Standard Negation

Empirical Approaches to Language Typology

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Mouton de Gruyter
Berlin · New York

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The Negation of Declarative Verbal Main Clauses in a Typological Perspective

by

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Berlin · New York

Mouton de Gruyter (formerly Mouton, The Hague)
is a Division of Walter de Gruyter GmbH & Co. KG, Berlin.

Library of Congress Cataloging-in-Publication Data

Miestamo, Matti, 1973–
Standard negation : the negation of declarative verbal main clauses in a typological perspective / by Matti Miestamo.
p. cm. – (Empirical approaches to language typology ; 31)
Includes bibliographical references and index.
ISBN-13: 978-3-11-018579-9 (cloth : alk. paper)
ISBN-10: 3-11-018579-2 (cloth : alk. paper)
1. Grammar, Comparative and general – Negatives. 2. Grammar, Comparative and general – Clauses. 3. Grammar, Comparative and general – Verb. 4. Typology (Linguistics) I. Title. II. Series.
P299.N4.M54 2005
415–dc22
2005031142

Bibliographic information published by Die Deutsche Bibliothek

Die Deutsche Bibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data is available in the Internet at <http://dnb.ddb.de>.

ISBN-13: 978-3-11-018579-9
ISBN-10: 3-11-018579-2
ISSN 0933-761X

Preface and acknowledgements

What initially aroused my interest in negation was perhaps the idea of contradiction and controversy that negation involves. Now, after many years of research, I can really say what is intriguing about negation: It is much more than simply stating that a proposition is not true. Turning an affirmative sentence into a negative one can have interesting effects on many levels of language: The semanticist tells us that the meanings of various elements of the sentence can be affected by negation, and the pragmaticist says negatives are used differently and in different contexts than affirmatives. Effects of negation on the level of linguistic form are also familiar to linguists, but the extent to which the structure of the negative can differ from the structure of the affirmative in the languages of the world will certainly surprise anyone acquainted with the most well-known Indo-European languages only.

This book is a revised version of my doctoral dissertation (University of Helsinki, 2003). The most important changes are the following: A lot of material has been moved from Appendix II to the main text, and the appendix now contains only those examples and analyses not found elsewhere in the book. Sampling methodology has been further developed and the quantitative generalizations are now based on an areally and genealogically more balanced set of languages. I have also tried to express my arguments more clearly and explicitly, and I have sharpened the definitions of the types of negation. Some details of analysis have also been revised.

My research could not have been realized without the help of various people. First of all, I would like to express my gratitude to Fred Karlsson for his invaluable advice and support over the years. I am grateful to Jouko Lindstedt for his insightful views on various aspects of my work, and I would also like to thank Urho Määttä for his comments on the manuscript. To Esa Itkonen I owe thanks for introducing me to language typology and for his highly useful comments when I was beginning my work on negation. The valuable advice by Marja-Liisa Helasvuo, Jan-Ola Östman, and Anneli Pajunen at early stages of my research is also gratefully acknowledged.

The external reviewers of my dissertation were Martin Haspelmath and Leon Stassen, and the latter also acted as the opponent at the defence of the dissertation. I am grateful for their comments and suggestions which have been extremely useful in revising the dissertation for publication. I would also like to thank Yaron Matras for the comments he has given on the

manuscript as an editor of the EALT series. Naturally, thanks are also due to all anonymous reviewers at different stages of my work on negation.

In 2000 I spent a very productive autumn semester at the Max Planck Institute for Evolutionary Anthropology in Leipzig, and I would like to express my gratitude to Bernard Comrie for making this visit possible. For advice in sampling methodology, I owe thanks to Matthew Dryer. Being able to take part in the World Atlas of Language Structures project was extremely beneficial for my research; I thank the editors of the Atlas for this opportunity as well as for their comments on my work.

I would like to thank the audiences of various workshops and conferences, especially the participants of ALT V in Cagliari in 2003, for their comments that have helped me to improve the text at different points. Thanks to Antti Arppe for reading parts of the manuscript before I submitted it to the publisher and to Graham Wilcock for providing his native-speaker views on my translations of the quotes in section (1.3). I would also like to express my gratitude to all friends and colleagues who have contributed to the realization of the book in various ways – unfortunately there is too little space to mention them all here.

Additional thanks to those who have kindly answered my questions concerning negation in the languages of their expertise: Anders Ahlqvist, Helma van den Berg, Kenneth Claesson, Bernard Comrie, Matthew Davidson, Matthew Dryer, David Gil, Kimmo Granqvist, Ekaterina Gruzdeva, Arja Hamari, George Hewitt, José Hualde, Richard Hudson, Magdolna Kovács, Elena Maslova, Stephen Matthews, Ger Reesink, John Rennison, David Rood, Carl Rubino, Noel Rude, Jeanette Sakel, Uri Tadmor, Gracious Temsen, Angela Terril, Pilar Valenzuela, Hein van der Voort, and Suzanne Wash.

I am grateful to the people at Mouton, especially Ursula Kleinhenz and Wolfgang Konwitschny, for making this book a reality.

For financial support I owe thanks to the graduate schools Langnet and Linguistic Meaning and its Processing, to the Academy of Finland, to the Alfred Kordelin Foundation, to the Oskar Öflund Foundation, to the University of Helsinki, and to the Max Planck Institute for Evolutionary Anthropology in Leipzig.

Finally, I would like to thank my family for support, especially my wife Milla for her endless patience and understanding. This book is dedicated to her.

Helsinki, October 5, 2005

Contents

List of abbreviations

Abbreviations used in the glosses

>	agent>patient / subject>object relation in transitive clauses
1	first person
2	second person
3	third person
A	transitive subject/ agent
ABE	abessive
ABL	ablative
ABS	absolutive
ABSTR	abstractive
ACC	accusative
ACN	action particle
ACT	actual
ADE	adessive
ADEL	adelative
ADV	adverb(ial)
AFF	affirmative
AGR	agreement
AGT	agent
ALL	allative
AOR	aorist
ART	article
ASP	aspect
ASS	assertive
ATEL	atelic
ATMP	atemporal
ATT	attributive
AUG	augment
AUX	auxiliary
CERT	certitive
CIRC	circumstantial
CL	class/classifier
CLT	clitic
CMPL	completive
CNG	connegative
CNTR	contrastive
COMIT	comitative
COMM	common
COMP	complementizer
COND	conditional
CONF	confirmative
CONN	connector
CONT	continuative
COP	copula
CTF	counterfactual
CTPT	centripetal
CV	character vowel
DAT	dative
DECL	declarative
DEF	definite
DEM	demonstrative
DEP	dependent
DES	desiderative
DET	determiner
DFLT	default form
DIM	diminutive
DIR	directional
DIST	distal, distance
DLMT	delimitative
DMT	demoted
DS	different subject
DU	dual
DUR	durative
EMPH	emphatic

EPN	epenthetic
EPTY	empty, no meaning
ERG	ergative
EVD	evidential
EX	existential
EXCL	exclusive
EXP	experiental
EXT	extensive, extensor
EXTV	extra vowel
F	feminine
FACT	factative, factual
FIN	finite
FOC	focus
FREQ	frequentative
FUT	future
FV	final vowel
GEN	genitive
GER	gerund(ive)
GND	gender
GNRA	generic aspect
GOAL	goal
HAB	habitual
HORT	hortative
HUM	human
HYP	hypothetical
I, II, III, ...	(noun) class number
IM	immediate
IMFUT	immediate future
IMN	imminent
IMP	imperative
IMPF	imperfect(ive)
IMPST	immediate past
INCL	inclusive
IND	indicative
INDEF	indefinite
INE	inessive
INEXP	inexperiental
INF	infinitive
INFR	inferential
INSTR	instrumental
INT	intentive, intentional
INTNS	intensive
INTR	intransitive
IRR	irrealis
ITER	iterative
ITI	itive
LCT	locutor
LOC	locative
LT	locational-temporal
M	masculine
MDPST	mediate past
MK	marked form
MOD	modal
MOM	momentaneous
MOT	motion
MRKR	marker (meaning not specified or not relevant)
MST	modified stem
N	neuter
N~	non~ [e.g. NPST = nonpast]
NAME	proper name
NAR	narrative
NEC	necessity
NEG	negation, negative
NEP	noun emphasis past
NEW	new information
NMLZ	nominalizer, nominalization
NOM	nominative
NRFUT	near future
NUM	number
OBJ	object
OBL	oblique
OBV	obviative
OCC	occasional
OLD	old information

ONOM	onomatopoeic
P	transitive object/patient
PA	paucal
PART	partitive
PASS	passive
PAT	patient
PCPNT	participant
PERF	perfect
PFV	perfective
PFX	prefix (meaning not specified or not relevant)
PK	personal knowledge
PL	plural
PLAIN	plain (level of politeness)
PLUPERF	pluperfect
PNCT	punctual
POL	polite(ness)
POSS	possessive
POSSD	possessed
POT	potential
PRES	present
PRET	preterite
PRIV	privative
PRO	pronoun, pronominal affix
PROC	process form
PROG	progressive
PROP	proprietive
PROS	prosecutive
PROX	proximal, proximity
PRSN	presentative
PRSP	presupposition marker
PRT	particle
PRVB	preverb
PST	past
PSTR	posterior
PTCP	participle
PURP	purposive
Q	question, interrogative
QUOT	quotative
R	realis
RC	recent
RCPST	recent past
RDPL	reduplication
REF	referent(ial)
REFL	reflexive
REL	relative
REP	repetitive
RESP	respectful
RLT	relational
RM	remote
RMFUT	remote future
RMPST	remote past
ROOT	root
RS	reported speech
RSLT	resultative
S	intransitive subject
SBJN	subjunctive
SBRD	subordinator / subordinate
SFX	suffix (meaning not specified or not relevant)
SG	singular
SMLF	semelfactive
SPEC	specific
SPFR	specifier
SRC	source
STAT	stative
SUBJ	subject
SURP	surprise mood
SUSP	suspective
TAM	tense-aspect-mood
TDPST	today past
TERM	terminative

THEM	thematic
TMP	temporal
TOP	topic
TOT	totality
TR	transitive
TRA	transitional
UNACM	unaccomplished
VALL	verbal allative
VBLZ	verbalizer
VOL	volitional
YDPST	yesterday past

Abbreviation used in type labels

A	asymmetry, asymmetric
Cat	grammatical categories
DiffSys	different system
Displc	displacement
Emph	emphasis
Fin	finiteness
Neg-Cl	negator placed in relation to clause
Neg-FE	negator attaches to FE
Neg-LV	negator attaches to LV
NegVerb	negative verb
Neutr	neutralization
NonReal	non-realized
PNG	person-number-gender
S	symmetry, symmetric
TAM	tense-aspect-mood

Other abbreviations

B	both construction(al) and paradigm(atic)
C	construction, constructional
CS	Core Sample
ES	Extended Sample
FE	finite element
LV	(lexical) verb that loses its finiteness in type A/Fin (see 3.3.1)
P	paradigm, paradigmatic
PNG	person-number-gender
RS	Restricted Sample
SN	standard negation
TAM	tense-aspect-mood

Chapter 1
Introduction

1.1. Preliminaries

This book is a typological study of clausal negation. It focuses on standard negation (henceforth SN), i.e. the basic way(s) a language has for negating declarative verbal main clauses. The work is grounded in the typological approaches to language developed mainly in the second half of the 20th century by Joseph Greenberg and others. Language typology (or linguistic typology) can be characterized as world-wide comparative linguistics,[1] or as Comrie (2001: 25) puts it, as "the systematic study of cross-linguistic variation". It takes all the languages of the world as its object of study. The typologist studies cross-linguistic variation and tries to shed light on questions such as the following: What is shared by all languages and how do languages differ from each other? What is common and what is rare? Where are the limits of this cross-linguistic variation (i.e. what is possible in natural language)? Typological studies are usually based on empirical data from large numbers of languages.

This study can also be characterized as functional. Like in many functionally oriented works (e.g. Givón 1979, 2001a,b; Haspelmath 1997), it is assumed that various aspects of linguistic form are determined by function, and it is therefore worthwhile to look for functional explanations or motivations for the structural phenomena under study.

The theoretical framework behind this study is what has recently been termed *Basic Linguistic Theory* (BLT) (see Dixon 1997: 128–138; Dryer 2001). BLT refers to the fundamental theoretical concepts underlying most work in language description and in linguistic typology. It is an informal theory in that it does not assume a formal metalanguage. Grammatical phenomena can be described and discussed using a natural language like English or Finnish. The origins of BLT are in traditional grammar. It has been most heavily influenced by pre-generative structuralism and more recently by typological approaches to language. Influences have, of course, been taken from other sources too, e.g. early transformational grammar. The strength of a cumulative approach like BLT is that it is open to influences from different sources – it can integrate those concepts and those aspects of

any approach that are of lasting value and filter out things that are fashionable for a short time but turn out to be of less significance for the discipline.

The typological approach taken in this study can be called *functional-domain typology*. In this approach one studies the formal structural encoding of a given (semantic/pragmatic) functional domain in the languages of the world.[2] The functional domain studied in the present work is polarity and the sole distinction inside this domain is between affirmation and negation. Studies in functional-domain typology are usually based on more or less extensive samples of the world's languages. On the basis of the data collected from such a sample, they describe the cross-linguistic structural variation in the encoding of the functional domain in question and try to provide explanations or motivations for the structural findings.

There are some treatments of SN in the typological literature but no satisfactory systematic study has yet been done. The primary goal of this study is to discover the cross-linguistic structural variation in the expression of SN. On the basis of data from a sample of 297 languages, this variation is described and a typological classification of the negative structures is set up. The frequencies and areal distributions of the proposed types are examined and some typological correlations are also discussed. Finally, functional motivations for the formal structural findings are proposed.

A large number of examples from various languages is given in this book. No systematic attempt has been made to unify the spellings in the examples but sometimes IPA symbols are substituted for the characters used in the original. In many cases the sources do not use capitalization or punctuation, and in some cases capital letters would create problems for representing the diacritics and special characters given in the sources. To treat all languages in a uniform way, I chose not to use any capitalization or punctuation in any examples. Many of the examples for which the source is indicated as "personal communication" (p.c.) were received by e-mail; for technical reasons, their spellings may differ from the spellings used in printed sources. For most of the languages, the grammatical terminology used in the sources has been adopted as such. The abbreviations used in the glosses have however been standardized. As to language names, I have adopted the names and spellings used in (Haspelmath et al. [ed.] 2005).

The book is organized as follows. The remaining sections of this introductory chapter discuss some general aspects of negation (1.2) and the earlier typologies of SN proposed in the literature (1.3). Chapter 2 deals with some theoretical and methodological issues. Chapter 3 constitutes the core of

this study in presenting the typological classification with detailed discussion and examples of each type. Chapter 4 discusses some quantitative results based on the analyses of the sample languages (frequencies, correlations and geographical distributions). The functional motivations are discussed in Chapter 5 and in this context some diachronic issues are also brought up. Chapter 6 summarizes the most important findings of the study and discusses prospects for future research. Appendix I lists the sample languages, Appendix II analyses all relevant examples not dealt with in Chapter 3. Appendix III presents the analysis of each language in tabular form, and Appendix IV lists the languages showing structures of each type. Let us now turn to a preliminary examination of negation in the languages of the world.

1.2. A preview of negation in language and in languages

Clausal negation is a morphosyntactic construction whose function is to negate a clause. SN, characterized above as the basic way(s) a language has for negating declarative verbal main clauses, refers to the basic clausal negation construction(s) in a language. The following examples illustrate SN in English (1) and Finnish (2).

(1) English (personal knowledge)

a.	*chris has slept*	b.	*chris has not slept*
c.	*chris is sleeping*	d.	*chris is not sleeping*

(2) Finnish (personal knowledge)

a.	*nuku-n*	b.	*e-n*	*nuku*
	sleep-1SG		NEG-1SG	sleep.CNG
	'I am sleeping.'		'I am not sleeping.'	

English (1) expresses SN with the negative marker *not* (or *-n't*) placed after the auxiliary verb,[3] and Finnish (2) with a construction where the negative auxiliary *e-* takes the personal inflections and the lexical verb appears in a non-finite form (the connegative in these examples). Clausal negation and SN will be defined in more detail in Chapter 2.

In simple propositional logic, propositional negation is an operator that changes the truth value of a proposition. The term sentential negation is not as straightforward and needs some discussion here. In sentential negation (or sentence negation)[4] the scope of negation is thought to be the whole

sentence, whereas constituent negation only takes a part of the sentence in its scope. Klima (1964: 270) proposes a set of syntactic tests for identifying sentential negation in English (3). Instances of sentential negation are those structures that permit the occurrence of the *either*-clause, the negative appositive tag *not even* and the question tag without *not*. Furthermore, Klima (1964) suggests that strong sentential negation can be distinguished from weak sentential negation following the criterion of occurence with the *neither*-clause. According to these criteria, the examples in (3a,b) contain strong sentential negation, (3c) contains weak sentential negation and (3d) does not contain sentential negation at all. The distinction between strong and weak sentential negation is not relevant to the present discussion.

(3) English (personal knowledge, following Klima 1964)
   a. *my dog didn't bark {either / not even in the forest / did he? / and neither did yours}*
   b. *you saw nobody {either / not even in the forest / did you? / and neither did I}*
   c. *scarcely anybody accepts suggestions {either / not even writers / do people? / *and neither do writers}*
   d. *she is unhappy {*either / *not even with him / *is she? / *and neither is he}*

These criteria can only be applied to English. Similar language-particular criteria have been proposed for other languages too (see for example de Haan 1997), but whether this could be done for all languages is not clear. In any case, such criteria requiring native speaker judgement are excluded from a typological study based on an extensive sample of languages, and sentential negation à la Klima will not play a central role in this study.

As noted by Payne (1985: 198–199), sentences with SN usually pass Klima's tests for sentential negation. However, sentential negation does not equate with clausal or standard negation.[5] On the one hand, sentential negation can be expressed by different negative constructions not all of which are clausal (or standard) negation constructions. In the above examples, only (3a) is a clausal (and standard) negation construction. In (3b) the negative force comes from a negative quantifier and in (3c) from a special negative adverb. On the other hand, clausal (or standard) negation constructions do not always express sentential negation. As Payne (1985: 200) notes, the sentence *John often doesn't pay taxes*, where the adverb *often* has higher scope, is not an instance of sentential negation according to

Klima's tests. Sentential negation is of course not the same thing as propositional negation either. The latter is purely a logico-semantic concept whereas the former is defined by syntactic tests. Nevertheless, sentential negation has a semantic basis, and it can be said that the results of applying the syntactic tests depend on the semantics of the sentences. Sentential negation can be considered to be the (syntactico-semantic) linguistic counterpart of the logical concept of propositional negation.

It should also be noted that it is rare for the topic of a sentence to be in the scope of negation, i.e. external negation is rare in natural language. Givón (1978, 1984: 326, 2001a: 380) notes that in actual (English) texts, there are usually no cases where a definite subject falls under the scope of negation, and the rare cases where a subject is negated use noun phrase negation. According to Payne (1985), in sentential negation the negative element is semantically placed at the border of old and new information. To Klima's tests for identifying sentential negation, he adds what he calls the "performative paraphrase" – sentential negation can be paraphrased by: *I say of X that it is not true that Y* where X contains the contextually bound elements, i.e. old information, and Y contains the contextually free elements, i.e. new information. Thus the sentence *John is not running* could be paraphrased as *I say of John that it is not true that he is running* (and not as *It is not the case that John is running* where negation is external, see e.g. Miestamo 2001).

Negation is generally taken to be a universal category. No languages without negation have been found. Forest (1993: 59–64) discusses some cases that he takes to be possible instances of languages without negation, and concludes that negative constructions can be found in all of them, although there are languages where the use of negation is stylistically somewhat dispreferred. All languages seem to have means for expressing clausal negation and SN constructions can be identified in all languages. To anticipate a little, this is confirmed by the present study (see Chapter 4). Let us now have a first look at how negation is expressed in the languages of the world.

In making cross-linguistic observations about clausal negation, one can pay attention to different aspects of the structures encoding this function. An option that readily presents itself is to look at the structural status of the negative marker. In very general terms, the negative marker can be a non-inflecting element, bound or free (i.e. a particle,[6] a clitic or an affix), or it can be an inflecting element – a negative verb. Some examples follow.

(4) Jul'hoan (Dickens, no date: 1)

a. *mí !hún n!haì*
1SG kill lion
'I kill the lion.'

b. *mí /óá !hún n!haì*
1SG NEG kill lion
'I do not kill the lion.'

(5) Shipibo-Konibo (Pilar Valenzuela, p.c.)

a. *rono-ra kako-nko ka-ke*
Rono.ABS-EVD Caco-ALL go-CMPL
'Rono went to Caco.'

b. *rono-ra kako-nko ka-yama-ke*
Rono.ABS-EVD Caco-ALL go-NEG-CMPL
'Rono did not go to Caco.'

(6) Evenki (Nedjalkov 1994: 2)

a. *nuŋan min-du purta-va bū-che-n*
he 1SG-DAT knife-ACC give-PST-3SG
'He gave me the knife.'

b. *nuŋan min-du purta-va e-che-n bū-re*
he 1SG-DAT knife-ACC NEG-PST-3SG give-PTCP
'He did not give me the knife.'

In Jul'hoan (4) the negative marker is a particle, in Shipibo-Konibo (5) an affix and in Evenki (6) it is an auxiliary taking verbal inflections. In terms of position, one can observe that free negative markers can be placed before or after the verb or the whole clause (or both before and after in case of a discontinuous marker), and bound negative markers can be prefixes or suffixes (or circumfixes); not all of these positional alternatives were exemplified in (4)–(6) but examples of each alternative will be found throughout this book.

If we look at the above examples more globally and do not restrict our attention to the negative marker only, we observe that in Jul'hoan and in Shipibo-Konibo the negative marker is simply added to the corresponding affirmative and there are no further structural differences between the affirmative and the negative. But in Evenki the negative auxiliary has taken over the finite inflections from the lexical verb, it has become the finite element of the negative sentence and the lexical verb has become non-finite. In Evenki, there are thus structural differences between the affirmative and the negative in addition to the presence of the negative marker. As observed in Forest (1993) and Honda (1996), there are many ways in which the

structure of negatives can differ from the structure of affirmatives. In the present study, negatives that in addition to the presence of (a) negative marker(s) show no further formal structural differences in comparison to the corresponding affirmative will be called symmetric, and negatives where further formal structural differences can be found will be called asymmetric. The symmetry vs. asymmetry between affirmatives and negatives is central to this study.[7] We will now take a closer look at the asymmetry between affirmation and negation.

Philosophers have debated the relationship between affirmation and negation since ancient times (see Horn 2001 for a detailed discussion). From the viewpoint of (simple) propositional logic, affirmation and negation are symmetric; the negative operator simply changes the truth value of a proposition. As Givón (1978: 69) points out, this symmetry is illustrated in the law of double negation: $\sim\sim p = p$. Moving from propositional logic to natural language, one encounters various asymmetry phenomena.[8] On the functional level these include the following: From the cognitive point of view, negative sentences take longer to process and to interpret than their affimative counterparts; from the pragmatic point of view, negative sentences are typically used in contexts where the corresponding affirmative is present as background knowledge; and from the semantic point of view, various semantic domains are reorganized and interpreted differently under negation (see e.g. Wason and Johnson-Laird 1972; Givón 1978; Horn 2001). On the formal level, affirmation and negation are structurally asymmetric in many different ways, as will be amply demonstrated in the pages to follow. It is a central point in this study that many aspects of formal structural asymmetry can be motivated by analogy from background functional asymmetry (in processing, pragmatics, semantics). I will come back to the various asymmetry phenomena underlying formal structural asymmetry in Chapter 5 where the functional motivations behind the cross-linguistic variation are discussed. The present section will provide a preliminary general overview of structural asymmetry from a cross-linguistic point of view.

It is generally agreed that in terms of markedness, negation is the marked and affirmation the unmarked category. The asymmetries found on the functional level are evidence of the cognitive, pragmatic and semantic markedness of negation (cf. Mayerthaler 1981; Ludwig 2001). On the formal level, using Croft's (2003) terms (see also Greenberg 1966b), the structural coding, behavioural potential and frequency criteria point towards the markedness of negatives. The structural coding criterion states that "the marked value of a grammatical category will be expressed by at least as

many morphemes as is the unmarked value of that category" (Croft 2003: 92); Greenberg (1966b: 50) notes that negation always receives overt marking, whereas the affirmative usually has zero marking.[9] According to the behavioural potential criteria (Croft 2003: 95–99), at least as many (inflectional) distinctions can be made in the unmarked category as in the marked one, and the unmarked category can be embedded in at least as many contexts as the marked one; these criteria are indeed met by negation – this study contains many examples satisfying especially the former criterion. According to the frequency criterion (Croft 2003: 110), the unmarked category occurs at least as frequently as the marked one;[10] it seems self-evident that affirmatives are more frequent overall than negatives, and this is confirmed by text counts (see e.g. Hakulinen, Karlsson, and Vilkuna 1980: 120–121; Givón 2001a: 373). Note that behavioural markedness is also structural in the sense that it can be defined by looking at the structure of language(s) only, i.e. it is formal (structural) rather than functional (semantic, pragmatic etc). In this book the term morphosyntactic markedness will be used to refer to all (structural) markedness found in morphology and syntax, including markedness identified by Croft's structural coding and behavioural potential criteria.

The structural asymmetry between affirmation and negation can manifest itself in various ways. The Evenki example (6) above shows that the finite element (finite verb) of the negative clause can differ from the finite element of the corresponding affirmative. In the case of Evenki, the negative marker itself is the finite element of the negative clause. Further examples of such finiteness differences in affirmative vs. negative constructions are found in Achumawi (7) and in Apalaí (8).

(7) Achumawi (de Angulo and Freeland 1931: 97, 112)

a.	*s-ăm-á*	b.	*tsé-s-ùw-í*	*d-ámm-ì*
	1SG-eat-FV		NEG-1SG-be-FV	NMLZ-eat-FV
	'I eat.'		'I do not eat.'	

(8) Apalaí (Koehn and Koehn 1986: 64)

a. *isapokara* *[Ø]-ene-no*
jakuruaru.lizard [1>3]-see-IMPST
'I saw a jakuruaru lizard.'

b. *isapokara* *on-ene-pyra* *a-ken*
jakuruaru.lizard 3-see-NEG 1-be.IMPST
'I did not see a jakuruaru lizard.'

In Achumawi the finite element of the negative clause is the copula and the lexical verb is nominalized; the negative marker *tsé-* appears on the copula. In Apalaí the finite element of the negative clause is equally a copula (which carries the marking of finite verbal categories except for object agreement which appears on the LV), but the negative marker *-pyra* attaches to the lexical verb, which becomes non-finite. Languages that show such finiteness asymmetry in their negative constructions differ in how they distribute the verbal categories between the finite element and the lexical verb.

In some languages irrealis marking is obligatory under negation. In Maung realis verb forms do not occur in negatives (9).

(9) Maung (Capell and Hinch 1970: 67)

a.	*ŋi-udba*	b.	*ni-udba-ji*	c.	*marig*	*ni-udba-ji*
	1SG.3-put		1SG.3-put-IRR.NPST		NEG	1SG.3-put-IRR.NPST
	'I put.'		'I can put.'		'I do/shall not put.'	

The negative construction is symmetric, since (9c) simply adds a negative marker to (9b). The affirmative paradigm makes a distinction between realis and irrealis (9a,b), but in the negative only irrealis marking is possible and the realis-irrealis distinction is lost (9c); in such a case it can be said that the asymmetry is in the paradigm instead of the construction. Jaqaru (10) provides an example of a situation resembling the Maung data – the negative shares a marker with a non-factual category, viz. the interrogative.

(10) Jaqaru (Hardman 2000: 102, 106)

a.	*ill-w-ima-wa*	b.	*isha-w*	*ill-w-ima-txi*
	see-PST-1>2-PK		NEG-PK	see-PST-1>2-NEG/Q
	'I saw you.'		'I didn't see you.'	
c.	*ill-w-ima-txi*	d.	*isha-txi*	*ill-w-ima*
	see-PST-1>2-NEG/Q		NEG-NEG/Q	see-PST-1>2
	'Did I see you?'		'Did I not see you?'	

The marker *-txi* marks polar interrogatives but it is also used in negatives with the negative particle *isha*. The declaratives have the personal knowledge suffix *-wa* (10a,b), but the interrogatives (10c,d) do not have it. The marker *-txi* appears in the negative declarative as well as in the positive and negative interrogatives. Note that *-txi* and *-wa* are not verbal suffixes; they can occur on roots belonging to different classes and they modify the clause as a whole.

The construction is asymmetric. In Jaqaru the paradigm does not neutralize the distinction between declarative and interrogative under negation.

In Meithei nonfuture negation (11c) is expressed by the negative affix *-tə* which is simply added to the corresponding affirmative (11b). The negative construction is thus symmetric.

(11) Meithei (Chelliah 1997: 133, 228)

a.	*təwwí*	b.	*təwwe*	c.	*əy fotostat*	*təwde*
	təw-í		*təw-e*		*əy fotostat*	*təw-tə-e*
	do-NHYP		do-ASS		I photostat	do-NEG-ASS
	‘(She) does.’		‘(Yes, she) has.’		‘I haven't made copies.’	

There is asymmetry in the paradigm: in the affirmative a distinction is made between the nonhypothetical and the assertive, the latter expressing a more emphatic assertion, but the negative can only use the assertive form, and the distinction is neutralized in the negative.

In many languages, tense-aspect-mood (TAM) categories are expressed differently in affirmatives and negatives. As we can see from the clauses (12a,b) and the verb forms in (12c,d), the imperfective is marked in the same way in the affirmative and the negative in Lezgian; this is a symmetric construction. The past, however, differs in the way it is marked in the affirmative and in the negative. In (12e) we can see an affirmative past imperfective verb form where past tense is marked by a final *-j*; in the negative past imperfective, by contrast, past tense is marked by *-ir* following the negative marker. This is an asymmetric construction.

(12) Lezgian (Haspelmath 1993: 127, 245)

a. *xürünwi-jri* *ada-waj* *meslät-ar* *q̃ačᵘ-zwa*
villager-PL(ERG) he-ADEL advice-PL take-IMPF
‘The villagers take advice from him.’

b. *xürünwi-jri* *ada-waj* *meslät-ar* *q̃ačᵘ-zwa-č*
villager-PL(ERG) he-ADEL advice-PL take-IMPF-NEG
‘The villagers do not take advice from him.’

c.	*fi-zwa*	d.	*fi-zwa-č*	e.	*fi-zwa-j*	f.	*fi-zwa-č-ir*
	go-IMPF		go-IMPF-NEG		go-IMPF-PST		go-IMPF-NEG-PST
	‘is going’		‘is not going’		‘was going’		‘was not going’

Another example of differences in TAM marking between affirmatives and negatives is provided by Páez (13). Negation is expressed by the

negative suffix *-meː* which follows aspect markers and precedes relative tense and mode markers and inflectional morphemes on the verb.

(13) Páez (Jung 1989: 102–104)

a. *âts,h-a' ts,hab-na u'x-we-ts-thu*
now-TOP village-to go-IMPF-PROG-DECL.1SG
'I'm going to the village right now.'

b. *u'x-we-ts-meː-th*
go-IMPF-PROG-NEG-DECL.1SG
'I don't go.' / ['I'm not going.']

c. *skwela-na-t, u'x-we-'*
school-to-FACT.3PL go-IMPF-HAB
'They go to school.'

d. *skwela-n-gu' u'x-we-'*
school-to-Q.2SG go-IMPF-HAB
'Do you go to school?'

e. **u'x-we-'-meː-th*
go-IMPF-HAB-NEG-DECL.1SG

The progressive examples (13a,b) show that the negative construction is symmetric (the presence vs. absence of the final vowel in the 1SG.DECL ending is simply dependent on whether the preceding morpheme ends in a vowel or in a consonant, and being an automatic phonological process, it is not relevant here). There is a habitual aspect category in Páez, exemplified by (13c), but it is not found in negative clauses. The progressive is used in the negative instead of the habitual. Therefore the habitual question in (13d) receives (13b) as its negative answer instead of the ungrammatical (13e). As the habitual is blocked in the negative the distinction between progressive and habitual is neutralized in the negative paradigm.

A similar kind of neutralization can be found in Komi-Zyrian where the affirmative paradigm makes a distinction between present (14a) and future (14b), but the future is not compatible with negation and the present/future distinction is lost, or neutralized, in the negative; (14c) is the negation of both (14a,b).

(14) Komi-Zyrian (Rédei 1978: 105–108)

a. *śet-ę*
give-3SG.PRES
'(S)he gives.'

b. *śet-a-s*
give-FUT-3SG
'(S)he will give.'

c. *o-z śet*
NEG-3 give
'(S)he does/will not give.'

In Komi-Zyrian the construction is also asymmetric; it shows the kind of finiteness asymmetry discussed above.

Let us have a look at one more case of different TAM marking in affirmative vs. negative clauses. The examples in (15) show the indicative affirmative and negative categories of the Swahili verbal paradigm. The negative marker is the prefix *ha-*.

(15) Swahili (Hurskainen 1989: 191–192)

a. *wa-na-som-a*
they-PRES-read-FV
'They (are) read(ing).'

b. *hu-som-a*
HAB-read-FV
'I/you/(S)he (etc.) read(s).'

c. *w-a-som-a*
they-INDEF.PRES-read-FV
'They read.'

d. *ha-wa-som-i*
NEG-they-read-FV
'They do not read / are not reading.'

e. *wa-ta-som-a*
they-FUT-read-FV
'They will read.'

f. *ha-wa-ta-som-a*
NEG-they-FUT-read-FV
'They will not read.'

g. *wa-li-som-a*
they-IMPF-read-FV
'They read.'

h. *ha-wa-ku-som-a*
NEG-they-NEG.IMPF-read-FV
'They did not read.'

i. *wa-me-som-a*
they-PERF-read-FV
'They have read.'

j. *ha-wa-ja-som-a*
NEG-they-NEG.PERF-read-FV
'They have not (yet) read.'

In Swahili, the expression of negation causes changes in the marking of TAM categories. In (15a–c) we can see three tense forms that differ in meaning but can all be characterized as present. They do not have formal equivalents in the negative and they are all negated by (15d). This negative differs from the affirmative forms in that it has no tense prefix and uses a different final vowel. In the future (15e,f) tense marking does not change in the negative. In the imperfect (15g,h) and perfect (15i,j) there is a different tense marker in the affirmative and in the negative. These are the affirmative-negative correspondences as they are most often represented in descriptions of Swahili. On the basis of these examples, one could say that the future shows symmetric negation, the past tenses and the present categories show

asymmetric negative constructions, and furthermore in the present categories the paradigm is asymmetric, since there is one negative form corresponding to three affirmative ones. However, as Contini-Morava (1989) has shown, the situation is much more complex in actual discourse and the simple correspondences do not tell the right story about Swahili negation. It is thus not always clear which negative TAM categories correspond to which affirmative ones. The Swahili system will be discussed in more detail in (3.3.4.1).

Verbal categories other than TAM can also be affected by negation, e.g. person-number-gender (PNG) categories. In Karok (16), for example, the marking of person and number changes in the negative. There are different sets of pronominal affixes cross-referencing the subject and the object on the verb in affirmatives and negatives. The construction is asymmetric.

(16) Karok (Bright 1957: 67)

a. *kun-iykár-at*
3PL>3SG-kill-PST
'They killed [him/her].'

b. *pu-ʔiykar-áp-at*
NEG-kill-3PL>3SG-PST
'They did not kill [him/her].'

The marking of noun phrase participants can change in negative clauses. The examples in (17) illustrate the situation in Finnish.

(17) Finnish (personal knowledge)

a. *sö-i-n* *omena-n*
eat-PST-1SG apple-ACC
'I ate an/the apple.'

b. *sö-i-n* *omena-a*
eat-PST-1SG apple-PART
'I {ate some / was eating an/the} apple.'

c. *e-n* *syö-nyt* *omena-a*
NEG-1SG eat-PST.PTCP apple-PART
'I didn't eat / wasn't eating an/the apple.'

d. *pöydä-llä* *on* *salaatti*
table-ADE be.3SG salad.NOM
'There is a (portion of) salad on the table.'

e. *pöydä-llä* *on* *salaatti-a*
table-ADE be.3SG salad-PART
'There is (some) salad on the table.'

f. *pöydä-llä ei ole salaatti-a*
table-ADE NEG.3SG be.CNG salad-PART
'There is no salad on the table.'

In Finnish, transitive affirmative clauses (17a,b) can make a paradigmatic choice between accusative and partitive objects, the former giving a completive aspectual and/or a total quantificational reading and the latter a non-completive aspectual and/or a partial quantificational reading. In the negative (17c) the distinction is lost, the partitive being the only choice from the case paradigm – although under special semantic-pragmatic circumstances it is marginally possible to have accusative objects in negatives, see Karlsson (1957), Almqvist (1987). The existential clause pair exhibits a similar phenomenon, with a total/partial quantificational distinction made in the affirmative (17d,e) but not in the negative (17f). Similar phenomena can be observed in Basque, French and in many Baltic and Slavic languages. Basque uses the partitive in negative clauses, in many Baltic and Slavic languages the genitive (which has a partitive function in these languages) occurs instead of the accusative in negatives, and in French negation the indefinite article is replaced by *de* (which has partitive functions). The conditions on the use of the different partitive-like forms are of course different in the different languages.[11]

The case changes have a natural connection to negative polarity items. Like negative polarity indefinite pronouns, they involve changes in the marking of certain semantic properties of nominal participants under negation. Schmid (1980) observes an interesting difference between indefinite marking on noun phrases on the one hand and aspectual marking on the other: aspectual marking seems to be affected in negatives only, but indefinite marking on noun phrases is sensitive to the other irrealis contexts examined, questions and conditionals, as well. The use of negative and positive polarity items in general can be seen as an asymmetry phenomenon; they are elements behaving differently in affirmation and negation.

Aikhenvald and Dixon (1998) introduce the notion of dependency hierarchies: languages show dependencies between grammatical systems, i.e. choices made in one system may affect the choices available in other systems. They examine the directions of dependencies between eight types of grammatical systems: polarity, tense, aspect, evidentiality, person, reference classification, number and case. Polarity is at the top of the hierarchy. This means that the marking of a clause as affirmative or negative may influence the choices made in the other systems but not vice versa. The above-

discussed asymmetries where the marking of grammatical categories is affected by negation are in line with the dependency hierarchies. For a number of reasons, some common categories are excluded from Aikhenvald and Dixon's study (which they characterize as an "exploratory venture" [1998: 60]). The categories that are not examined include mood and modality, as well as types of possessive marking, transitivity, voice, causative and reflexive/reciprocal. As can already be seen from the above, mood and modality are involved in the asymmetry between affirmation and negation, and many more examples will be seen below. Aikhenvald and Dixon (1998: 73) predict that the "basic mood system", defined by them as the distinction between indicative, imperative and interrogative (i.e. the categories coding the three principal speech acts), shows no dependency with polarity in either direction.

Some examples of the structural asymmetry between affirmation and negation on the level of linguistic form have been discussed here: we have seen structural asymmetry affecting different domains (finiteness, reality status, TAM, etc.); we have also seen that sometimes the negative construction is asymmetric in comparison to the affirmative and sometimes the asymmetry is in the number of paradigmatic distinctions available in the affirmative and in the negative. Chapter 3 shows how the different kinds of asymmetries can be classified into subtypes of asymmetric negation and defines the distinction between symmetric and asymmetric constructions and paradigms more clearly.

As has already been noted, negation itself can be expressed differently in different contexts; this will now be discussed in some detail. It is obvious that the negation of clauses and the negation of non-clausal constituents is often expressed in different ways. Only clausal negation will be considered here. The various forms of non-clausal negation, such as negative quantifiers and adverbs, special constituent negators, and negative derivations, will not be discussed further. On the basis of a (relatively small) sample of 40 languages, Kahrel (1996) presents some numerical data on how common it is for different clause types or clauses marked with different grammatical categories to be negated with a distinct negative marker. 17 of the 40 sample languages use a different negative element in imperative vs. non-imperative clauses, nine use a different negative element in verbal vs. existential clauses, and eight use a different element in verbal vs. non-verbal clauses.[12] In addition to these three clause types, Kahrel found special negative elements used with various TAM categories and in dependent clauses, but these were significantly less common. Some examples of different negative

marking will now be given. Note that these examples are not counter-evidence to Aikhenvald and Dixon's dependency hierarchies – the way polarity is marked can depend on other categories, but this is not what dependency hierarchies are about; the number of choices available is not affected.

The following examples illustrate special negative constructions in imperatives (Finnish, 18) and in non-verbal clauses (Turkish, 19).

(18) Finnish (personal knowledge)

a. *juokse-tte*
run-2PL
'You run.',
'You are running.'

b. *e-tte juokse*
NEG-2PL run.CNG
'You do not run.',
'You are not running.'

c. *juos-kaa*
run-IMP.2PL
'Run!'

d. *äl-kää juos-ko*
NEG.IMP-IMP.2PL run-CNG.IMP.2PL
'Don't run!'

(19) Turkish (Halman 1981: 64; van Schaaik 1994: 38, 41, 44)

a. *gel-ecek*
come-FUT
'(S)he will come.'

b. *gel-me-yecek*
come-NEG-FUT
'(S)he will not come.'

c. *hasta-yım*
ill-1SG
'I'm ill.'

d. *hasta değil-im*
ill NEG-1SG
'I'm not ill'

e. *su var*
water EX
'There is water.'

f. *su yok*
water NEG.EX
'There is no water.'

In Finnish the negative imperative differs from the negation of declarative clauses. In declaratives the negative auxiliary is *e-* (18b), but in imperatives it is *äl-* (18d). Turkish has a negative construction with the negative suffix *-mE* appearing on the finite verb in declarative verbal clauses (19b), but non-verbal predicatives use the element *değil* (19d) and existentials the element *yok* (19f).

In Komi-Zyrian (20) there are different negative constructions with different tense categories. The present and preterite forms are negated by a construction where the negative marker is an auxiliary verb and the lexical verb loses its finite inflections, whereas the perfect and pluperfect forms are negated by a negative particle placed before the verb. Korean (21) has two

alternative negative constructions: the "short" construction (21b) uses a preverbal negative particle; in the "long" construction (21c) the negative marker is a prefix carried by an auxiliary and the lexical verb is in the suspective form. The constructions are to a large extent freely interchangeable, i.e. their distributions are not dependent on other categories marked on the verb, although in some environments, with multi-syllable verbs and with Sino-Korean verbs, the latter construction is preferred.

(20) Komi-Zyrian (Rédei 1978: 105–109)

a. *śet-ɐ̯*
give-3SG.PRES
'(S)he gives.'

b. *o-z śet*
NEG-3 give
'(S)he does not give.'

c. *śet-i-s*
give-PRET-3SG
'(S)he gave.'

d. *e-z śet*
NEG.PRET-3 give
'(S)he did not give.'

e. *śet-ɐ̯m-a*
give-PERF-3SG
'(S)he has given.'

f. *abu śet-ɐ̯m-a*
NEG give-PERF-3SG
'(S)he has not given.'

g. *śet-ɐ̯m-a vɐ̯li*
give-PERF-3SG be.PRET.3SG
'(S)he had given.'

h. *abu śet-ɐ̯m-a vɐ̯li*
NEG give-PERF-3SG be.PRET.3SG
'(S)he had not given.'

(21) Korean (Chang 1996: 77, 101)

a. *yong-un mayil tv-lul po-n-ta*
Yong-TOP every.day TV-OBJ see-PRES-DECL.PLAIN
'Yong watches TV every day.'

b. *yong-un tv-lul an pwa-yo*
Yong-TOP TV-OBJ NEG see-POL
'Yong doesn't watch TV.'

c. *yong-i tv-lul po-ci an-ha-yo*
Yong-SUBJ TV-OBJ see-SUSP NEG-AUX-POL
'Yong doesn't watch TV.'

The Komi-Zyrian and Korean examples illustrate situations where declarative main clauses with (non-existential) verbal predicates can or must be negated with alternative constructions. As shown by Kahrel's numbers, this is typologically less common than alternative negative marking in imperatives, existentials and non-verbals.

In this section I have provided some basis for the following discussions, introducing the reader to some central concepts used in this study and to the ways in which negation is expressed in the world's languages. The next section will discuss the most important treatments of the typology of SN in the literature.

1.3. Earlier typologies of standard negation

The typology of SN has received some attention in earlier literature, although no satisfactory systematic typological treatment of the subject exists. This is probably due to the complex nature of negation – its interaction with other grammatical domains. The most important works will be discussed in this section. They include Dahl (1979), Payne (1985), Forest (1993) and Honda (1996).[13] Whether or not they use the term, these studies deal primarily or exclusively with SN. Some other studies are not treated here as they focus on aspects of SN that are not directly relevant to the present study; e.g. Dryer (1988) focuses on the position of negative markers (on this issue, see also Dryer 1992). Of course these studies will be taken up where relevant.

Dahl's (1979) study is based on an extensive, although heavily biased, sample of 240 languages. The basic distinction in his typology is between morphological and syntactic negation. According to the status of the negative marker, morphological negation is further divided into prefixal (Mp), suffixal (Ms), circumfixal (Mc), prosodic (Mt) and reduplicative (Mr) negation. (Mt and Mr are marginal types.) In syntactic negation the negative marker can be a particle (S11 and S12) or an auxiliary (S21 and S22). In types S12 and S22 the form of the lexical verb is different as compared to the corresponding affirmative sentence, whereas in types S11 and S21 there is no such difference. In type S3 the negative marker is a particle, an auxiliary-like element not present in the affirmative is added, and the form of the lexical verb is different from its affirmative counterpart. Yet another type is found where negation is expressed by change in word order (SW), but according to Dahl (1979: 82) it is not clear how to analyse the data of the only language that represents this type. An important element in the paper is the discussion of the placement of negative markers, which partly motivates why the classification is set up the way it is. Some functional motivations for the tendencies found in the position of negative markers are discussed. Numerical data (frequencies and correlations) are also presented; some of these will be taken up at relevant points in Chapter 4.

Dahl's article is the first systematic cross-linguistic treatment of clausal negation and continues to be cited in the literature. It makes important observations about the typology of negative constructions, and the distinctions made therein can serve various purposes. Its goals are, however, very different from those of the present study: Dahl's parameters of classification are more purely formal than in the present study, where more attention is paid to the functional aspects of the elements in the negative construction (what this means will be clarified in sections 2.4 and 3.1).

Although the classificatory principles adopted in the present study are different, I would nevertheless like to discuss some aspects of Dahl's typology in more detail. The syntactic-morphological distinction is certainly useful in some contexts; Dahl needs it for examining word order issues. But taking it as the primary division in the classification can obscure some similarities and differences between constructions that could be seen as more fundamental; the classification is therefore not ideal for bringing out the essence of the cross-linguistic variation in the expression of SN. Dahl's typology takes into account the whole negative construction only in syntactic negation. In morphological negation attention is paid to the negative marker only.[14] Compare the following examples from Suena (22) and Apalaí (8, repeated here as 23).

(22) Suena (Wilson 1974: 59, 100)

a. *ses-i-a*
say-3SG-IND
'He said.'

b. *na kaka ga-mu ino-n-a*
I NEG see-PURP.NMLZ do.PRES-1SG-IND
'I don't know.'

(23) Apalaí (Koehn and Koehn 1986: 64)

a. *isapokara [Ø]-ene-no*
jakuruaru.lizard [1>3]-see-IMPST
'I saw a jakuruaru lizard.'

b. *isapokara on-ene-pyra a-ken*
jakuruaru.lizard 3-see-NEG 1-be.IMPST
'I did not see a jakuruaru lizard.'

In both of these languages the negative construction makes the lexical verb lose its finiteness and adds an auxiliary to the negative sentence. In Suena the negative element is a particle and the construction would be classified as subtype S3 of syntactic negation (characterized by the addition of a "dummy" auxiliary and a negative particle and morphological modification

of the lexical verb). In Apalaí, however, the negative element is an affix, and in Dahl's classification this construction would be simply classified as suffixal negation, i.e. not different from Shipibo-Konibo (5); Apalaí is not part of Dahl's sample but a similar construction in Chukchi (see 30 in 3.3.1.1) is classified as morphological (circumfixal) negation (1979: 101).

Another example of the syntactic-morphological distinction obscuring an interesting difference can be seen by comparing the Polish, Czech and Finnish negative constructions. Polish (24) has a preverbal negative particle and Czech (25) has a negative prefix; in these languages negation causes no further changes in the structure of the clause. Finnish (26), on the contrary, has a negative auxiliary which takes the marking of person, and the lexical verb loses its finiteness.

(24) Polish (Paloposki 1999: 26, 116)

a. *czyta-m*
read-1SG
'I read.'

b. *nie czyta-m*
NEG read-1SG
'I don't read.'

(25) Czech (Janda and Townsend 2000: 34, 37)

a. *vol-al*
call-PST.3SG
'He was calling / called.'

b. *ne-vol-al*
NEG-call-PST.3SG
'He was not calling / did not call.'

(26) Finnish (personal knowledge)

a. *juokse-n*
run-1SG
'I run.' / 'I am running.'

b. *e-n juokse*
NEG-1SG run.CNG
'I do not run.' / 'I am not running.'

In spite of their similarity, the Polish and Czech negative constructions belong to the opposite basic types in Dahl's typology, the Polish construction being syntactic and the Czech construction being morphological. The Finnish construction, which is essentially different in employing a periphrastic technique, belongs to the syntactic type together with Polish. Furthermore, as readily admitted by Dahl (1979: 82–84; see also de Haan 1997: 194–202), the distinction between syntactic and morphological negation is sometimes difficult to make. The analysis of a negative marker as free or bound is not always straightforward. Dahl gives various criteria for distinguishing between morphological and syntactic negation. In cases of doubt, the strategy

most often adopted by Dahl is to follow the orthographic choices made in each language; this is in fact the case with Polish and Czech above.

Payne's (1985) classification is based on the status of the negative marker (the generalizations are not drawn from an explicitly defined language sample). Four types of marking of SN are distinguished: negative particles, morphological (affixal) negation, negative verbs (negative auxiliaries and higher negative verbs) and negative nouns.[15] Examples of negative particles (Jul'hoan, 4), affixes (Shipibo-Konibo, 5) and auxiliary verbs (Evenki, 6) have already been seen. Higher negative verbs are matrix verbs that take a clausal complement. An example of this type of construction can be seen in Tongan (27).

(27) Tongan (Churchward 1953: 56)

a. *na'e 'alu 'a siale*
PST go ABS Siale
'Siale went.'

b. *na'e 'ikai ke 'alu 'a siale*
PST NEG SBJN go ABS Siale
'Siale did not go.'

In (27b) the negator *'ikai* acts as a higher verb taking the corresponding affirmative clause as its complement (for the function of the subjunctive *ke*, see also Broschart 1999). The fourth type, negative nouns, is exemplified by the Evenki negative element *ācin*. But *ācin* is used to negate the existence or presence of something, i.e. it does not express SN in the sense that the term is understood here (or in Payne's article, for that matter). It is of course possible that SN constructions with nominal negative markers are found in some languages, and at least one case has been found (in Nadëb, see 3.3.1.5). Distinguishing different negative markers is important but the present study wants to take a more holistic view of the negative construction. Payne (1985: 228–231) does briefly discuss some "secondary modifications" (changes that accompany the use of the negative marker in some languages: change in word order, change in tone, neutralization of tense distinctions, use of supporting verbs and change in noun case), but they are kept separate from the categorization based on the form of the negative marker.[16] It is true that in most cases they can be separated, and at some point in the analysis of negative constructions such a distinction must be made, if possible. But they should not be seen as independent of one another. In this study, rather than seeing the negative marker alone as the "standard negation strategy" and the accompanying features as "secondary modifications", SN is seen as a construction to which both the negative element and the relevant secondary modifications belong. Note also that the (admittedly rare) constructions

where no separate negative element can be found (e.g. in Igbo and some Dravidian languages, see 3.3.4.1) cannot be accounted for by Payne's typology.

Forest's (1993) study is stated to be based on the analysis of the ways of expressing negation in around 1400 languages. There is, however, no discussion of the sample, not even a list of the sample languages. The index of languages contains 167 languages mentioned or discussed in the text.[17] Forest emphasizes the fact that the relationship between affirmation and negation is not one of a simple addition of a negative marker – the marking of negation is often complex and it is not always clear which negative expressions correspond to which non-negative ones. A distinction is made between "recusative" and "suspensive-reassertive" negation (*négation récusative* vs. *négation suspensive-réassertive*).[18] In recusative negation the negative element is separable from the rest of the utterance which can act as an autonomous non-negative utterance. In suspensive-reassertive negation two characteristics are combined: on the one hand, one or several "syntactic domains" show suspensivity, i.e. they are marked differently from the way they are marked in non-negative utterances (in Forest's terms they show affinity to a "lesser" pole in the semantic organization of the domain), and on the other hand, some element(s) in the utterance express(es) reassertion (or reinterrogation or reinjunction), i.e. the indication that the utterance belongs to a particular utterance type – declarative, interrogative or imperative. Let us take a closer look at how Forest defines the terms he proposes.

> *Négation récusative*
> ... une procédure telle que l'énoncé négatif où elle figure se divise en deux parties distinctes: une partie dont la fonction se réduit strictement au marquage négatif lui-même; une partie – tout le reste de l'énoncé – qui est strictement identique à ce qui pourrait être un énoncé autonome, positif, associable comme contrepartie positive à l'énoncé négatif considéré. Une seule réserve: les deux parties de l'énoncé sont néanmoins unies, et l'intonation est la marque universelle de cette unité ... (Forest 1993: 30) [*Recusative negation* ... a procedure such that the negative utterance where it occurs is divided into two distinct parts: one whose function is strictly limited to negative marking; one – all the rest of the utterance – that is strictly identical to what could be an autonomous positive utterance that can be associated with the negative utterance in question as its positive counterpart. One reservation: the two parts of the utterance are nonetheless united, and intonation serves as the global marker of this unity ...] [translation mine]

Suspensivité
... une indication morphosyntaxique (un marquage, ou une série de marquages) qui, dans un ou plusiurs grands domaines syntaxiques, marque le recours par l'énonceur à ce qui s'avère correspondre à un pôle «moins» dans une organisation polaire du sémantisme propre aux paradigmes modaux de ces grands domaines. (Forest 1993: 51) [*Suspensivity* ... a morphosyntactic indication (a marker, or a series of markers) that, in one or more large syntactic domains, marks the speaker's recourse to something that turns out to correspond to a "lesser" pole in a polar organization of the semantics characteristic of the modal paradigms of these large domains.] [translation mine]

Réassertion
... j'appelle réassertion (ou réinjonction, réinterrogation) l'indication morphosyntaxique de cette subsomption de l'énoncé négatif considéré sous un grand type ou mode énonciatif (assertion, injonction, interrogation) défini indépendemment de lui. (Forest 1993: 44) [*Reassertion* ... I call reassertion (or reinjunction, reinterrogation) the morphosyntactic indication of this subsumption of the negative utterance in question into a main utterance type or mood (assertion, injunction, interrogation) defined independently of it.] [translation mine]

There are no clear criteria for identifying the elements that express reassertion; some examples are given, such as the auxiliary verbs used in periphrastic negative constructions (Forest 1993: 86–87), but the concept remains opaque. In general, utterances (affirmative and negative) certainly have elements that serve to identify them as declarative, interrogative or imperative, but what is gained by connecting these with the marking of negation in every structure showing suspensivity is not clear. The concept of suspensivity is more useful. In Forest's terminology, the domains that show suspensivity are the following: *actualisation*: neutralization and/or obligatory use of certain tense and Aktionsart categories; *assomption*: use of marked modalities, use of irrealis categories under negation; *epidixis*: increase of stativity; *actanciation*: inversion of animacy hierarchies; *empathie*: use of markers of emphatic rupture, use of distanciators; *polyphonie*: attribution of parts of the negative utterance to another speaker in the negative utterance; *ménys*e: marked information structures. According to Forest (1993: 105–107) these suspensive tendencies are inverse to the tendencies in the marking of these domains found in prototypical indicatives.

The distinction between recusative and suspensive-reassertive negation is somewhat reminiscent of my distinction between symmetric and asymmetric

negation, but the further distinctions that are made are clearly different. We will come back to the similarities and differences between the classifications in section (3.4). Forest's study has a similar functional orientation and similar explanatory goals as the present one but the treatment of the structural phenomena is not systematic; he discusses data exemplifying the different suspensivity phenomena, but there is no attempt to make a systematic typology of their morphosyntactic manifestations, or to give numbers of frequency, make observations of areal distributions or establish typological correlations.

Honda's (1996) dissertation proposes a classification based on the differences between the finite elements in affirmative vs. negative clauses.[19] He makes the following three-way distinction: In type I, there is no difference between the finite elements of the affirmative and the corresponding negative. In type II, a (non-negative) auxiliary is added as the finite element in the negative and the lexical verb typically occurs in a non-finite form. In type III, a negative auxiliary is added as the finite element of the negative clause. Inside type II there is a further distinction into subtypes IIA and IIB; in IIA the negative element is placed in relation to the finite element and in IIB in relation to the lexical verb. Examples of the different types can be found above: for type I Jul'hoan (4) and Shipibo-Konibo (5), for type IIA Achumawi (7) and Korean (21), for type IIB Apalaí (8,23), and for type III Evenki (6) and Finnish (2). In addition to this classification, Honda discusses various kinds of structural differences between affirmative and negative sentences: 1. changes in the form of the verb (mainly in types II and III), 2. changes in tense and aspect marking, 3. changes in the marking of clausal participants and 4. appearance of elements marking various irrealis categories in the negative sentence. These structural differences are treated separately from the typology based on the finite element, although, as will be seen in the present study, these two aspects are not independent of each other. Honda's study has similar explanatory goals and similar classificatory principles as mine. Attention is paid to the functions of the elements present in the affirmative vs. negative clauses. However, the actual classification only takes into account one aspect of the structural asymmetry between affirmation and negation, viz. the change of finite element, and the other aspects are discussed separately and less systematically. Honda (1996: 2–3) notes that there are, on the one hand, languages where the structure of the negative does not differ from the structure of the affirmative in any other respect than the presence of the negative marker, and on the other, languages

where the structures of negatives and affirmatives differ in other respects too; this distinction is however not used in classifying negative structures.

Honda's dissertation contains some information on SN in more than 900 languages. For most of the languages listed, however, only the phonetic form and the position of the negative element(s) are given. Occasionally the addition of an auxiliary in the negative construction is mentioned, but not in every case where such an auxiliary occurs. The asymmetry phenomena discussed are not included in the list. For many of the listed languages the information is drawn from rather general sources treating a genealogical or areal grouping of languages, rather than from a book or an article focusing on a single language, and therefore not permitting a very detailed analysis. Only those languages where interesting phenomena are found are examined and discussed in more detail. The study is not based on a systematic sample.

Aspects of SN have been discussed in various other typological or typologically oriented studies as well. This section included only those studies that make cross-linguistic generalizations, in the form of a more or less explicit typological classification, of how SN is structurally encoded. Further typological-functional treatments of negation will be discussed at appropriate places in this book. The next chapter deals with some theoretical and methodological questions.

Chapter 2
Theoretical and methodological issues

2.1. Outline of methodology

This chapter will describe the methodology followed in this study and address relevant theoretical issues. I have adopted the methodological principles used in many recent studies in functional-domain typology. These studies have similar goals as the present one, viz. finding out how a given functional domain is structurally encoded in the world's languages and proposing explanations (or motivations) for these encoding strategies. Studies in functional-domain typology include Givón (1981), Dahl (1985), Stassen (1985, 1997, 2000) and Haspelmath (1997), to name just a few. The stages in such studies are roughly the following (see also Givón 1981; Stassen 1985: 1–23, 2000: 1–3; Haspelmath 1997: 7–20): 1. A database is established to serve as the empirical basis of the study. This consists of selecting a language sample suitable for the study and of collecting the relevant data from each of the sample languages on the basis of a cross-linguistically applicable definition of the domain of inquiry. The sources used in the data collection are grammars and what other usable descriptions or treatments of the sample languages are available. 2. The next step consists of analysing the data and looking for cross-linguistic patterns – similarities and differences – in order to set up a typological classification of the morphosyntactic means languages exhibit for encoding the functional domain. Once the typological classification has been established, cross-linguistic frequencies and areal distributions of the types are often observed. Usually the studies also try to find correlations between the types of the typology and other areas of grammar. 3. Finally, explanations are proposed for these structural findings. In reality, these steps are not chronologically separate; they necessarily overlap with each other to some extent. Different studies have their own versions of this basic methodology. In the following sections I will discuss my methodological choices in more detail.

2.2. Sampling

This study, like most typological studies, aims at making generalizations about natural languages. In order to make such generalizations, one has to work with an adequate sample of languages. Sampling methods have received a lot of attention in the literature recently (see for example Dryer 1989; Perkins 1989; Nichols 1992; Rijkhoff et al. 1993; Bybee, Perkins, and Pagliuca 1994; Rijkhoff and Bakker 1998). In this section I will discuss some principles of typological sampling and describe the sampling method I have developed in this study. Some central notions of my method are borrowed from Dryer's (1989) sampling methodology, but it should be clear from the beginning that these are two different methods with different goals.

I will use the terms universe, frame and sample as defined by Bell (1978: 126): *universe* refers to the set of objects which is the object of investigation, *frame* is the means of access to the universe and *sample* refers to the collection of objects that are observed. A sample must be representative of the universe for the study of which it is designed. In a typological study that aims at making generalizations about natural languages, the universe is the set of all natural languages, whereas the frame consists of the languages for which one can find descriptions or informants; the sample should be representative of all natural languages.

Linguistically, the most interesting question is of course what the limits of cross-linguistic variation are, i.e. what is a possible natural language. If one wants to tackle this question in a sample-based study, one must define the universe as the set of all possible languages. But this set may be infinite,[20] which alone can be problematic for sampling. Furthermore, there is a considerable discrepancy between the frame and the universe. The frame of all languages for which information is available can only contain existing languages or languages that are known to have existed. Given that the present distribution of different linguistic groups in the world is dictated by non-linguistic factors, it is unlikely that the frame is representative of the universe of all possible languages, and such a frame is problematic as a basis for a sample that should be representative of the possibilities of natural language. There are heavy biases in the frame towards certain types of languages. Extra-linguistic historical factors (social, political etc.) have favoured some linguistic groups that have grown large as regards the number of both speakers and languages, whereas other groups have not grown, or they have diminished or downright disappeared. Many linguistic phenomena that are present in the large groups are thus necessarily over-represented in the frame,

whereas those phenomena that are only present in some small groups, or were present in the groups that have disappeared, are under-represented or lacking in the languages that belong to the frame. The reasons behind the developments being extra-linguistic in nature, the causes of the frequency vs. infrequency or absence of many linguistic features are also due to extra-linguistic factors. This is less of a problem when the object of study is a structure that can be considered diachronically unstable – even a biased frame can then be thought to represent the structural possibilities of natural language, but when the phenomenon studied is diachronically stable time is not as likely to have removed the biases. In functional-domain typology one is often dealing with several different kinds of structures that are employed by different languages for encoding the domain; some of the structures can be stable and some unstable and one cannot estimate the effects of the bias in advance.

The frame is the set of (adequately) described languages or languages for which informants or experts can be found. The numerous languages that have disappeared in the history of homo loquens, and the linguistic features found in them, are necessarily left out of the frame. As to existing languages and languages that are known to have existed, the frame is heavily biased toward languages spoken by cultures where scholarly linguistic traditions have been present. Today, a growing number of languages are being described, but some areas, especially New Guinea and South America, are still necessarily under-represented in the frames on which typological samples are based due to lack of adequate descriptions for large numbers of languages.

Given these problems, it is not always possible to draw direct conclusions about possible natural languages on the basis of a sample. The results – the structural types, their frequencies, typological correlations – necessarily only tell us about existing languages (that have been described), and cannot automatically be extended to cover the set of all possible languages. It is at the linguist's discretion to which extent a given result can be considered to obtain for all possible natural languages. An adequate sampling methodology can increase the likelihood that inferences about the limits of cross-linguistic variation are valid.

Different studies have different objectives, and the methods of sampling vary accordingly. A distinction has been made between variety samples and probability samples (Rijkhoff et al. 1993: 171), the former being primarily intended to bring out the full range of the cross-linguistic diversity in the encoding of a given function, and the latter being more suitable for applying statistical tests. In general, a sample should be representative of the universe.

Another requirement is that the sample languages be independent of each other – this is especially important in studies where statistics are involved, i.e. with probability samples. In the present study the objectives are qualitative rather than quantitative, i.e. I am primarily interested in finding out the linguistic diversity in the expression of negation, and questions of frequency or infrequency of the types, or testing correlations, are less important. The method I propose here is therefore a method for constructing a variety sample. Quantitative data are given in Chapter 4, but they are not to be considered the main contribution of this study. The mutual independence of the sample languages is certainly important but it is not as crucial as it is in probability samples used in more statistically oriented studies. To achieve the goals of representativeness and independence, samples must be large enough on the one hand, and stratified, e.g. genealogically or areally, on the other. No languages are reported in the literature to lack means to express negation, and negation is hypothesized to be a universal category. The sample is therefore global and not restricted to any subset of languages, genealogical, areal, structural or other.

The choice of sampling method may depend on the diachronic stability of the phenomenon under study. However, as mentioned above, this does not usually apply to functional-domain typology. Stability is a property of (formal) structures, not of functions. The domain under study, e.g. polarity, is encoded with different structures in different languages, some of which can be quite stable and some more prone to change, and one cannot not know a priori what kinds of structures – stable or unstable – one will find.

Ideal sample size differs from one study to another. One important issue is how deep one needs to go in the analysis of each sample language. With larger samples one gains in breadth but loses in depth, whereas the converse holds for smaller samples. Sample size naturally has an effect on the mutual independence of the sample languages – the larger the sample, the higher the probability that there are genealogical or areal connections between the sample languages. Even with relatively small sample sizes, it is impossible to include only languages that are independent of each other (see Dryer 1989); this is known as the problem of probability sampling. Any sample has to compromise independence to some extent. Perkins (1989) recommends "using around a hundred languages for most linguistic samples to balance the requirements for representativeness and independence in samples" (p. 312). The samples used in many well-known typological studies have been rather small (e.g. 50 languages in Bybee 1985). Sampling methods where languages are selected from all of the more or less independent genealogical and/or

areal groupings are often thought to be able to produce samples that can be representative even with rather small sample sizes (Bybee, Perkins, and Pagliuca 1994; Rijkhoff and Bakker 1998). Recently a growing number of researchers have expressed the opinion that samples should be more extensive (see Stolz and Gugeler 2000). In a study that aims at discovering the whole range of cross-linguitic variation in a given phenomenon, one needs a fairly large sample, at least 200 languages – an extensive sample makes it more probable that no language types, not even the rarest ones, are left out from the sample, and this increases the validity of the generalizations. Variety samples should therefore be rather extensive. A smaller sample size could be used for example in a pilot study of a new domain, but the present goal is to get a more definitive and thorough view of the typology of negation, which has already received some attention in earlier literature. Large samples are of course problematic for more statistically oriented studies where the independence of the languages is very important; smaller samples may be used in such studies or special measures may be taken to ensure independence, e.g. for Dryer (1989) a correlation is taken to be valid only if it is valid for all macroareas. The (variety) sampling procedure introduced by Rijkhoff and Bakker (1998) includes a method of calculating ideal sample size for a given object of study according to how many possible or expected variables there are, or how these variables are estimated to be distributed, and they illustrate this with the example of the order of subject, object and verb. In functional-domain typology this is not applicable since the variables are not known beforehand.

In addition to being large enough, a sample also has to be stratified in order to be representative. For the independence of the sample languages, stratification is crucial. In a stratified sample, ideally, all the relevant groupings are evenly represented and the sample is not biased. Typological samples can be stratified according to different principles, most often by genealogical groupings or by both genealogical and areal groupings. Other bases of stratification or combinations of these are also found, e.g. cultural or structural/typological. As already mentioned above, representativeness is the primary goal of the sample used in this study and the independence of the sample languages is subordinate to this goal. Independence is important in two respects: on the one hand it increases the validity of the quantitative generalizations made in Chapter 4, and on the other hand it contributes to the representativeness of the sample – if there are two samples with equal sizes, the one where the languages are more independent of each other is likely to be more representative of the universe.

The sample in this study is primarily genealogically stratified but attention is also paid to geographical factors. No other principles of stratification are applied.[21] I agree with Rijkhoff et al. (1993) in that of all possible sources of bias, genealogical relatedness of the sample languages probably has the worst effect on the quality of the sample, and avoiding genealogical bias may also have the effect of removing other sources of bias; genealogically related languages tend to be spoken in geographically adjacent areas (areal bias), they tend to share the same structural properties (typological bias) and they tend to be spoken by people with similar kinds of culture (cultural bias). Genealogical classifications also provide the best possible basis for partitioning the sampling frame. As Stassen (1985: 12) puts it, "genetic bias has the advantage of at least being known, so that it is a wise move to eliminate at least this factor from the sampling procedure." It is true that genealogical classifications are far from being unanimously agreed on, and for many parts of the world the present genealogical classifications will undergo dramatic modifications as more research is done. In the genealogical classifications of some areas it has not yet been possible to apply the comparative method as rigorously as for example with Uralic and Indo-European languages, and the comparative method is not necessarily equally applicable in the linguistic situations found in different areas, see e.g. Dixon (1997). The genealogical classifications proposed for languages in different parts of the world are to some extent incommensurate. Nevertheless, the existing genealogical classifications have no good alternative as the primary basis of stratification in a global typological study. For an adequate areal or contact-linguistic classification, for example, too little is known about the sociohistories of linguistic communities, say during the last 10,000 years. At present, genealogical classifications enjoy a methodological advantage over the other alternatives. In a genealogically stratified sample, it is of course wise to pay attention to the geographical distribution of languages as well.

In my sampling method the frame is genealogically stratified at the *genus* level, as the term is employed by Dryer (1989, 2000). He uses the term to refer to a genealogical group of languages with an estimated time-depth of 3500–4000 years (see also Bell 1978). Familiar examples of genera are the branches of Indo-European: Germanic, Romance, etc. In many areas of the world, genera are the maximal level of grouping whose genealogical relationship is uncontroversial. Using the genus level has two advantages: languages that belong to different genera are sufficiently far removed from each other genealogically to be sufficiently independent of each other, and the genus level is an uncontroversial grouping in most cases. One language

is randomly selected from each genus. This method creates a sample with a sufficient number of languages (200–300)[22] which are genealogically independent enough for the present purposes. The large size of the sample and the genealogical distance between the languages will guarantee that the cross-linguistic diversity in the expression of negation is well represented. The stratification is thus primarily genealogical, but some necessary areal adjustments can be made by not selecting languages that are geographically immediately adjacent. It is, however, not always possible to do so, e.g. in cases where there are two or more genera comprising one single language each (or only one language for which data is available), and these languages are geographically adjacent. If avoiding geographical adjacency results in leaving out a genus from the sample, I will let the genealogical criterion win over the areal one and include both of the adjacent languages.

I will also follow Dryer's (1989, 1992, 2000) division of languages into the following six macroareas: Africa (Afr), Eurasia (EuA), Southeast Asia and Oceania (SAO), Australia and New Guinea (ANG), North America (NAm) and South America (SAm).[23] This division is not crucial for the principal aims of the sampling method, viz. variety sampling, but it is used here as a secondary means of stratification to construct a less areally biased subsample for quantitative purposes (see below), and as a means of talking about areal distributions. It should be noted that the boundaries of the macroareas are somewhat arbitrary and they do not follow strictly geographical divisions. Phyla are not usually split between two macroareas, although in some cases, strictly geographically defined, they contain languages belonging to two different areas. Thus all Semitic languages belong to Africa with the rest of Afro-Asiatic, and the Chibchan languages of Central America belong to South America where most of the Chibchan languages are situated (cf. Dryer 1989: 268); in these cases the area is occupied exclusively by genera belonging to the phylum in question. A different situation is presented by the Austro-Asiatic phylum where the Munda languages are geographically part of Eurasia and the rest of the Austro-Asiatic genera are geographically part of Southeast Asia and Oceania; this phylum is split between the two neighbouring macro-areas since the Munda genus is surrounded by other Eurasian genera.[24]

As already noted, although I borrow some notions from Dryer (1989), my sampling method is distinct from Dryer's. The latter is designed for testing correlations, whereas my method primarily aims at bringing out the full range of cross-linguistic diversity in the expression of a given function; it is thus a method for constructing variety samples. Despite the use of the notions genus

and macroarea, the method of testing generalizations introduced in Dryer (1989) is not employed in the present study. It should also be made clear that the language chosen from each genus is not intended to represent the range of structural variation found inside the genus; but together these languages form a whole that is intended to represent the structural diversity found in the world's languages as well as possible. In Dryer's method the number of languages taken from each genus is not restricted to one, and genus-internal variation is taken into account by counting a genus more than once in case of variation; this is in line with the goal of testing correlations. My method uses genera simply as a basis for stratifying the frame in order to arrive at a variety sample. It would of course be interesting to take more than one language from each genus (provided sources are available), and focus on the genus-internal variation as well as diachronic developments inside genera (or more extensive genealogical groupings), but this is beyond the scope of the present study; a possible line of research in the future is to examine some language families in more detail in order to answer questions of variation and diachronic developments (cf. Stolz and Gugeler 2000).

The sampling method proposed here has the advantage of being simple and transparent. Furthermore, it is open and flexible – on the one hand it is easy to add a language if an adequate description is found for a language belonging to a genus previously not represented in the sample, and on the other hand, if the sources used for a language turn out to be inadequate and no adequate sources are found for any other languages belonging to the same genus, the genus can be left out of the sample without problems (provided that not too many genera have to be excluded for this reason). If one wants to use the same database in the study of a functional domain in the future, it is desirable that the sample is flexible and easily expandable. Such flexibility is easy to achieve with a bottom-up method like the present one, whereas top-down methods where sample size is predetermined are less flexible. The inadequacies in the present state of genealogical classification in many parts of the world are problematic for any sampling methodology based on these classifications, but especially for those methodologies that select languages by using more or less complex calculations based on these classifications and/or the structure of the proposed family trees (see for example Perkins 1989, Bybee, Perkins, and Pagliuca 1994; Rijkhoff et al. 1993; Rijkhoff and Bakker 1998). These methodologies are necessarily heavily dependent on the quality of the classifications, and the fine machinery that selects the sample languages seems somewhat ineffective when the classifications themselves

are for many parts inadequate. A simple methodology is less affected by the problems in classification.

In this study, the division into genera uses Matthew Dryer's list of genera as a starting point, and adjustments and additions have been made according to what different classifications list as genealogical groupings at the same level. These classifications include Voegelin and Voegelin (1977), Ruhlen (1991),[25] Grimes (ed. 1996) and Grimes and Grimes (1996), as well as some works focusing on specific language families. Some modifications, mainly to the names of the genera, have been made afterwards using the classification in the 14th edition of the Ethnologue (Grimes [ed.] 2000) as well as Dryer's revised list of genera,[26] which also mainly follows the newest edition of the Ethnologue. The genera are listed in Appendix I together with the actual sample languages. It should be stressed that I am not making any strong claims about the time-depths of the genera. It can be seen as a weakness of the method that no explicit and strict criteria exist for determining what counts as a genus. This problem is also admitted by Dryer (2000). But on the other hand, when one does not need to rigidly follow the existing classifications in every detail, one can avoid the worst problems caused by the incommensurabilities in the classifications proposed for the different parts of the world; in methods that are mechanically applied to ready-made classifications these problems are more difficult to avoid.

My final list contains 413 genera, which is thus the theoretical size of the sample. The random selection procedure is applied to these genera.[27] If adequate sources cannot be found for the chosen language, the procedure of selection is repeated until a language with adequate sources is found.[28] If adequate sources cannot be found for any language in a genus, the genus will not be represented in the sample. Applying this procedure yielded a sample of 240 languages, i.e. there were 240 genera for which a language with available sources could be found.[29] Thus, the actual sample is much less extensive than the theoretical sample size determined by the number of genera. The sample formed by these 240 languages will be called the *Core Sample* (CS) in this study.

In the CS each language comes from a different genus. There is an additional set of 57 languages that I have chosen to include in this study, and the total number of languages examined is 297. This total will be called the *Extended Sample* (ES); the sample is listed in Appendix I. The reason for the inclusion of these languages is the following. Simultaneously with the preparation of this book I have participated in the World Atlas of Language Structures project (Miestamo 2005a,b). The sample used in the project

contains 200 languages, many of which coincide with languages of my CS. There were 59 languages that did not coincide, and 57 of these could be examined (for two sources were not available to me). It would not have been a wise move to leave these languages out of the study once they were analysed. The inclusion of the additional languages has certain effects. The diversity and representativeness of the sample increase as more languages are investigated; the sampling methodology is designed to guarantee diversity, but once the additional effort of data collection and analysis has been made for these additional languages, it is desirable to include them in the study. The ES is somewhat biased genealogically, since the additional languages belong to genera that are already represented in the CS, and in terms of diversity the ES would compare unfavourably with a sample of the same size where every language came from a different genus. The genealogical bias has a negative effect on the independence of the sample languages and could thus be harmful to statistical generalizations. There are some genera that contain large numbers of languages covering large geographical areas, i.e. Bantoid, Oceanic, and Pama-Nyungan. As the CS contains only one language from each genus these large areas are geographically somewhat under-represented in the CS. Among the additional 57 languages of the ES there are several languages from these large genera, and therefore the areas of Sub-Saharan Africa, Oceania and Australia are better represented in the ES.

As already discussed above, the languages in some parts of the world have been relatively well described and for these areas it was possible to include languages for most of the genera, whereas some areas still remain poorly described and for these areas the number of genera that had to be left out for bibliographic reasons was higher. This introduces an unavoidable bibliographic bias in the areal coverage of genera in the sample. Table 1 shows, for each macroarea, the numbers of genera and the numbers of languages included in the CS, as well as the percentage of the number of genera covered by the included languages (for the RS, see below). As seen in the table, better described areas, especially Eurasia, are over-represented in the CS in relation to the less well described areas, especially Australia and New Guinea[30] and South America. This over-representation is not very harmful for the general aims of a variety sample, viz. showing the whole range of cross-linguistic variation in the phenomenon under study. No sample of this size can avoid the bibliographic bias, and even though the percentages of coverage look rather low for some areas, the present sample does not compare unfavourably with other typological samples in this respect.

Table 1. Genera and languages in CS and RS by macroarea

	GENERA	LGS IN CS	COVERAGE %	LGS IN RS
Afr	66	45	*68.2*	29
EuA	35	34	*97.1*	15
SAO	49	26	*53.1*	21
ANG	88	38	*43.2*	38
NAm	83	56	*67.5*	36
SAm	91	40	*44.0*	39
Creole[31]	1	1	*100.0*	1
Total	413	240	*58.1*	179

For quantitative generalizations, however, a more even distribution of each area is desirable. For this purpose I have introduced the Restricted Sample (RS), a subset of the sample languages where the coverage percentage is the same for each macroarea. In the least well represented area, Australia and New Guinea, 43.2 % of the genera are covered in the CS, and in the rightmost column we can see the number of languages corresponding to a coverage of 43.2 % for each macroarea. The RS is derived from the CS by randomly suppressing languages from the better studied areas so as to arrive at the desired number for each macroarea. The RS, containing 179 languages, is used as basis for the quantitative data in Chapter 4. The RS avoids the areal and genealogical bias found in the CS by rendering the representation of each macroarea proportional to its internal genealogical diversity, i.e. the same percentage of the total number of genera are represented from each macroarea.[32] In the table in Appendix I, there is a column showing the sample to which each language belongs; naturally all languages of the RS also belong to the CS and all languages of the CS also belong to the ES.

Any sampling method based on genealogical classifications has to make a separate decision of what to do with creole languages. There is no consensus of how to integrate creoles in genealogical classifications. Often creoles are treated as a separate group, although they do not form a genealogical category. But it is also possible to integrate a creole into an existing genealogical grouping according to the language that is seen as the most influental ancestor (the dominant genealogical relationship) in the genesis of that particular creole. Some researchers (e.g. Chaudenson 1995)

put special emphasis on the role of the superstrate language in the genesis of creoles, and such an approach allows one to treat creoles as members of the genealogical groups of their superstrate languages. In this view Haitian Creole would be seen as a daughter language of French and classified as Romance. I do not intend to participate in this debate, but I decided to treat creoles as a separate group for methodological reasons. Had I included creoles in the genera of their lexifiers, the probability of any creole appearing in the sample would have been very low. But I wanted to make sure that at least one creole is included in the sample. Some creolists are of the opinion that there is a special structural type, the creole prototype (see McWhorter 1998), and this possibility is worth taking into account in typological sampling. Therefore creoles are treated as a group equal to genera, although they do not constitute a genealogical unity. There is thus one creole in the CS (and in the RS).

Another group of natural languages problematic for (or ignored by) genealogical classifications are the numerous sign languages used around the world. Sign languages are no less important for the typology of SN than spoken ones. However, for methodological reasons I chose not to include any signed languages in the actual sample. I leave it to specialists of sign language to construct a typology of negation in sign languages, which can then be compared to the findings of studies of negation in spoken languages (see Zeshan 2004 for some typological observations on sign language negation).

The sampling method proposed by Rijkhoff et al. (1993) and Rijkhoff and Bakker (1998) has similar objectives as the present method, i.e. it is also a method for constructing a variety sample. To conclude this section, I would therefore like to make a comparison between their method and mine, and present some arguments for developing my own method instead of simply adopting theirs. The method proposed by Rijkhoff et al. stratifies the sample genealogically. It seeks to maximize variety by selecting at least one language from each independent genealogical group (phylum) in the classification used. If the desired sample size exceeds the number of phyla, additional languages are selected from each phylum according to what the authors call the diversity value of the phylum. If the desired sample size is smaller than the number of phyla in the chosen classification, the diversity values of the phyla determine the probability each phylum has for being represented in the sample. For each phylum the diversity value is computed on the basis of the structure of the family tree (number of non-terminal nodes in the tree). Determining the number of languages from each phylum based