 55 languages sampled for the study.
- To evaluate whether newly available data on South American languages confirm **typological** claims and tendencies in the NP domain.
- To reflect on the **geographic distribution** and patterning of structural features of the NP, as far as the sample allows this.

In what follows, I will present the main findings for each of these three research goals.

10.1. Properties of the NP and its constituents

Syntax

With respect to the syntactic properties of the NP, I have argued that it is not really possible to make a clear distinction between languages that have integral NPs and those that do not. The main problem is that it is difficult to generalize over all modifier categories, since a particular modifier may form a syntactic unit with its semantic head noun, while another modifier may not. On the basis of the sample, I presented a hierarchy in which lexical possessors are more likely to form an integral NP with the noun than demonstratives, and demonstratives are more likely to form an integral NP with the noun than property words and numerals (chapter 7).

For integral NPs, the most common template in South American languages appears to be one where demonstratives, lexical possessors and numerals occur before the head noun, while property words occur after the noun. For instance, in my sample only 25 % of the languages always had the head noun at the boundary of the NP (with modifiers preceding the head noun; strictly right-branching structures, with modifiers following the noun, were not encountered at all).

With respect to the internal structure of the NP, finally, only a subset of 22 languages had information about the relative order of modifiers. At least for these languages, I observed that: (i) the demonstrative is always found at the boundary of the NP (with possibly just one exception out of 22), (ii) property

words always appear adjacent to the head noun, either directly preceding or directly following the noun (see Rijkhoff's (2002:266) *Principle of Head Proximity*), and (iii) modifiers in the NP show the hierarchical structure [Dem [Num [Adj [Noun] Adj] Num] Dem] with possibly just two exceptions out of 22 (see Rijkhoff 2002:218-224).

Morphosyntax

With respect to the morphosyntactic properties of the NP and its constituents, the following observations were made.

In the domain of demonstratives, I observed that direct modification is the most widespread construction, while a few languages require a relative clause construction for demonstratives to modify nouns. In some languages demonstratives are morphologically bound (clitics or suffixes), but in the majority of languages they are free forms. About half of these languages have free demonstrative roots, which do not need derivational markers to modify a noun. The other half use demonstrative roots with derivational morphology, like 1st, 2nd and 3rd person pronouns, and classifiers. Interestingly, classifiers used on demonstratives have both derivational and inflectional properties in some languages (chapter 3).

In the domain of property concepts, I found that languages without a distinct adjective class more commonly use verbs to express property concepts than nouns or adverbs. The same applies to languages with an adjective class that does not cover property concepts of the core semantic classes identified in Dixon (1982, 2004): here too, verbs tend to be the main strategy for encoding property concepts (see chapter 6). While in a number of these languages property words are never used attributively, the other languages allow the attributive use of verbal property words by means of a relative clause or through nominalization (which is often the main strategy of a relative clause formation in the South American languages).

In the domain of numerals, I observed that there are considerably fewer numerals than property words with clearly verbal characteristics. For languages in which cardinality is expressed by verbs, some do not allow use as attributive modifiers at all, while others allow this with a relative clause construction or nominalization (chapter 5). It was also shown that borrowed numerals and property words tend to be borrowed together with their morphosyntactic properties. For instance, in Shipibo-Konibo, borrowed numerals from Quechua obligatorily precede the head noun (as in Quechua), whereas native forms do not show a fixed order (see Valenzuela 2003:235). In Awa Pit, property words borrowed from Spanish follow the head noun, whereas native forms obligatorily precede the noun (see Curnow 1997:119).

In the domain of possession, I argued that a fully grammaticalized category of possessive pronouns is not common in South American languages. In this sample, for instance, only three languages out of 22 had possessive pronouns as a fully grammaticalized category for 1st and 2nd person. Even for these languages, however, 3rd person possessive pronouns are formed transparently, with a 3rd person pronoun and the same possessive marker as lexical possessors. There was only one language out of 22 that had a full set of possessive pronouns that is morphologically distinct from personal pronouns. This implies that, at least for this sample, there seem to be no languages that have a grammaticalized category of possessive pronouns for 3rd person but not for 1st and 2nd person (chapter 4).

As to nominal classification, it was observed that more than half of the languages in the sample have either a gender system or a classifier system, or both. Whereas some languages have a prototypical classifier system, other languages have multifunctional classifier systems, where classifiers combine a function of semantic categorization with a function of derivation, and, to a lesser extent, a function of agreement. These functions can be manifested to different degrees in different languages, but it is their combination that distinguishes them from more prototypical classifier systems (chapter 8). The typological interest of this type of system has been noted earlier (see Payne 1987, Derbyshire & Payne 1990, Aikhenvald 2003), but it is also interesting from a more theoretical perspective. For instance, in chapter 5, I pointed out that multifunctional classifier systems pose an interesting challenge for Rijkhoff's (2002) theory about noun types. Specifically, these systems allow for typologically curious cases where a numeral is combined with a classifier, and the noun has a plural marker.

With respect to the occurrence of nominal number, finally, we can generalize that (i) optional use of nominal number is common in South America (approximately 40% for this sample), and (ii) if number marking does occur within the NP, it largely follows the Animacy Hierarchy (number is more frequently marked on human nouns than on other animates, and more frequently on animates than on inanimates). It was also observed that the presence of a numeral modifying a noun influences the occurrence of number marking, in addition to other factors like the pragmatic status of the referent of the noun (its definiteness and specificity) (chapter 5).

Semantics
With respect to the semantic properties of the NP and its constituents, the data on demonstratives in the sample showed that the range of semantic features reported in Diessel (1999), the major cross-linguistic study of demonstratives, should be extended with the following categories: (i) physical properties (shape, consistency, structure, etc.), (ii) posture (standing, sitting, lying, hanging), (iii)

possession (possession or control over the referent), and (iv) temporal distinctions (presence vs. absence, ceased existence). While the first two features were mentioned in Dixon (2003), the last two features have not received any attention in typological studies before. In chapter 9, I suggested that these features are structured in terms of a scale that runs from prototypically nominal categories (number, gender, shape, animacy) to prototypically verbal categories (visibility, temporal distinctions, posture, movement, possession) and an adverbial category (altitude).

10.2. Reflections on typological claims and tendencies in the NP domain

Constituent order
In terms of general patterns of constituent order, the analysis of the sample has revealed the following tendencies. The orders [demonstrative-noun], [possessor-possessed], and [numeral-noun] are much more common in the OV languages in the sample than in the VO languages, and the order [noun-property word] is much more common in the OV languages in the sample than in the VO languages.[98] This confirms the findings reported in Dryer (1992). However, it may be questionable to speak of correlations here as (i) the sample is geographically limited to one continent; and (ii) the majority of languages in the sample (35 out of 55) have OV as the dominant order anyway.

Property words
A second issue of typological interest is the presence of a dedicated class of adjectives. While Dixon (2004b, 2010) argues that all languages have a class of adjectives which is morphologically distinct from other word classes, this study showed that such a generalization does not hold for, at least, this sample. Largely relying on the analyses presented in descriptive materials, I observed that even for the members of the core four semantic types suggested by Dixon (1982, 2004b, 2010) far from all the languages in the sample have morphosyntactically distinct adjectives.

Possession
A third issue of typological interest is the expression of attributive possession. Among the most common strategies in the sample are head-marking and dependent-marking, followed by a third strategy where possession is

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[98] Interestingly, Greenberg's universal # 17 ("With overwhelmingly more than chance frequency, languages with dominant order VSO have the adjective after the noun", see Greenberg 1963) is reflected in only one language (Itonama) but not in the other verb-initial languages in which property words can be used adnominally (Movima, Wari', Yanesha').

morphologically unmarked but signaled by word order. A double-marking strategy was found in just a few languages (Aymara, some Quechua variants, and Aguaruna). The exact division of languages according to the locus of marking depends on the constructions we count, i.e. with lexical or pronominal possessors (see table 3.1), but in terms of raw numbers, head-marking and dependent-marking possession strategies are equally common in the sample.

Dryer (2007a:182) noticed that only "a small minority of the world's languages" use identical possessive construction for pronominal possessors and for lexical possessors. This suggests that South American languages show a relatively rare typological pattern, since about half of the (dependent-marking) languages in the sample use exactly the same construction with pronominal and with lexical possessors. And, as already noted, the other half of the (dependent-marking) languages largely lack a distinct morphological class of possessive pronouns, which according to Dryer (2007a:182) is typically available in languages with some form of possessive marking on lexical possessors.

Further in the domain of possession, it can be generalized that the feature of (in)alienability is very common among the languages of this part of the world. I showed that about 75 % of the languages of the sample have a class of inalienably possessed nouns. This involves languages of all types, except for the double-marking languages of the sample that happen to lack a class of inalienable nouns. Less than half (40%) of these languages distinguish alienable and inalienable possession structurally. In most of these cases, inalienable possession involves less morphological marking than alienable possession, as observed by Haiman (1985) and Payne (1997). About 60% of the languages, however, do not formally distinguish between alienable and inalienable possession, i.e. they use the same construction in both cases.

For the formal marking of alienable and inalienable possession, this study observed that languages which are head-marked in alienable constructions are also head-marked in inalienable constructions, which is consistent with observations in Nichols (1992:119). This applies both to constructions in which the lexical possessor is present and to constructions in which it is absent. I also found that, at least for the present sample, inalienable constructions which involve juxtaposition of an unmarked lexical or pronominal possessor and an unmarked possessed occur only in dependent-marking languages.

10.3. Geographical distribution and areal patterns

The third area of concern in my dissertation is geographical distribution and areal patterns. It is customary to make reference to a division between 'Andean' and 'Amazonian' languages when speaking about South America (e.g. Kaufman 1990). The question whether there is a linguistic match to this geographical and

cultural division has been addressed in a number of studies (e.g. Derbyshire & Pullum 1986, Payne 1990, 2001, Dixon & Aikhenvald 1999, and Adelaar 2008). While claims have been made that the Andes and Amazonia represent large linguistic areas (Dixon & Aikhenvald 1999:8), others suggest that such assertions are premature and arguable (Payne 2001, Constenla 1991). There is a number of proposals that certain, smaller, parts of the continent form linguistic areas. For instance, this has been suggested for the Western Amazon (Payne 1990), the Içana-Vaupés river basin (Sorensen 1967, Gómez-Imbert 1996, Aikhenvald 1996, 1999a, Epps 2007), the Guaporé-Mamoré area (Crevels & Van der Voort 2008), and the Gran Chaco area (Comrie et al., forthc.).

The sample of 55 languages used in the present study was constructed primarily for typological aims. This implies that it profiles the genetic diversity of languages, while also taking into account areal spread. For a genuine areal study, however, we would need a higher number of related languages in the sample, and a higher areal concentration of the languages. Still, I will use the concluding chapter to present some observations about the areal distribution of some of the NP features considered in the study. The results show that, at least for the NP features investigated in the study, there is evidence for a broad division into (A) the western part of the continent (roughly corresponding with the Andean sphere) and (B) the rest of the continent. For the languages of the (A) grouping the following characteristics apply:

(i) pre-head position for all modifiers;
(ii) absence of gender and classifiers;
(iii) property words are morphologically nominal;
(iv) lack of inalienable nouns.

For the languages of the (B) grouping the following characteristics apply:

(i) pre-head position for demonstratives, lexical possessors and numerals and posthead position of property words;
(ii) presence of gender and classifiers, often of the multifunctional type;
(iii) property words are verbal;
(iv) presence of inalienable nouns.

The features (i)-(iii) for each grouping are consistent with conclusions reached by Adelaar (2008), and the feature (ii) is consistent with Dixon & Aikhenvald (1999:8,10). Feature (iv) was first proposed in Krasnoukhova (2011).

NP constituents
For NP constituents, the data in the sample suggest that languages in which all modifiers tend to occur on one side of the noun are all found along the western edge of the continent. This concerns: Aymara, Huallaga Quechua, Imbabura

Quechua, Leko, Mapuche, Tsafiki and Yanesha'. Miraña, spoken in the Northwest Amazon region, is a language where all modifiers tend to occur pre-head and, therefore, constitutes an exception.

Conversely, a template in which some modifiers always precede the head noun and some modifiers always follow it, is found predominantly in languages outside the Andean sphere. These languages are: Warao, Ninam, Dâw, Hup, Puinave, Urarina, Matsés, Yaminahua, Jarawara, Baure, Movima, Itonama, Mekens, Gavião, Wari', Karo, Kanoê, Mamaindê, Sabanê, Wichí, Pilagá, Chamacoco, Bororo, Kamaiurá, Trumai, and Timbira. There are a few exceptions here as well: this template is also found in three languages spoken in the northwestern part of Colombia, viz. Ika, Nasa Yuwe, and Northern Embera.

Nominal classification

As for nominal classification systems (chapter 8), the present data show that gender distinctions and classifier systems are largely absent in the languages spoken in the western part of the continent,[99] but not without exceptions (Tsafiki and Yanesha'). Nominal classification systems are also absent in some languages spoken in the Western Amazon (e.g. Shipibo-Konibo, Urarina, Matsés, Yaminahua, Apurinã). On the other hand, gender and/or classifier systems are present in numerous languages spoken in the North, Northwest and Southwest Amazon regions, in the Chaco and the Southern Cone (see map 6 in appendix 4).

Payne (1987), Derbyshire & Payne (1990), Aikhenvald (2000), and Seifart & Payne (2007) have pointed out that the Northwest Amazon is prominent in terms of languages with complex systems of classifiers that diverge from prototypical types of nominal classification, and the same has been pointed out by Van der Voort (2005) for the Southwest Amazon. The properties of such multifunctional classifier systems were treated in chapter 8. As far as I could judge from the data available, these two regions are indeed two separate 'epicenters' of multifunctional classifier systems.

Nominal number

As far as the areal distribution of nominal number is concerned, languages with optional number marking are spread all over the continent without any particular geographic pattern (see map 4 in appendix 4). Languages in which nominal number marking is present on all nouns are found in the Northwest Amazon region (e.g. Puinave, Cubeo, Desano, Miraña) but also in languages spoken in the Chaco (e.g. Chamacoco) and the Bolivian lowlands (e.g. Movima). Languages which lack nominal number are found in several regions: e.g. Ika, Nasa Yuwe, Awa Pit spoken in the northwest part of the continent, Mapuche in

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[99] See also Adelaar (2008:31) and Dixon & Aikhenvald (1999:10).

the southern part of the Andes, and Jarawara in the central Amazon. They are also found in the Southwest Amazon region (e.g. Itonama, Kwaza, Sabanê, Kanoê, Wari'). This is consistent with the observations by Crevels & Van der Voort (2008:167), who suggest that the lack of nominal number is among the features characterizing the languages spoken in the Guaporé-Mamoré area. However, neither of these seems to be a robust areal pattern, as there are quite a few exceptions.

Demonstratives

As for the rich semantic distinctions which can be encoded by demonstratives, among the less typologically common semantic features in the sample are posture, movement, possession, and temporal distinctions. Most of the languages with semantically rich demonstrative systems are found in the Southwest Amazon region and in the Chaco. The Guaycuruan and Matacoan languages spoken in the Chaco are further remarkable for encoding more than three distance degrees, posture, movement, and temporal distinctions.[100] The Bolivian lowland language Movima stands out as well, in that demonstratives encode all of the above-mentioned features, in addition to more common features like distance, number and gender. At the same time the Cariban languages, spoken in the Northeast Amazon and the Guyana shield, can also express temporal distinctions with demonstratives.

Property words

For property words, Payne (2001:595-596) has noted that "[*t*]*he weakness of a class of adjectives*, distinct from nouns and stative verbs" is among the features that are worth evaluating for areal and sub-areal status. A class of adjectives, distinct from other word classes, is found in more than half of the sample languages. Geographically, such languages are scattered across the continent and do not reflect any larger areal pattern.

However, as noted in chapter 6 a certain areal split can be observed in the way property words are encoded: noun-like property words are found in the languages spoken along the western edge of the continent, whereas property words encoded only or mainly by verbs are predominant in the Northwest Amazon and the Southwest Amazon regions; they are also found in Tehuelche in the Southern Cone, and in Timbira and Bororo (eastern and southern part of Brazil) (see map 5 in appendix 4).

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[100] See also Messineo (2003:146) for Toba, Sandalo (1995) for Kadiwéu, and Carol (2011) for Chorote.

Locus of possession marking

Locus of possession marking has been mentioned in the literature as one of the features that define particular linguistic areas in South America. Specifically, Dixon & Aikhenvald (1999:8) suggest that the head-marking pattern is among the features defining the 'Amazonian linguistic area', whereas the double-marking pattern is among the features defining the 'Andean linguistic area' (Dixon & Aikhenvald 1999:10). In this study, I have shown that the locus of possession marking can hardly be attributed to a particular larger area (see map 2 in appendix 4). While dependent-marking languages are somewhat more concentrated in the Western Amazon region, and head-marking languages are more present in the Bolivian lowlands and in the Chaco, we surely cannot generalize that Amazonian languages are predominantly head-marking for possession. In addition, head-marking languages are found along the western coast of South America (e.g. Tsafiki, Ika) and in the Southern Cone (e.g. Tehuelche). With respect to the double-marking pattern, which is suggested by Dixon & Aikhenvald (1999) to characterize the 'Andean linguistic area', it is correct to say that possession marked both on the possessor and on the possessed is found predominantly in the languages spoken in the Andes, specifically, among the Aymaran and many of the Quechuan variants, and in Aguaruna. But this is not the only possession strategy found in the languages spoken in the Andes. For instance, Chipaya (not included in the sample) is dependent-marking, as well as Imbabura Quechua. In addition, a number of languages spoken in the Andean slopes show various types of possession marking.

Alienability parameter

I suggested in Krasnoukhova (2011), and further in this study, that the feature of inalienability does have an areal component. Languages spoken along the western edge of the continent predominantly *lack* a class of inalienable nouns, whereas languages in other parts of South America predominantly have such a class (see map 3 in appendix 4). Specifically, the following languages do not have a class of inalienable nouns: Quechua and Aymara, spoken in the Andes; Mapuche, spoken in the Southern Andes; Tsafiki, Awa Pit, Nasa Yuwe and Northern Embera, spoken in the western part of Ecuador and Colombia. Inalienable nouns are also absent in Aguaruna, in the northern Peruvian foothills, and Shipibo-Konibo and Urarina, spoken in the Western Amazon (Peru). Exceptions from the observations are Warao (spoken in western Guiana and northeastern Venezuela) and Kwaza and Sabanê (spoken in the Southwest Amazon region). All other languages in the sample have a class of inalienable nouns.

To conclude, we can say that there is some evidence for a split between languages spoken in the western part of the continent (roughly corresponding with the Andean sphere) and the languages spoken in the rest of the continent, but that this split is not overwhelmingly clear. A study that would logically follow from the present one is a specific investigation of the areal distribution of NP features on the basis of an extended sample (enlarged both with genetically related languages and areally neighboring languages). NP features that I suggest are relevant for an areal split include NP constituency, nominal classification, the morphosyntax of property words, and the parameter of inalienability. A further areal study could shed more light on the distribution and areal patterning of these and other structural phenomena.

10.4. Future research

There is a range of questions that could not be discussed in this study but that deserve further investigation. To round off this study, I will mention just a few of them here.

One morphosyntactic topic that was not explored in a systematic way is the issue of categorial distinctions, and the role that nominalization and verbalization processes play in the grammar. It was shown, for instance, that semantic categories like property words, numerals and demonstratives require nominalization in quite a few languages in the sample in order to function within the NP. The systematicity of such processes across categories could be further explored. For instance, are there any correlations between the need to nominalize different categories, and how do such structures relate to 'standard' nominalized clauses?

A semantic / pragmatic issue that could be investigated in more detail is the question of specificity and definiteness: how is the pragmatic status of the NP signaled in South American languages? NPs do not just serve to conceptualize a referent, but they also help to track it through discourse. Section 3.4 briefly touched upon the use of articles as one strategy within the NP, but this is of course just one of the many different types of strategies, both within and outside the NP (see Himmelmann 2001:831), as also showed e.g. in Seifart (2005).

A syntactic topic that deserves further systematic investigation is the issue of configurationality. The discussion in chapter 7 showed that languages in the sample differ with respect to (i) the number of modifiers that can occur within the NP; (ii) the flexibility of constituent order of the modifiers with respect to the head noun; (iii) the pre-head or post-head position of particular modifier categories. This study did not attempt to generalize over these differences, but it would be possible to take this further by assigning approximate rankings on how a language performs with respect to these properties. For instance, a language

would score highest with respect to NP configurationality if it (i) allows the largest number of modifiers within the NP, (ii) has the least flexible order of modifiers relative to the head, and (iii) has all modifier categories on one side relative to the head noun. To study this type of topic in sufficient depth, however, one crucially needs access to grammaticality judgments in order to justify the decisions in ranking.

Finally, as already mentioned earlier, there are also ways to expand on this study by adjusting the way the languages are sampled. If one wants to explore areal patterns of NP features, for instance, the present sample could be extended in such a way that it offers denser geographic coverage of the areas one has in mind. With such an expanded sample, one could focus on structural features that are generally thought to be genetically stable (e.g. Nichols 1992, Wichmann 2009). If one wants to explore diachronic questions, however, the sample could also be enlarged with genetically related languages whenever relevant and possible (e.g. Tupian, Arawakan). This could yield interesting results for the diachronic change of particular structural features in the NP domain, like the development of configurationality or the development of categorial distinctions.

Appendices

Appendix 1. Overview of possession patterns[101]

	Alienable possession		Language	Inalien. nouns	Inalienable possession	
	Lexical possessor	**Pronominal possessor**			**Lexical possessor**	**Pronominal possessor**
1	**HEAD-MARKING**					
1.1.a	[PR]　p.p.pref-[PD]	p.p.pref-[PD]	Yurakaré	Yes	identical	identical
		p.p.pref-[PD]	Yanesha'	Yes	identical (?)	identical (?)
		p.p.pref-[PD]	Chamacoco	Yes	identical	identical
		p.p.pref-[PD]	Tiriyó	Yes	identical	identical
		p.p.pref-[PD]	Mamaindê	Yes	identical	identical
		p.p.pref-[PD]	Warao[102]	No	n/a	n/a
	p.p.pref-[PD]　[PR]	p.p.pref-[PD]	Tehuelche	Yes	identical	identical
		p.p.pref-[PD], _or_	Baure	Yes	p.p.pref-[PD]　　[PR]	p.p.pref-[PD]
		p.p.pref-[PD]-possd				

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[101] Key to the abbreviations: _PR_ 'noun denoting the possessor, _PD_ 'noun denoting the possessed entity', _pers.pro_ 'personal pronoun', _poss.pro_ 'possessive pronoun', _1or 2p_ 'first or second person', _3p_ 'third person'.
Markers: _agr/w/possd_ 'agreement with possessed noun', _clf_ 'classifier', _lk_ 'linker', _rlt_ 'relational morpheme', _pos_ 'possessive', _possd_ ''possessed' suffix, _p.p.pref_ 'personal possessive prefix', _p.p.suf_ 'personal possessive suffix', _p.p.clit_ 'personal possessive clitic'.
[102] There is an alternative possessive construction in Warao: by means of the genitive postposition _a_ or postposition _abitu_ 'of' following any noun or personal pronoun referring to the possessor (cf. Romero-Figeroa 1997:91).

1.1.b	[PD]-p.p.suf [PR] [PD] p.p.clit [PR]	[PD]-p.p.suf [PD] p.p.clit	Movima Wari'	Yes Yes	Marked by reduplication [PD]-p.p.suf [PR]	Marked by reduplication [PD]-p.p.suf
1.2	p.p.pref-rlt-[PD] [PR]	p.p.pref-rlt-[PD] p.p.pref-rlt-[PD]	Itonama Mocoví[103]	Yes Yes	p.p.pref-[PD] [PR] p.p.pref-[PD] [PR]	p.p.pref-[PD] p.p.pref-[PD]
1.3	[PR] [PD]-possd [PR] (lk)-[PD]-possd	Pers.pro [PD]-possd, _or_ p.p.pref-[PD]-possd p.p.pref-[PD]-possd	Apurinã Hixkaryana	Yes Yes	[PR] [PD] identical	p.p.pref-[PD] identical
1.4	[PR] (p.p.pref)-clf [PD] [PR] rlt-pos [PD]	p.p.pref-clf [PD] p.p.pref-clf [PD] p.p.pref-**rlt**-pos [PD]	Bororo Wichí Timbira[104]	Yes Yes Yes	(?) [PR] [PD], _or_ [PR] p.p.pref-[PD] [PR] [PD], _or_ [PR] rlt-[PD]	p.p.pref-[PD] p.p.pref-[PD] p.p.pref-[PD], _or_ p.p.pref-rlt-[PD]
1.5	[PR] clf-possd [PD]	p.p.pref-clf-possd [PD], _or_ Pers.pro clf-possd [PD]	Panare	Yes	[PR] (p.p.pref)-[PD]-possd	pers.pos.pref-[PD]-possd

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[103] Either word order [PR] [PD] or [PD] [PR] is possible with no obvious semantic change.

[104] The possessive marker has to occur with the 'relational prefix' resulting in constructions like: [PR rlt-pos PD] or [p.p.pref-rlt-pos PD]. The presence of the relational prefix is phonologically conditioned; it occurs if the noun begins with the vowel, which is the case of the possessive marker (which is a generic noun meaning 'thing, belongings, possession' (cf. Rodrigues 1999:190).

2	DEPENDENT-MARKING						
2.1a	[PR]-pos [PD]	Pers.pro-pos	[PD]	Imb.Quech.	No	n/a	n/a
		Pers.pro-pos	[PD], _or_	Kwaza	No	n/a	n/a
		(for 3rd p)	[PD]-suf		No	n/a	n/a
		Pers.pro-pos	[PD]	Tsafiki	No	n/a	n/a
		Pers.pro-pos	[PD]	Shipibo-K.	No	n/a	n/a
		Poss.pro	[PD]	Awa Pit	No	n/a	n/a
		Poss.pro		Matsés	Yes	identical	identical
		Poss.pro		Yaminahua	Yes	identical	identical
		Poss.pro _(1or2p)_	[PD] +	Cubeo	Yes	identical	identical
		pers.pro-pos _(3p)_	[PD]				
		Pers.pro-pos	[PD]	Cavineña	Yes	identical	identical
		Pers.pro-pos[105]	[PD]	Dâw[106]	Yes	[PR] [PD]	Pers.pro [PD]
		Pers.pro-pos	[PD]	Trumai	Yes	[PR] [PD]	Pers.pro [PD], _or_
							(for 3rd p) [PD]-suf
		Poss.pro _(1or2p)_	[PD] +	Kanoê	Yes	identical	identical
		pers.pro-pos _(3p)_	[PD]				
		p.p.pref-pos	[PD]	Leko	Yes	[PR]-pos [PD]-p.p.suf	p.p.pref-[PD]
2.1b	[PR] pos [PD]	Poss.pro	[PD]	Hup	Yes	[PR] [PD]	Pers.pro [PD]
		Pers.pro-pos	[PD]	Jarawara	Yes	[PR] [PD]	Pers.pro [PD]

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[105] For some persons, these are already grammaticalized into possessive pronouns.
[106] With alienably possessed nouns both orders occur in Dâw, whereas with inalienably possessed nouns the order is [PR] [PD] (Martins 2004:547).

		Pers.pro pos [PD]	Desano	Yes	[PR] [PD]	Pers.pro [PD]
		Pers.pro-pos [PD]	Ika	Yes	identical	identical[107], *or*
						--- p.p.pref-[PD]
		Poss.pro [PD]	Karo	Yes	[PR] [PD]	--- p.p.pref-[PD]
		Poss.pro *(1or2p)* [PD] +	Ninam	Yes	[PR] [PD]	Poss.pro *(1or2p)* [PD] +
		pers.pro-pos *(3p)* [PD]				+3 pers.pro-pos [PD]
2.2	[PR]-agr/w/possd [PD]	Pers.pro-agr/w/possd [PD], *or* [PD]-pers.pro	Mosetén	Yes	identical	identical
3	**DOUBLE-MARKING**					
	[PR]-pos [PD]-p.p.suf	(Pers.pro-pos) [PD]-p.p.suf	Hual.Quech.	No	n/a	n/a
		(Pers.pro-pos) [PD]-p.p.suf	Aymara	No	n/a	n/a
		(Pers.pro-pos) [PD]-p.p.suf	Aguaruna[108]	No	n/a	n/a
4	**NO MORPHOLOGICAL MARKING**					
	[PR] [PD]	Pers.pro [PD], *or* p.p.pref-pos-clf [PD][109]	Tariana	Yes	[PR] p.p.pref-[PD], *or* [PR] p.p.pref-pos-clf [PD]	p.p.pref-[PD] p.p.pref-pos-clf [PD]

[107] Frank (1990:41-42) notes that identical constructions are used for kinship terms, part-whole relations and ownership relation. However, it is also mentioned that kinship terms can "carry person prefixes indicating whose kinsperson is being referred to, e.g. *nʌ-kakɨ* [1SG-father] 'my father' (Frank 1990:19).

[108] In Aguaruna, possession is normally double-marked, but there are examples where just the possessor is marked and the personal possessive suffix on the possessed is absent (see Overall 2007:220).

				No	n/a	n/a
		Pers.pro *(1or2p)*[110] [PD] + poss.pro? *(3p)* [PD]	Nasa Yuwe	No(?)	n/a	n/a
		Pers.pro *(1or2p)* [PD] + *(for 3rd p)* pos [PD], *or* proclitic-[PD][111]	Urarina	No	n/a	n/a
		Pers.pro [PD]	N.Embera	No	n/a	n/a
		p.p.pref-[PD]	Gavião	Yes	identical	identical
		p.p.pref-[PD]	Mekens	Yes	identical	identical
		p.p.pref-[PD]	Puinave	Yes	identical	identical
		p.p.pref-[PD]	Sabanê	No	n/a	n/a
		p.p.pref-rlt-[PD]	Tapieté[112]	Yes	identical	identical
		p.p.pref-rlt-[PD][113]	Emérillon	Yes	identical	identical
		p.p.pref-rlt-[PD]	Kamaiurá[114]	Yes	identical	identical

[109] Constructions with the possessive marker (-*ya*-) form "an areal feature shared by Tariana and Tucano languages". In Tucanoan languages this possessive marker -*ya*- plus classifier is used for alienable possession. In Tariana, it is used for both alienable and inalienable possession (Aikhenvald 2003:135).

[110] 'Possessive pronoun' forms in Nasa Yuwe coincide largely with unmarked personal pronouns. There is just one exception for 3rd sg: *tjaxj* 'poss.3sg' instead of *tjã*: '3sg'. Noun denoting the possessed entity is left unmarked (see Jung 2008:121,136).

[111] Olawsky (2006:337) notes that the construction with proclitics is typical for the traditional language, whereas free personal pronouns are preferred in contemporary language, and that constructions with proclitics usually occur with formally 'inalienable' nouns.

[112] Possessive constructions for alienable and inalienable nouns are the same in Tapieté, though a different set of possessive prefixes is used with both types of nouns.

[113] The relational morpheme *l*- in Emérillon is used with personal possessive prefix for 1st or 2nd person; with 3rd person the relational morpheme is not used. Not all nouns require the use of the relational morpheme (Rose 2003:228-229)

[114] Alienably possessed nouns can occur with the relational prefix or without it. With inalienable nouns the relational prefix is obligatory (Seki 2000:117).

	[PD] [PR]	p.p.pref-[PD]	Pilagá	Yes	p.p.pref-[PD] [PR]	p.p.pref-[PD]
5	**OTHER TYPES**					
5.1	[PR] poss.pro [PD]	Pers.pro poss.pro [PD]	Mapuche	No	n/a	n/a
5.2	Tonal pattern, both [PR] and [PD] can be affected	--- p.p.pref-[PD]	Miraña	Yes	identical	identical

Appendix 2. Properties of multifunctional classifier systems

1	Nouns can be assigned to various classes at speaker's will
2	Form largish number of classes
3	Constitute an open system
4a	Can derive *new* noun stems from noun stems or roots
4b	Can nominalize and / or form noun stems from verbal stems or roots
5	Can form a full NP when occurring on a modifying constituent
6a	Can occur on *any* predicate to mark core argument(s)
6b	Can occur only on a subclass of predicates to mark the argument (e.g. nominal predicates, stative verb)
7	Can participate in agreement within the NP
8	Classify all nouns

Family	Language	Gender	Cls	Construction	1	2	3	4a	4b	5	6a	6b	7	8	Source
Witotoan, Boran	**Miraña**, Bora, Muinane, Witoto, Ocaina, Nipode	yes	yes	multiple	+	+	+	+	+/-	+	+	n/a	+	+	Seifart (2007:411-45)
Tucanoan	**Cubeo, Desano,** Koreguaje, Siona, Secoya, Tanimuca, Tucano	yes	yes	multiple	+	+	+	+	+	+	+	n/a	+	+	Payne (1987), Derbyshire & Payne (1990:246), Barnes (1990, 1999:218), Morse & Maxwell (1999), Miller (1999), Schwarz (2011)
Peba-Yaguan	Yagua	?	yes	multiple	+	+	+	+	+	+	+	n/a	+	+	Payne (1987:28), Derbyshire and Payne (1990:253)
Arawakan (North A.)	**Tariana,** Resigaro, Baniwa of Içana	yes	yes	multiple	+	+	+	+	+	+	+	n/a	+	?	Aikhenvald (1999b:83, 2007:496)
Arawakan (South A.)	**Baure**, **Yanesha'**, Terêna, Ignaciano, Trinitario, Salumã, Waurá, Mehinaku, Yawalapiti, Pareci, Ashaninca, Asheninca, Caquinte, Machiguenga, Nomatsiguenga,	yes	yes	with numerals, verbs, nouns	+/-	+	+	+	+	+	+	n/a	+	+/-	Danielsen (2006), Aikhenvald (1999b:83)

	Pajonal Campa													
unclassified	Waorani	?	yes	multiple	+	+	+	+	+	+	+	n/a	+	?	Payne (1987:31), Derbyshire & Payne (1990:259), Adelaar with Muysken (2004:455).
Sáliva-Piaroan	Piaroa, Sáliva	yes	yes	nouns, property words, numerals, demonstratives	+	+	+	+	-?	+?	-	+/-	+	+	Krute (1988:127), Aikhenvald & Dixon (1999:374)
Cahuapanan	Chayahuita	?	yes	not with demonstratives	+	+	+/-	+	+	+	+	n/a	-	?	Payne (1987:32)
Guahiban	Cuiba, Guahibo	yes	yes	multiple	+	+	+	+	?	+	?	?	+	+?	Aikhenvald & Dixon (1999:373)
Nambikwaran	**Mamaindê, Sabanê,** Latundê-Lakondê,	no	yes	multiple	+	+/-	+	+	+	+	?	+	-	-	Telles (2002), Eberhard (2009:330), Araujo (2004)
unclassified	**Kwaza**	no	yes	multiple	+	+	+	+	+	+	+	n/a	-	-?	Van der Voort (2004, 2005)
unclassified	Aikanã	no	yes	multiple	+	+	+	+	+	+	+	n/a	-	-?	Van der Voort (2009, 2005)
unclassified	**Kanoê**	no	yes	verbs, nouns	+	+	+	+	+?	+	+	n/a	-	-?	Bacelar (2004)
Tupian	Munduruku	no?	yes	with verbs, nouns, numerals	+	+	+	+?	+?	+?	+	n/a	?	?	Grinevald (2000:67), Aikhenvald (2000:152,160)
unclassified	**Movima**	yes	yes	with numerals,	+	+	+	+	+	+	+	n/a	-?	-?	Grinevald (2002), Haude

				verbs, nouns, property words											(2006:203)
Yanomaman	Yanomam	no	yes	multiple, not with demonstratives	+/-	+	+?	+	-?	+	+	n/a	-	-	Perri Ferreira (2009:301)
Arawakan (North A.)	Palikur	yes	yes	with numerals, verbs, in possessive constructions	+	+	-	-?	+/-	-	+	n/a	-	+	(Derbyshire & Payne 1990:246), Aikhenvald (1999b:83, 2000:164,192)
Zaparoan	Arabela	anim	yes	with property words, nominal predicates, deriv. on verbs	+	+	-?	?	+	+	-	+	-	?	Payne (1987:26)
Harakmbut-Katukinan	Amarakaeri, Harakmbut?	?	yes	with verbs, nouns, property words, BUT not with numerals or demonstratives	+	+	-?	+	-	+/-	+	n/a	-	?	Payne (1987:36)
unclassified	**Itonama**	no	yes	with verbs, demonstratives, property words, numerals, stem 'how many'	+	+/-	-	-	-	+	-	+	-	-	Crevels (2012, p.c.)
unclassified	Cholón	no	yes	with numerals,	+	+	+?	-	-	-	-	-	-	+	Alexander-Bakkerus (2005),

				quantifiers, stem 'how many'										Adelaar with Muysken (2004:470)
Barbacoan	Cha'palaachi	no	yes	with numerals, nouns, diminutives and augmentatives	+	-	-	+	-	+	-	+	-	-	Simeon Floyd, p.c.
Nadahup	**Hupda, Dâw**	no	yes	with nouns	+/-	-	-	+	+	+	-	-	-	-	Epps (2007:107-127), Martins & Martins (1999:258)
unclassified	Kamsá	?	yes	multiple	+	+	?	+	?	?	?	?	+?	?	Adelaar with Muysken (2004:153)
Guaycuruan	**Pilagá, Mocoví,** Toba	yes	yes	with nouns, demonstratives	+	-	-	+?	-	+	-	-	-?	-	Vidal (1997, 2001), Grondona (1998), Adelaar with Muysken (2004:492)
Arawakan (North A.)	Yukuna, Achagua, Piapoco, Maipure, Warekena, Baniwa of Guaiania, Bahwana	yes	yes	with numerals	+	+/-	-	-	-	-	-	-	-	?	Aikhenvald (1999b:83)
Tupian	**Karo**	no	yes	with nouns, property words	+	+/-	-	-	-	-	-	-	+	-	Gabas (1999:215)
unclassified	Andoké	?	yes	with verbs, 'modifiers' (not clear what kind)	+	+/-	?	?	?	?	+	?	?	?	Aikhenvald & Dixon (1999:374)

Family	Language(s)														Reference
Barbacoan	**Tsafiki**	no	yes	with numerals, some nouns	+	-	-	-	-	-	-	-	-	-	Dickinson (2002)
Chibchan	Cuna, Chimila	?	yes	with numerals, stem 'how many'	+	?	?	?	?	?	?	?	?	?	Adelaar with Muysken (2004:66, 79)
Zamucoan	Ayoreo	yes	yes	in possessive constructions	+	-	-	-	-	-	-	-	-	-	Bertinetto (2009)
Cariban	**Panare**	yes	yes	in possessive constructions	+	-	-	-	-	-	-	-	-	-	Tom & Doris Payne (p.c.)
Macro-Ge	**Timbira, Boróro,** Kipeá-Kariri	no	yes	in possessive constructions	+/-	-	-	-	-	-	-	-	-	-	Crowell (1979:215), Nonato (2008:59), Alves (2004:51)
Matacoan	**Wichí**	no	yes	in possessive constructions	+/-	-	-	-	-	-	-	-	-	-	Terraza (2009:61,71)
Tupian	**Mekens, Emérillon**	no	yes	in possessive constructions	-	-	-	-	-	-	-	-	-	-	Galucio (2001), Rose (2003)
Nadahup	Nadëb	no	yes	in possessive constructions	+/-	-	-	-	-	-	-	-	-	-	Martins & Martins (1999:258)
unclassified	Esmeraldeño	?	yes	with nouns, ?		?		+							Adelaar with Muysken (2004:158)
unclassified	Mochica	no	yes	with numerals	+/-?	?	?	-	-	-	-	-	-	?	Adelaar with Muysken (2004:342)
Macro-Ge, Jabutian	Djeoromitxí, Arikapú	no	yes	with nouns, ?	?	-	-?	+	?	?	?	?	?	-?	Ribeiro & Van der Voort (2010)
Arawakan	Piro, Apurinã,	yes	no												Aikhenvald (1999b:83)

(North A.)	Wapishana, Mawayana, Lokono, Garifuna, Guajiro, Añun, Bare															
Zamucoan	**Chamacoco**	yes	no													Luca Ciucci, p.c.
Arawan	**Jarawara,** Paumarí	yes	no													Dixon (1999:298), Chapman & Derbyshire (1991:161-355)
Chapacuran	Wari'	yes	no													Everett & Kern (1997)
Uru-Chipayan	Chipaya	yes	no													Cerrón-Palomino (2009:52)
Uru-Chipayan	Uru	no	no													Hannβ (2008)
Barbacoan	**Awa Pit**	no	no													Curnow (1997)
Araucanian		no	no													
Ayamaran		no	no													Adelaar with Muysken (2004)
Paezan		no	no													
Panoan		no	no													Derbyshire & Payne (1990:264)
Quechuan		no	no													Pieter Muysken (p.c.)
Tacanan		no	no													Aikhenvald & Dixon (1999:366)
Jivaroan		no?	no?													
unclassified	Yahgan/Yamana	?	?													"Verb classification" mentioned in Adelaar with Muysken (2004:571).
unclassified	**Urarina**	no	no													

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Appendix 3. Semantic features of demonstratives

Language	Distance	Number	Gender	Shape, other physical properties	Animacy	Visibility + Perception	Temporal features; absence	Posture	Movement	Possession	Altitude
Movima	Set 1: POS: 2: near S, near H Set 2: DOS: 2: prox, dist	Plural	Masc, fem, neut		Human, animate, inanimate (mostly humans can be specified for gender)	Set 2: if referent is seen or perceived by S then Set 2 is used, if not then Set 3. However, distal form of 'elevated' dem. is used when referent is NOT seen but only perceived (heard, felt, smelled) by S. Set 3: if referent is NOT seen or perceived by S	Set 3: Past vs. non-past	Set 2: Standing on ground vs. non-standing on ground, elevated	Set 2: Towards S, away from S	Set 2: Possession	

Pilagá	DOS: 2 (3) prox, dist, (med)	Paucal, plural	Fem	For inanimates: by means of metaphorical extension of posture		CLF:going.away/past encode semantic range from an 'in sight' to an 'out of sight', though mostly for objects visualized but moving away.	'Now absent' (becoming absent) vs. 'anticipated absence' (absence prior to speech event)	a)Vertically-extended, b)sitting/non-extended, c)lying/horizontally extended.	Coming, going away		
Mocoví	DOS: 4: Very.prox, prox, dist, more dist	Plural	Masc, fem	For inanimates: by means of metaphorical extension of posture (?)		Visible / invisible	Present, absent	a)Vertically-extended, b)sitting/non-extended, c)lying/horizontally extended.	Coming, going away		
Itonama	DOS: 3: prox, med, dist	Plural	Masc, fem (only within 'anim+standing+sg' category)	Shape, consistency	Animate, inanimate			Position: Standing, seated, hanging			
Wari'	POS: 3: near S, near	Plural	Masc, fem, neut (within		Human, animate,		Recently absent, long				

	H, far from S+H		singular)		inanimate (mostly humans can be specified for gender)		absent (?)				
Tiriyó	*Pronom. dem-s:* DOS: 3: prox, med, dist *Adv.dem:* Inanim pron+postposit	*Pronom. dem-s:* Collective			*Pronom. dem-s:* Animate, inanimate	*Pronom. dem-s:* Visible / invisible	*Pronom. dem-s:* Temporal change				
Cubeo	DOS: 2: prox, dist.	Plural (both within ANIM and INAN category)	Masc, fem (only within ANIM+SG category)	Shape, structure (clm) (only within INAN category)	Animate, inanimate						
Desano	DOS: 2: prox, dist.	Plural	Masc, fem	Shape, structure (clm) (only within INAN category)	Animate, inanimate						

Miraña	DOS: 2: prox, dist	Dual, plural (clm.)	Masc, fem (clm.)	Shape (clm.)	Human, animate (different stem for animates)						
Tariana	DOS: 2: prox, dist., +1 prox.emph	Plural	Prox. dem used with anim-s can be specified for gender if has to be focused (clm.) + set of obsolete dem. specified for gender).	Prox. dem used with inanim-s can be specified for shape and form if has to be focused (clm.)	Within prox. dem. only: anim vs. inanim						
Hixkaryana	*Pronom. dem-s & adverbial dem-s:* DOS: 3: prox, med, dist	*Pronom. dem-s:* Collective			*Pronom. dem-s:* Animate, inanimate		*Pronom. dem-s:* Temporal change				
Panare	*Pronom. dem-s & adverbial dem-s:* DOS: 3:	*Pronom. dem-s:* Collective			*Pronom. dem-s:* Animate, inanimate		*Pronom. dem-s:* Temporal change (?)				

	prox, med, dist									
Mekens	DOS: 2: unmarked, far from S/H. In vert. pos: near S, dist, unmarked.	There is one dem.: *eme*, used for ref. to plural entities.		For inanimates:by means of metaphorical extension of posture				Posture and position in space: Vertical, seated, lying, suspended		
Baure	DOS: 2: prox, dist + pragm.prox	Plural	Masc, fem (only in the singular)							
Trumai	*Adnom.dem:* DOS: 2: prox, dist *Adverb.dem* DOS: 3: prox, med, dist	Dual, plural	Masc, fem (within singular) (when used as adnom. dem-masc and fem. forms can freely substitute each other; used with anim and inanimates)							
Chamacoco	DOS: 2: prox, dist	Plural	Masc, fem (within singular)							

Tehuelche	DOS:4	Plural	Masc, fem, neut							
Hup	DOS:3(4) prox, dist, intang, 'other'	Plural marker with animates				Separate term intangible ('out of sight', physical access lacking or irrelevant)				
Puinave (Wãnsöjöt)	*Adnom. dem:* DOS: 2: prox, dist *Adverb.dem:* DOS: 3: prox, dist, further away	Plural				Only adverb.: Visible / invisible				
Moseten	Only adverb.: DOS 3: prox, dist, dist 'invisible'		Adnominal, and adverbial dem: Masc, fem			Only adverb.: 2 sets for 'distant and invisible'				
Kwaza	Optionally: 2 prefixes: prox, dist			Shape, structure (clm.)		'out of sight': (Optional):				

	DOS: 2: near S, near H					Combination of dist.prefix on prox. dem. root + clf 'area'					
Jarawara	Prox., prox/dist, visibility – major factor. (No distinction for nom.dem in pre-predicate NPs and adv. in clause-final position		Masc, fem (only with nominal dem) (not obligatory)			Visible / invisible (nominal dem-s used after predicate, and adverbial dem. used in clause-final position)					
Kamaiura	POS: 3: near S, near H, far from S+H	Collective				Audible, not visible					
Huallaga Quechua	DOS: 3: prox, med, dist	*Pronom. dem-s:* plural										Set 2 (?): Below/lower, Above/upper, Same altitude
Timbira	DOS: 2: prox, dist	Collective										

Matses	POS: 3: near S, near H, far from S+H	Collective								
Embera	DOS: 2: prox, dist	Plural								
Warao	DOS: 3: prox, med, dist	Plural								
Tapieté	DOS: 3: prox, med, dist	Plural								
Leko	DOS:3: prox, dis, further away	Plural								
Emérillon	DOS: 2: prox, dist	*Pronom. dem:* plural								
Imbabura Quechua	DOS: 2: prox, dist	*Pronom. dem:* plural								
Apurinã	DOS: 2: prox, dist		Masc, fem							
Yanesha'	*Adnom. dem:* DOS: 3: *Adverb.dem:* DOS: 2 (?)			Shape, structure (clm.)						
Wichi'	*Adnom. dem:* DOS: 5:							Moving away		

	prox, dist *Adverb.dem:* DOS: 4										
Aymara	DOS: 4: prox, dist, further away, even further away										
Shipibo-Konibo	DOS: 3: prox, med, dist										
Dâw	DOS: 2: 2 Prox, dis, +1 emph										
Tsafiki	DOS: 2: prox, dist. + 1 emph.										
Awa Pit	DOS: 2: prox, dist										
Yur.akaré	DOS: 3: prox (S), dist.(far S+H), neutr. (closer to H)										
Cavineña	POS: 3: near S, near										

	H, far from S+H									
Kanoê	DOS: 2: prox, dist									
Bororo	DOS: 3: prox, med, dist									
Mapuche	DOS: 3: prox, med, dist									
Nasa Yuwe	DOS: 2: prox, dist									
Ika	DOS: 3 (4): Prox (can be also dist), med (dist), dist (further away), +1 anaph.									
Aguaruna	DOS: 3: prox, med, dist									
Yaminahua	DOS: 2: prox, dist									
Karo	POS: 3: prox, med,									

	dist										
Urarina	POS: 3: prox, med, dist										
Ninam	POS: 3: prox, med, dist (no data on adverbial dem.)										
Gavião	POS: 3: prox, med, dist (no data on adverbial dem-s)										
Mamaindê	Only adverbial (?): prox, dist										
Sabanê	Only adverbial (?): prox, dist										

Key to the table: Adnominal demonstratives are taken as the default target. Whenever necessary, it is stated explicitly whether adnominal or adverbial demonstratives are in focus.

Appendix 4. Maps
Map 1. The sample.

(Map compiled by Love Eriksen. For references to locations of languages on the maps, see Eriksen 2011:12)

Map 2. Locus of possession marking.
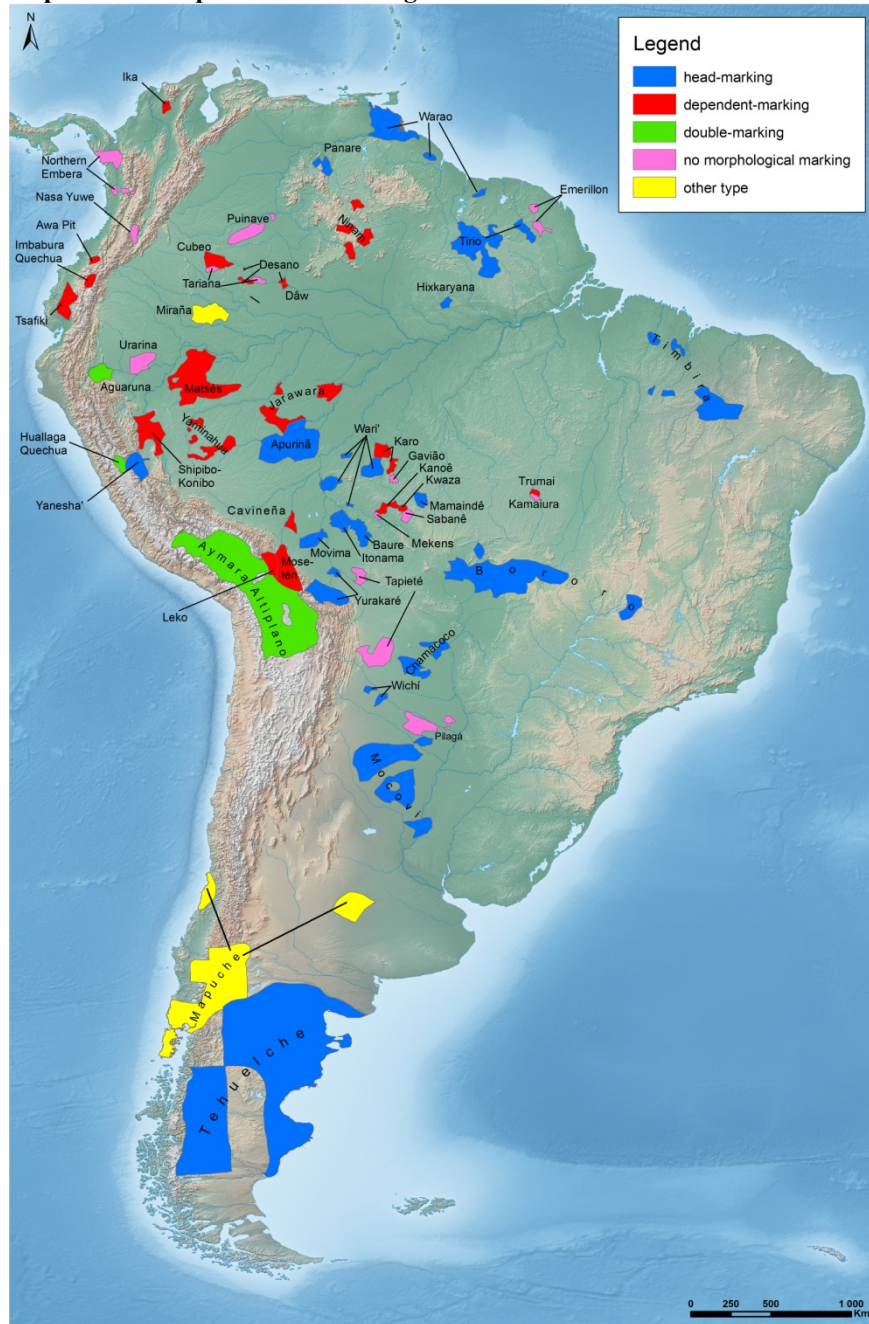
(Map compiled by Love Eriksen. For references to locations of languages on the maps, see Eriksen 2011:12)

Map 3. Presence of inalienable nouns.

(Map compiled by Love Eriksen. For references to locations of languages on the maps, see Eriksen 2011:12)

Map 4. The marking of nominal number.

(Map compiled by Love Eriksen. For references to locations of languages on the maps, see Eriksen 2011:12)

Map 5. Encoding of property words.
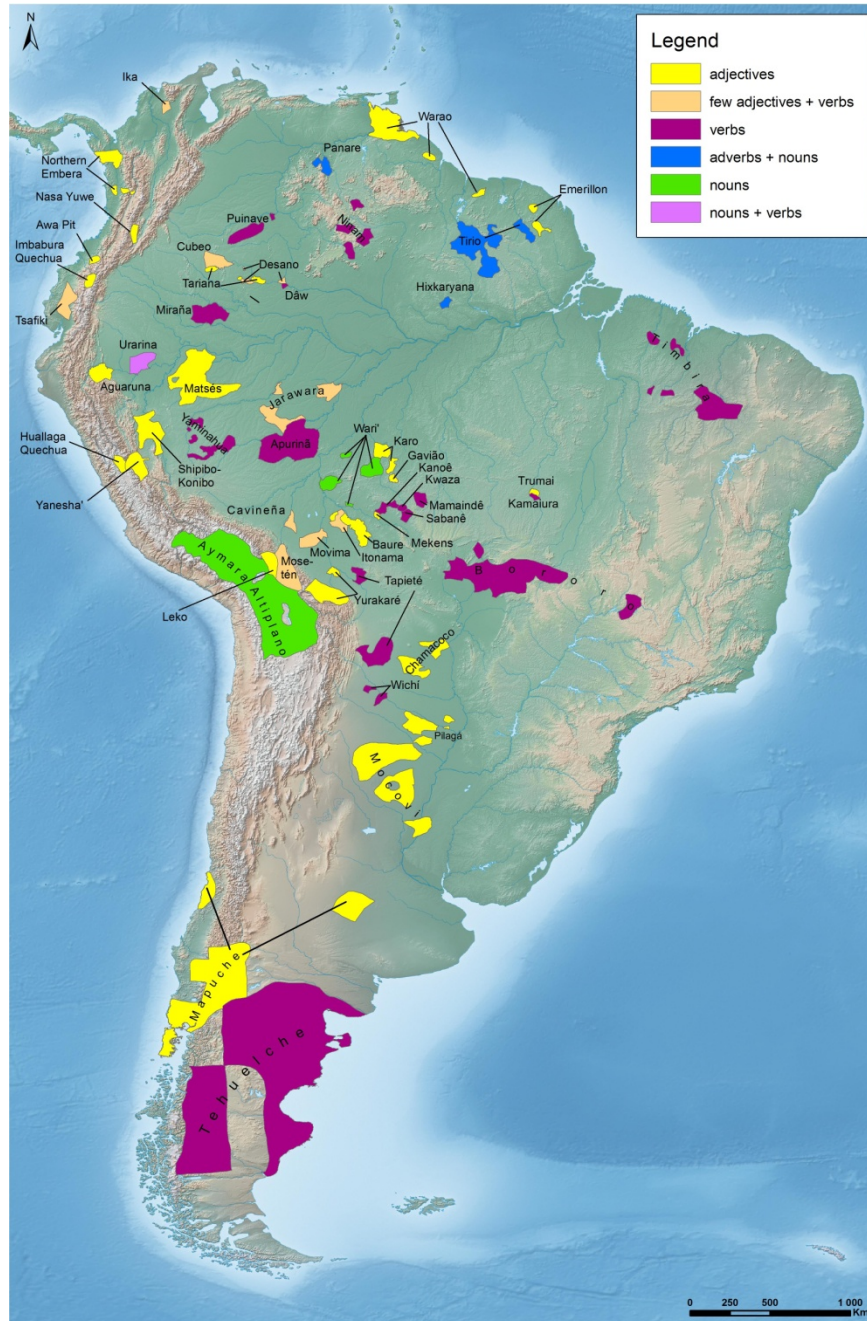
(Map compiled by Love Eriksen. For references to locations of languages on the maps, see Eriksen 2011:12)

Map 6. Nominal classification systems.

(Map compiled by Love Eriksen. For references to locations of languages on the maps, see Eriksen 2011:12)

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Samenvatting in het Nederlands

Dit proefschrift gaat over de structuur van de nominale constituent (NC) in een sample (steekproef) van 55 inheemse talen van Zuid-Amerika. De studie heeft drie basis-doelstellingen.

De eerste doelstelling is een overzicht te geven van de semantische en morfosyntactische eigenschappen van de NC en de bestanddelen ervan in Zuid-Amerikaanse talen. Tot voor kort hebben deze talen een relatief kleine rol gespeeld in typologische studies, grotendeels vanwege de schaarste aan gedetailleerde beschrijvingen. Onder meer door een reeks documentatie-programma's is in de afgelopen jaren een groot aantal uitstekende grammatica's verschenen van talen uit dit deel van de wereld. Vandaar het tweede doel van deze studie: te evalueren of de Zuid-Amerikaanse talen wel of niet de bestaande typologische aannames bevestigen en hoe ze zich profileren ten opzichte van de NC in het brede typologische perspectief. De derde doelstelling van deze studie is na te gaan of er sprake is van een bepaalde geografische spreiding en patroonvorming van NC eigenschappen. De opbouw van dit proefschrift is als volgt.

Hoofdstuk 1 geeft een beknopte achtergrond van de belangrijkste vragen binnen het NC domein en introduceert de talen in het sample.

Hoofdstuk 2 biedt een inleiding tot de onderwerpen opgenomen in de questionnaire, geïllustreerd door voorbeelden uit de gegevens.

Hoofdstukken 3 tot en met 6 bespreken elk van de vier bestudeerde naamwoordmodificerende categorieën. Hoofdstuk 3 gaat over NC's met aanwijzende voornaamwoorden (demonstratieven) als modificeerders. Het laat zien dat aanwijzende voornaamwoorden in de meerderheid van de talen syntactisch zijn geïntegreerd met het semantische hoofdnaamwoord en daarmee een enkele NC vormen. Dit vindt plaats hetzij via directe modificatie, hetzij via een bijzinsconstructie. In enkele talen vormen aanwijzende voornaamwoorden en hoofdnaamwoorden aparte NC's, waardoor deze elementen slechts semantisch maar niet syntactisch een eenheid vormen. Hoofdstuk 4 bespreekt adnominale bezitsconstructies. Er wordt aangetoond dat er evenveel talen zijn in Zuid-Amerika die bezit markeren op het hoofdnaamwoord als talen die bezit markeren op de ondergeschikte constituent. Dit is met name relevant voor de talen gesproken in het Amazone gebied, die volgens eerdere studies bezit grotendeels op het hoofdnaamwoord zouden markeren. Dit hoofdstuk laat, onder andere, ook zien dat er zeer weinig talen in Zuid-Amerika zijn die een volledig gegrammaticaliseerde categorie van bezittelijke voornaamwoorden (possessieve pronomina) hebben. In plaats van een bezittelijk voornaamwoord, gebruiken die talen een persoonlijk voornaamwoord met dezelfde bezitsmarkeerder als gewone

naamwoorden. Dit hoofdstuk laat ook zien dat er een bepaald geografisch patroon te vinden is van talen die de grammaticale eigenschap van vervreemdbaarheid al dan niet onderscheiden. De data wijzen er namelijk op dat de talen die rond het Andesgebergte worden gesproken vaak geen klasse van vervreemdbare naamwoorden hebben, terwijl deze categorie wel voorkomt in talen in de rest van het continent.

Hoofdstuk 5 behandelt telwoorden als modificeerders en bespreekt nominale meervoudsmarkering. Er wordt aangetoond dat hoewel telwoorden in veel Zuid-Amerikaanse talen wel als modificeerder kunnen functioneren (onafhankelijk van hun grammaticale woordklasse), een telwoord in sommige talen alleen als predicaat of als bijwoord wordt gebruikt. Wat nominale meervoudsmarkering betreft, deze is optioneel in ongeveer 40% van de bestudeerde talen en komt helemaal niet voor in ongeveer 20% van de talen. In de talen waar nominale meervoudsmarkering verplicht is op bepaalde naamwoorden, volgt het gebruik van de markering de zogenoemde *Animacy* hiërarchie. Het gebruik van meervoudsmarkering hangt, onder andere, ook af van de aanwezigheid van een telwoord dat het naamwoord modificeert. Een dergelijk telwoord kan het gebruik van meervoudsmarkering hetzij optioneel maken, hetzij helemaal uitsluiten.

Hoofdstuk 6 bespreekt NC's met bijvoeglijke naamwoorden (adjectieven) als modificerende categorie. Er wordt aangetoond dat niet alle bestudeerde talen een aparte grammaticale woordklasse van bijvoeglijke naamwoorden hebben. Dit geldt zelfs voor de meest essentiële semantische categorieën, zoals b.v. grootte, leeftijd, waarde, en kleur, die zoals in eerdere studies beweerd is, hoogstwaarschijnlijk via de grammaticale klasse van bijvoeglijke naamwoorden worden uitgedrukt. De meest voorkomende grammaticale klasse waarmee adjectivale concepten in de bestudeerde talen worden weergegeven, zijn werkwoorden. Er is een bepaalde, niet geheel sluitende, geografische verdeling te zien: de talen waarin bijvoeglijke naamwoorden nominale eigenschappen hebben, worden in het westen gesproken (rond het Andesgebergte), terwijl de talen met bijvoeglijke naamwoorden met verbale eigenschappen in het noordwesten en zuidwesten van het Amazonegebied geconcentreerd zijn, maar ook elders worden gevonden. Daarnaast bespreekt het hoofdstuk constructies die worden gebruikt voor het modificeren van een zelfstandig naamwoord door een bijvoeglijk naamwoord. Het laat ook zien dat de meest voorkomende woordvolgorde zelfstandig naamwoord gevolgd door bijvoeglijk naamwoord is, onafhankelijk van de grammaticale woordklasse van de laatste categorie.

De kwestie van de NC als een eenheid staat centraal in hoofdstuk 7. Daar wordt bekeken welke criteria er van toepassing zijn voor het bepalen van de integriteit van de NC. Dit hoofdstuk laat zien dat het moeilijk is om te generaliseren of een taal wel of niet integrale NC's heeft, omdat binnen een taal sommige modificerende categorieën wel een integrale NC kunnen vormen,

terwijl andere categorieën dat niet kunnen. De data van deze talen suggereren dat er een bepaalde hiërarchie bestaat: lexicale bezitters zullen eerder een integrale NC vormen met hun semantische hoofdnaamwoord dan adnominale aanwijzende voornaamwoorden, en aanwijzende voornaamwoorden zullen eerder een integrale NC vormen met hun semantische hoofdnaamwoord dan bijvoeglijke naamwoorden en telwoorden. Verder bespreekt het hoofdstuk de kenmerken van NC's in Zuid-Amerikaanse talen. Op basis van de bestudeerde talen kunnen we zeggen dat het meest voorkomende model van de NC in deze talen is waar aanwijzend voornaamwoord, lexicale bezitter en telwoord voor het hoofdnaamwoord staan en bijvoeglijk naamwoord erna. Slechts een kwart van de bestudeerde talen heeft al deze modificerende categorieën aan dezelfde kant van het hoofdnaamwoord (alle modificeerders links van het naamwoord; een strikt rechts-vertakkende structuur van de NC komt niet voor).

Hoofdstuk 8 gaat over nominale categorisering, zoals grammaticaal geslacht, nominale klassen en classificeerders. Grammaticale middelen voor nominale categorisering zijn zeer frequent in Zuid-Amerikaanse talen. Het hoofdstuk bouwt op eerdere studies waar reeds is aangetoond dat het type classificeerders dat deze talen hebben, afwijkt van de klassieke gevallen van nominale categorisering. Het hoofdstuk systematiseert en bespreekt de drie functies die deze classificeerders hebben (echter in verschillende mate in verschillende talen): semantische categorisering, derivatie, en congruentie.

Hoofdstuk 9 pakt het thema aanwijzende voornaamwoorden weer op, maar omvat deze keer het pronominale en adverbiale gebruik ervan naast het adnominale gebruik. Het hoofdstuk bestudeert welke semantische kenmerken aanwijzende voornaamwoorden kunnen weergeven in Zuid-Amerikaanse talen. Het wordt aangetoond dat naast de typologisch vaak voorkomende kenmerken als afstand, meervoud, grammaticaal geslacht, en zichtbaarheid sommige talen van het sample categorieën uitdrukken als lichaamshouding (staand, liggend, zittend, hangend), beweging, fysieke eigenschappen (vorm, consistentie, structuur, enz.), bezit, en tijdsmarkering (afwezigheid, existentie). Op basis van de distributie van de semantische kenmerken wordt in dit hoofdstuk gesuggereerd dat de variabiliteit gestructureerd is. De semantische kenmerken van demonstratieven vormen namelijk een continuüm van prototypisch nominale categorieën (meervoud, geslacht, vorm, animacy) tot prototypisch verbale categorieën (zichtbaarheid, beweging, lichaamshouding, bezit, tijdsmarkering), en tot een adverbiale categorie (hoogte).

Het laatste hoofdstuk 10 bespreekt de belangrijkste bevindingen van dit proefschrift in het kader van de drie eerder genoemde doelstellingen.

Curriculum Vitae

Olga Krasnoukhova was born in 1978 in Moscow (Russia). After finishing secondary school in 1995, she spent a year in Linköping (Sweden) to study Swedish, where she also obtained a diploma at Katedralskolan. She received her MA in linguistics with honors at the University of the Russian Academy of Education in Moscow in 2001 and at Radboud University Nijmegen in 2007. Her MA thesis at Radboud University focused on the use of classifier systems for human referents, and discussed their function of social deixis. In 2008, she started her PhD project at the Centre for Language Studies at Radboud University, which resulted in this dissertation.

In addition to the topics discussed in this book, Olga is interested in logical and mathematics-based mechanical puzzles, their history, development, and applications in education.