

Cross-linguistic Variation in Object Marking

Published by
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<http://www.lotschool.nl>

Cover illustration: detail of *Polderland* by Hennie de Swart (2004)

ISBN 978-90-78328-39-1
NUR 616

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The work in this dissertation has been funded by the Netherlands Organisation for Scientific Research (NWO), grant 220-70-003.

Cross-linguistic Variation in Object Marking

een wetenschappelijke proeve op het gebied
van de Letteren

Proefschrift

ter verkrijging van de graad van doctor
aan de Radboud Universiteit Nijmegen
op gezag van de Rector Magnificus
prof. mr. S.C.J.J. Kortmann,
volgens besluit van het College van Decanen
in het openbaar te verdedigen op
woensdag 21 november 2007
om 10.30 uur precies
door

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geboren op 23 augustus 1981
te Nijmegen

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Acknowledgements

Being a fan of the genre of acknowledgements, I am hesitant to add my contribution to it. Although the work of a single person, this thesis could not have been written without the support and friendship of others. I would like to single out a few of them.

This project could not have been carried out without the financial support of the Netherlands Organization for Scientific Research (NWO) to the PIONIER Project *Case Cross-linguistically* [grant 220-70-003] which is gratefully acknowledged.

I have felt very privileged over the past few years to have Helen de Hoop as my daily supervisor, and I am afraid there is no ‘thank you’ big enough that it can make up for everything she has given me. From the very first moment until the last seconds of my PhD project she has given me trust, support, and advice, engaged in discussion, provided written feedback with a speed and accuracy way beyond the call of duty, and opened numerous opportunities and possibilities for me. I could not have wished myself a better start of my scientific career than she has given me and I can only be extremely thankful for that. I am also happy to thank my promotor Pieter Muysken whose advice, comments, and questions helped me to put things in a wider perspective and to improve this thesis. Judith Aissen, Ans van Kemenade, and Beatrice Primus agreed to be the members of my thesis committee. I would like to thank them for reading the manuscript and for their stimulating comments. As a member of the PIONIER Project and the research group Optimal Communication I have received the friendship, support, and feedback of my fellow team members Geertje van Bergen, Ad Foolen, Richard van Gerrevink, Luuc van der Horst, Lotte Hogeweg, Irene Krämer, Leonid Kulikov, Monique Lamers, Sander Lestrade, Andrej Malchukov, Kees de Schepper, Yang Ning, and Joost Zwarts. It has been a real pleasure to have you as my closest colleagues. Special thanks go to Luuc for his help in compiling the bibliography.

Over the past few years I have met a great number of people, a few of whom I would like to thank explicitly for their help: Ellen Woolford,

Martina Wiltschko, Leon Stassen, Lilja Øvrelid, Yukiko Morimoto, Jaklin Kornfilt, Hans-Martin Gärtner, Marco García García, Henry Davis, Miriam Butt, and Mengistu Amberber.

Family and friends are thanked for their (non-linguistic) interest and support. In particular, Emar for his close friendship in and out of academia, and all the gossip we have shared. The Steigertijgers of the Steigertheater have provided me with a second life which allowed me to occasionally forget all about linguistics.

And Corien. I don't even know where to start.

Contents

Acknowledgements	v
Abbreviations	ix
Abstract	xiii
1 Introduction	1
1.1 Grades of Transitivity	2
1.2 Animacy and Ambiguity Avoidance	3
1.3 Prominence	5
2 Gradient Transitivity	7
2.1 Introduction	7
2.1.1 Intransitivity	8
2.1.2 Transitivity	11
2.1.3 (In)transitivity	14
2.2 Transitivity in Generative Grammar	21
2.3 Transitivity As a Gradient Phenomenon	26
2.3.1 Hopper and Thompson (1980)	26
2.3.2 The Relation between Meaning and Form	32
2.4 Cognate Objects and the Syntax-Semantics Interface	33
2.4.1 Ingredients of the Cognate Object Construction in English	34
2.4.2 The Semantic Status of Cognate Objects	45
2.4.3 The Syntactic Status of Cognate Objects	50
2.4.4 A Cross-Linguistic Perspective	60
2.5 Conclusions	70
3 Recovering Grammatical Roles	73
3.1 Introduction	73
3.2 Case Distinguishability	87
3.2.1 Bidirectionality and Avoid Ambiguity	92

3.3	Recoverability: Alternative Strategies	99
3.3.1	One Nominal Interpretation and BIAS	106
3.4	Word Order and Exceptional Case Marking	116
3.5	Recoverability vs. Prominence	126
3.6	Conclusions	134
4	The Prominence Factor	135
4.1	Introduction	135
4.2	Prominence Categories	137
4.2.1	Prominence Hierarchies	149
4.3	Cross-Modularity in Active to Passive Alternations	157
4.4	Differential Object Marking: Animacy vs. Definiteness	173
4.4.1	Animacy vs. Definiteness/Specificity	181
4.4.2	Split vs. Fluid Case Alternations	185
4.5	Conclusions	194
5	Conclusions	197
	Bibliography	201
	Samenvatting (Summary in Dutch)	229
	Curriculum Vitae	235

Abbreviations

1, 2, 3	first, second, third person
ABL	ablative
ABS	absolutive
ACC	accusative
ADEL	adelative
ADR	addressee
AG	agent
AGR	agreement
AOR	aorist
ANIM	animate
ANTP	antipassive
AT	agent topic
AUX	auxiliary
CL	classifier
COM	commitative
CON	connective
CP	completive aspect
DAT	dative
DECL	declarative
DEF	definite
DEM	demonstrative
DET	determiner
DLN	delineator
EMPH	emphatic pronoun
ERG	ergative
EXP	experiencer
F	feminine
FAC	factive
FIN	finite
FOC	focus marker
FUT	future
GEN	genitive

HUM	human
IMP	imperfective
IND	indicative
INF	infinitive
INSTR	instrumental
INTR	intransitive
INV	inverse
INVOL	non-volitional
IO	indirect object
LC	lack of control
LOC	locative
M	masculine
NC	non-control
NMZ	nominalizer
NTR	neuter
NOM	nominative
NPST	non-past
OBJ	object
OBL	oblique
OBV	obviative
OCL	object clitic
OPT	optative
PART	partitive
PASS	passive
PAT	patient
PF	perfective
PL	plural
PRS	present
PRT	particle
PST	past
PTC	participle
RL	relativizer
SBJ	subjunctive
SG	singular
SIM	singular imperative clause marker
ST	stative
STI	stimulus
SU	subject
THM	theme
TR	transitive
VOL	volitional

Classical Authors

The following abbreviations are used to refer to classical authors and their works:

Antiph. <i>Tetr.</i>	Antiphon	Tetralogiae
Plaut. <i>Pseud.</i>	Plautus	Pseudolus
Pl. <i>Ap.</i>	Plato	Apologia
Sall. <i>Cat.</i>	Sallustius	De Catilinae coniuratione
Xen. <i>An.</i>	Xenophon	Anabasis

Abstract

This dissertation deals with the relation between form and meaning in the domain of transitivity, in particular with respect to the cross-linguistic phenomenon of differential object marking. Transitive sentences are sentences with a two-place predicate (verb) that takes two arguments, a subject and an object. Languages may differ, however, in how they map semantic (in)transitivity to syntactic (in)transitivity. There are constructions that are transitive from a semantic point of view, as they involve two participants (arguments), while they can be argued to be intransitive from a syntactic point of view. Examples are passive, antipassive, and object incorporation constructions. The same can be observed for semantically intransitive constructions that come out as syntactically transitive. In particular, I will argue in chapter 2 that cognate object constructions are semantically intransitive, yet in many languages get mapped to syntactically transitive constructions. I will present a fine-grained approach to transitivity that can deal with one-to-many and many-to-one mappings between meaning and form.

Differential object marking, which is the central domain of investigation in this thesis, also involves a shift in transitivity, since sentences with caseless objects can be argued to be syntactically less transitive than those with case-marked ones. One explanation of differential object marking phenomena lies in the problem of ambiguity: a speaker may case mark a direct object in order to ensure recoverability of the intended interpretation on the side of the hearer. Avoidance of ambiguity as a speaker's strategy can explain why some instantiations of object marking are not driven by semantic or syntactic features of the object per se, but by these features in relation to the features of the subject. In chapter 3 I will present an asymmetric speaker's model of bidirectional optimization, in order to account for this strategy of case-marking. Clearly not all instantiations of differential object marking can be explained in terms of recoverability, however. Towards the end of the chapter I will show how a language can develop a strategy to mark all and only prominent objects out of a strategy of ambiguity avoidance.

This latter strategy of mere prominence marking is further investigated in chapter 4. In the literature both animacy and definiteness/specificity are claimed to be features of the object that trigger case marking in differential object marking languages. Both features can be subsumed under the notion of prominence. Animate and definite/specific objects are more prominent than inanimate and indefinite/non-specific ones. I will argue, however, that animacy and definiteness/specificity each play a radically different role when it comes to differential object marking. While case-marking can change the hearer's interpretation of the definiteness or specificity of an object, it cannot change the animacy of the object. Thus, animacy features trigger case-marking but not the other way around. In chapter 4, I will argue that animacy takes priority over definiteness/specificity, in accordance with the general pattern that inherent features take priority over derived features.

Differential object marking, and hence the transitivity of a clause, is thus shown to be an interplay of two independent factors, recoverability and prominence marking.

Chapter 1

Introduction

In this chapter I provide a further introduction to the issues discussed in the chapters to come. First, I posit the central questions addressed in this thesis. Sections 1.1, 1.2, and 1.3 then give an overview of the discussion presented in chapter 2, 3, and 4 respectively.

Consider the following examples from Malayalam, a Dravidian language spoken in India:

MALAYALAM (Dravidian; Asher and Kumari 1997:203)

(1) *Avan oru pasuvin-e vanni.*
he a cow-ACC buy.PST
'He bought a cow.'

(2) *naan teeppa vanni.*
I coconut buy.PST
'I bought a coconut.'

From a semantic point of view these two sentences are very similar in that both report a buying event which took place in the past. Yet, from a morphosyntactic point of view the sentences differ crucially as only the direct object in (1) is marked with accusative case. This morphosyntactic difference between the two sentences results from the different nature of the objects involved in the buying event. The case marked object 'cow' in (1) represents an animate entity, the object without case marking 'coconut' in (2) an inanimate one. This semantic difference between the two objects results in a morphosyntactic difference between them. This contrast reflects a general rule in Malayalam, only animate, but not inanimate objects are marked with accusative case. The Malayalam pattern is

a reflection of a cross-linguistic phenomenon known as differential object marking (Bossong 1985; Aissen 2003).

These Malayalam examples illustrate nicely how a semantic difference can result in a morphosyntactic difference. At the same time, the contrast between (1) and (2) raises a number of questions. For instance, what is the formal status of the construction in (2), in which the direct object is not case marked? Given that accusative case on the direct object is often considered the hallmark of a transitive clause, we may conclude that (2) does not represent a transitive construction. This, however, is in conflict with the fact that it does express a semantically two-place predicate. A second question concerns the influence of animacy on the morphosyntactic alternation between (1) and (2). Why should animacy have this effect on morphosyntactic structure and why does this effect surface the way it does? The fact that the animate but not the inanimate object is overtly case marked awaits an explanation. Third, are there other semantic features of arguments which have an effect on morphosyntactic structure similar to that of animacy in Malayalam? If such features can be identified we may question to what extent they are similar to or different from animacy.

The three questions raised above represent the main issues with which this dissertation is concerned. The three chapters following on this introductory chapter each single out one of them. The recurrent theme of this dissertation is the relation between semantics on the one hand and morphosyntactic expression on the other. The semantic domain of investigation is confined to semantically transitive relations, which will be taken to be relations between two entities. In particular, the discussion will focus on the influence of semantic features of the object, such as animacy, on its mapping to morphosyntax.

1.1 Grades of Transitivity

The contrast between the Malayalam examples (1) and (2) above is problematic for a traditional definition of transitivity. In particular, it speaks against a clear-cut division between transitivity and intransitivity. From a semantic point of view the two examples represent transitive constructions, as in both cases we are dealing with the same two-place relation ‘buy’. The formal realization of the examples leaves room for discussion with respect to their transitive status. On the assumption that accusative case is the signal of direct objecthood, we must conclude that (1) has a direct object, and as a result should be considered transitive.

But what about example (2)? Should it be considered an intransitive

construction? Such an analysis seems problematic. Although the absence of accusative case on the postverbal noun phrase makes the construction different from a transitive one, at the same time the presence of this noun phrase makes the construction different from an intransitive one as well. As such, the contrast between (1) and (2) asks for a more fine-grained approach to transitivity, instead of the traditional categorical definition. I will discuss such an approach in chapter 2.

Much of the discussion in chapter 2 is devoted to the cognate object construction as it constitutes a prime example of a construction in which semantic and formal transitivity do not align. I will argue that the cognate object in English patterns like a direct object syntactically, while it semantically behaves like an adverbial. This means that in English there is a mismatch between the semantic and the syntactic status of the cognate object. This is corroborated by cross-linguistic evidence. In languages with a more transparent mapping from semantic transitivity to formal transitivity than English we do find that the cognate object is realized in a formally less-transitive construction.

By putting the English cognate object construction in a cross-linguistic perspective the questions it posits can be answered straightforwardly. An analysis of this construction in which the object semantically behaves like an adverbial and syntactically as a direct argument follows naturally if one takes into account that English is a language which shows a many-to-one mapping from semantic transitivity to formal transitivity. As a result, the semantically deviant status of the cognate object gets obscured in its morphosyntactic expression. Indeed, in languages with a more transparent, one-to-one, mapping from semantic transitivity to formal transitivity the morphosyntactic (adverbial) status of the cognate object does mirror its semantic status. The discussion of the English cognate object construction shows that a gradient approach to transitivity is a viable one, given that languages differ in the transparency of their mapping from semantic transitivity to formal transitivity.

1.2 Animacy and Ambiguity Avoidance

One of the central questions raised by the Malayalam examples at the beginning of this chapter concerns the influence of animacy on the case alternation on direct objects. Why should animacy have this effect on morphosyntactic structure? One explanation entertains the idea that overt case marking is used on animate objects in order to distinguish them from the subject argument in the clause, which shows a strong tendency to be animate. When both arguments are animate, confusion

may arise as to which argument is the subject of the sentence. This potential ambiguity of grammatical function does, however, not occur when the animate object is overtly marked or in case the direct object refers to an inanimate entity. In the latter situation, case marking is not needed to distinguish the subject from the object. This analysis of the use of overt case marking in terms of ambiguity avoidance is supported by further data from Malayalam, discussed in chapter 3.

Chapter 3 provides a discussion of morphosyntactic phenomena, like the use of overt case marking in Malayalam, which can be attributed to a need to avoid ambiguity of grammatical functions. This kind of ambiguity generally only occurs in sentences with two third person arguments, and animacy can be shown to play an important role here as it influences the assignment of semantic roles to arguments. Certain semantic roles typically select for animate arguments and others for inanimate arguments. In particular, semantic roles realized as the transitive subject show a preference for animate arguments and as a result the transitive subject generally turns out to be animate. In combination with the thematic information of a verb, the animacy of an argument can be used to determine the grammatical function of an argument. This is particularly relevant in languages which do not mark these functions by morphosyntactic means. Sometimes absence of such morphosyntactic marking can result in ambiguity. In chapter 3, I investigate strategies languages employ to avoid such potential ambiguities.

The various mechanisms used by different languages to minimize the chance of potential ambiguity of grammatical functions can be analyzed as mechanisms which minimize the costs of the interpretational process of such sentences. Due to the presence of these morphosyntactic mechanisms the hearer needs less effort to arrive at the correct interpretation of a sentence. Therefore, one should not only take into account the production perspective but also the interpretation perspective. I will argue in favour of a model in which the production of a sentence is constrained by its interpretation. If the speaker, by taking into account the hearer's perspective, realizes that the sentence he is about to utter will result in an ambiguous sentence he will decide to disambiguate it.

When we reconsider the initial Malayalam examples (1) and (2) above, we must conclude that such a hearer-sensitive model does not necessarily explain all uses of accusative case on objects in Malayalam. A sentence like (1) *he bought a cow* is very unlikely to result in ambiguity and as such the use of accusative case on the object is unexpected. In fact, all animate objects are marked with accusative case in Malayalam irrespective of potential ambiguity. I therefore assume that we can distinguish two strategies with respect to the case marking of direct object: one strategy

marks direct objects in order to avoid ambiguity, the other marks them because they are prominent. I will use the historical development of differential object marking in Spanish to show how these two strategies can be related to one another.

1.3 Prominence

The Malayalam examples in (1) and (2) show how animacy can influence the case marking of direct objects. Discussion in the previous section showed that the marking of animate objects is not necessarily due to ambiguity avoidance, but instead can be analyzed as being due to a principle which requires the marking of prominent arguments. In this light, consider the following two examples from Turkish:

TURKISH (Turkic; Kornfilt 2003:127)

- (3) *Ahmet dün akşam pasta-yı ye-di.*
 Ahmet yesterday evening cake-ACC eat-PST
 ‘Yesterday evening, Ahmet ate the cake.’
- (4) *Ahmet dün akşam pasta ye-di.*
 Ahmet yesterday evening cake eat-PST
 ‘Yesterday evening, Ahmet ate cake.’

Again we observe a pattern in which direct objects are differentiated with respect to overt case-marking. This time, however, the use of case marking on direct objects is not determined by animacy: the examples in (3) and (4) both have an inanimate direct object. Instead, the use of overt object-marking in Turkish is determined by the specificity of the object: only specific objects are marked with accusative case. Non-specific direct objects, by contrast, are left unmarked. This marking of specific objects cannot be analyzed in terms of ambiguity avoidance, but should be seen as an instantiation of the tendency to mark prominent direct objects.

In chapter 4, I investigate the influence of the prominence of arguments on their morphosyntactic realization. In particular, I discuss how animacy and definiteness/specificity contribute to the prominence of an argument and how these features relate to each other. When one compares the Malayalam examples in (1) and (2) on the one hand, with the Turkish examples in (3) and (4) on the other, one may get the impression that these two features influence overt case-marking in a similar way. I will, however, argue that the two features should be seen as fundamentally different from one another. More specifically, I argue that animacy can only *trigger* the occurrence of overt case marking. Definiteness/-specificity on the other hand can itself be determined by the occurrence

of overt case marking. That is, the occurrence of overt case on a direct object can result in a definite/specific interpretation. Moreover, I show that case marking can only be used to indicate the definiteness/specificity of a direct object, when it is not required by animacy. In particular, I argue that animacy takes priority over definiteness/specificity with respect to differential object marking.

This asymmetry between animacy and definiteness/specificity will be explained in terms of a fundamental difference between the two semantic features. Animacy is an inherent (lexical) feature of noun phrases which cannot be altered by case (or any other) marking. Nouns are, by contrast, not inherently specified for definiteness or specificity, but can be marked as such by means of articles or case marking. Thus, the observation that animacy takes priority over definiteness can be seen as an instantiation of a more abstract pattern in which inherent features take priority over contextually-derived features.

Let me end this introductory chapter with a few remarks about the concept of grammar adopted in this dissertation. I believe that most of the observations and claims put forward are compatible with a variety of frameworks. Nevertheless, in those cases where I present an explicit formal analysis of phenomena I adopt a model that is in line with what has been labelled functional Optimality Theory (cf. Aissen 1999, 2003; Bresnan and Aissen 2002, a.o.). In this model grammar is viewed as non-modular and consists of violable constraints that are (potentially) in conflict with each other and act in parallel. In chapter 3 I introduce a bidirectional version of this model in which both the speaker's and the hearer's perspective are integrated. I will not go into further details here, instead I introduce the relevant concepts when I need them.

Chapter 2

Gradient Transitivity

In this chapter, I show that a strict division between transitive and intransitive constructions cannot be maintained. Instead, I argue that transitivity should be seen as a gradient phenomenon with the result that clauses can be assigned different degrees of transitivity. This will be illustrated with differential object marking, where sentences with caseless objects are less transitive than those with case-marked ones. Furthermore, I argue that the relation between semantic and morphosyntactic transitivity is not necessarily one-to-one. That is, formally transitive constructions can correspond to semantically intransitive configurations and semantically transitive configurations can correspond to formally intransitive constructions. Moreover, languages differ in the way they relate semantic transitivity to formal transitivity. This will be illustrated with a case study of the cognate object construction in English. Whereas the cognate object semantically functions as an adverbial, syntactically it behaves like a direct object. English will be shown to differ from Russian in this respect, as in the latter language cognate objects syntactically behave like direct objects and hence exhibit a one-to-one relation between meaning and form.

2.1 Introduction

In his well-known article on ergativity Dixon writes that “all human languages classify actions into two basic types: those involving one obligatory participant, which are described by intransitive sentences, and those involving two obligatory participants, which are dealt with by transitive sentences” (Dixon 1979:102). True as it may be, this quote also raises some immediate questions. What does it mean for a sentence to be intransitive or transitive? What kind of morphosyntactic or semantic clues can help us to classify a sentence one way or the other? Can every sentence be classified as intransitive or transitive or do we need additional categories? Is it always the case that an action with one obligatory participant is real-

ized as an intransitive sentence and one with two obligatory participants as a transitive one, or do we also find mismatches? Is it possible, for instance, to express a two participant action as an intransitive sentence? If we indeed find such instances, do we find cross-linguistic variation in the way the semantics is related to the morphosyntactic expression of transitivity? These questions are central to the present chapter.

A very traditional way of defining the notion of transitivity is in terms of valency, i.e., the number of arguments a verb takes. The relation between these two notions can be seen from the following quote “[a] predicate is commonly said to be *transitive* if it has two arguments and *intransitive* if it has only one” (Bowers 2002:183, emphasis in original). In this section I take this traditional view as my point of departure, starting with the intransitive construction, and then moving on to the transitive one. Finally, I discuss a set of data that cannot readily be accommodated in terms of such a strict division between intransitivity and transitivity. I argue that instead these data require a more fine-grained set of distinctions.

2.1.1 Intransitivity

In terms of valency, intransitive verbs are verbs with a valence of one. Intransitive constructions consist of a subject and a predicate, examples of which are given in (1) and (2).

- (1) I walked.
 (2) John slept.

From a semantic point of view, intransitive predication constitutes the simplest form of (verbal) predication. In terms of predicate logic we can translate an intransitive construction as a one-place predicate, i.e., as the relation between a predicate and a single argument, cf. (3).¹ The translation of (2) above, leaving out the contribution of past tense, into

¹There is no one-to-one correspondence between logical predicates and English verbs. In predicate logic nouns and adjectives, for instance, are also treated as predicates as can be seen from the translations into predicate logic of the English sentences *John is tall* and *There is a blue vase*:

- (i) $\mathbf{tall}'(\mathbf{john}')$
 (ii) $\exists x(\mathbf{vase}'(x) \wedge \mathbf{blue}'(x))$

The treatment of adjectives and nouns as logical predicates is justified from a cross-linguistic perspective as there exist languages in which these categories behave as verbs. See Stassen (1997) for a detailed cross-linguistic study of intransitive predication.

predicate logic is given in (4).

(3) $P(x)$

(4) $\text{sleep}'(\text{john}')$

From the view of type theory an intransitive verb is analyzed as being of type $\langle e,t \rangle$, a function from entities e to truth values t , the basic types of type theory. In other words, a predication like *John sleeps* maps *John* to true if John is a member of the set of sleepers and to false if he is not.

Moving on to the morphosyntactic expression of intransitive constructions, we find that, if we restrict ourselves to non-pronominal subjects, a clear pattern emerges. A typical intransitive construction, as, for instance, exemplified by the English example in (2) above, consists of a subject noun phrase and a verb phrase (which in English may be more complex in case of a progressive form (*I am walking*) or a non-present tense (*John has slept*)).

Shifting our attention to the use of case marking in intransitive constructions in languages with overt case morphology, we find that typically the subject has a so-called unmarked case. That is, in a nominative-accusative language, exemplified by Latin in (5), nominative case is used and in an ergative-absolutive language, illustrated by Yup'ik in (6), absolutive case is used.

LATIN (Indo-European; Song 2001:143)

(5) *Puer labora-t.*
 boy.NOM work-3SG
 'The boy is working.'

YUP'IK (Inuit; Bok-Bennema 1991:2)

(6) *Arnaq yurar-tuq.*
 woman.ABS dance.IND.3SG
 'The woman dances.'

If we also take into account pronominal subjects, we find more variation between languages in the realization of intransitive constructions. This becomes clear when we compare the English example in (1) above with the following example from Italian.

ITALIAN (Romance)

(7) *(Io) dorm-o.*
 I sleep-1SG
 'I am sleeping.'

Where in English the overt expression of pronouns is obligatory, in a so-called pro-drop language like Italian pronouns can be omitted (a process which seems to be largely dependent on discourse considerations).² As a result an intransitive construction in these languages can consist of solely a verb (the same holds for head-marking languages in general, cf. Nichols 1986).

There are yet other sources of variation in markedness within the class of intransitive constructions. Additional morphosyntactic structure can be used in order to highlight some semantic contrast. To give one example, one of the semantic factors cross-linguistically influencing the morphosyntactic complexity of (intransitive) constructions is the notion of volitionality or control. A subject may have more or less control over the action he is performing or he may be acting in a more or less volitional manner. Sometimes these differences in control and volitionality result in a different marking of the subject noun phrase, as is the case in the examples from Bats in (8).

BATS (Caucasian; Holisky 1987:105)

- (8) a. *As wože.*
 I.ERG fell
 'I fell.' (It was my own fault that I fell down)
- b. *So wože.*
 I.ABS fell
 'I fell.' (No implication that it was my fault)

Alternatively, differences in control or volitionality result in a different marking on the verb, as shown in the examples from Thompson in (10).

THOMPSON (Salish; Thompson and Thompson 1992:55)

- (9) a. *X^wesít.*
 walk
 'He walks.'
- b. *X^wesit-nwéłn.*
 walk-NC
 'He managed to walk.'

Bats is a so-called fluid-S language in which the subject of an intransitive verb can change its marking depending on semantic features such as control and volitionality (see, e.g., Dixon 1994 for discussion of this

²Pronounless constructions are possible in English as well, as is demonstrated by the use of imperatives such as *walk!*, *sleep!*, etc.. Other examples of pronounless constructions in English can be found in 'diary language', e.g., *slept for hours*, *walked through town*, etc..

phenomenon).³ In Bats we clearly see that the marking of an intransitive subject which is in control follows the marking of the transitive subject by taking ergative case, cf. (8a). Intransitive subjects which are not in control take absolutive case following the marking of the transitive object, cf. (8b).

In the Thompson Salish examples we find something similar. The Salish languages are well-known for having a range of devices to mark the control a subject has over the action he performs (see Thompson 1986 for a discussion of control marking in Salish and how it differs from the notion of control and volitionality in other languages). If we compare example (9a) with (9b) we see that only the latter is marked with the suffix *-nwéłn* which indicates that the subject did perform the action denoted by the verb but that it took a certain amount of effort.

The examples in (8) and (9) present us with one way in which intransitive constructions can exhibit variation in their formal markedness. One could easily provide many more examples, but they will not be given here. Instead, I move on to the discussion of transitive constructions.

2.1.2 Transitivity

As opposed to intransitive verbs, which have a valence of one, transitive verbs have a valence of two. Apart from a subject such verbs also take a direct object. The contrast between the two constructions is illustrated by the examples below, the first one being transitive, the second one intransitive.

(10) Ernie tickled Bert.

(11) Bert laughed.

Semantically, transitivity is often characterized as an activity which is carried over or transferred from an agent to a patient (cf. Hopper and Thompson 1980:251). From the point of view of predicate logic, a transitive verb denotes a relation between two entities, i.e., a two-place relation, cf. (12). A translation of (10) into predicate logic is given in (13).

(12) $R(x,y)$

(13) $\text{tickle}'(\text{ernie}',\text{bert}')$

³Fluid-S languages contrast with so-called split-S languages in which the marking of the intransitive subject varies depending on the verbal lexeme, which often roughly follows the distinction between verbs taking an agent argument and verbs taking a patient argument (see Dixon 1994 for further discussion).

In terms of type theory a transitive verb denotes a function from entities to a function from entities to truth values, that is, a transitive verb is of type $\langle e, \langle e, t \rangle \rangle$. Another way of expressing this is to view a transitive verb as a function from entities to intransitive verbs which illustrates the complexity of transitive verbs over that of intransitive verbs. A sentence like *Ernie tickled Bert* is true if *Ernie* is an element of the set of entities that tickled *Bert*, otherwise it is false.⁴

If we now turn to the morphosyntactic realization of such transitive relations we find that some languages overtly mark transitive verbs for their transitivity. This in contrast to a language like English in which the only difference between intransitive and transitive constructions lies in the addition of a direct object noun phrase. In the Salish languages, a transitive verb is overtly marked with a transitivizer, which is suffixed to the verbal root. This difference between intransitive and transitive verbs is illustrated by examples (14) and (15) from Halkomelem, a Coast Salish language.

HALKOMELEM (Salish; Gerdts 1988:43)

(14) *Ni ʔiməš-(*ət) ɬə sɬéniʔ.*

AUX walk-TR DET woman
'The woman walked.'

(15) *Ni qʷáqʷ-*(ət)-əs tʰə swəyʔeʔ tʰə spéʔəθ.*

AUX club-TR-3.SU DET man DET bear
'The man clubbed the bear.'

The suffix *-t* indicates that the verb is used as a transitive verb. The intransitive verb in (14) resists this transitivizer, whereas it is obligatory for the transitive verb in (15). The contrast between these examples shows that in these languages intransitive verbs are less complex than transitive ones.⁵

In many languages the difference between intransitive and transitive constructions is reflected in the use of case marking. We find that lan-

⁴Another way of formulating this is by saying that the (ordered) pair $\langle \text{ernie}, \text{bert} \rangle$ is an element of the set $\{ \langle x, y \rangle \mid x \text{ tickled } y \}$.

⁵This statement is in need of qualification. Within the class of intransitive verbs we should make a distinction between unaccusative and unergative verbs. As argued by Davis (1997) Salish languages can be characterized as *deeply unaccusative*. This claim is based on the fact that both unergative and transitive verbs are morphologically derived from unaccusative verbs by means of suffixation. In other words, we can say that in these languages unaccusative verbs are less complex than both unergative and transitive verbs. A similar situation is found in some unrelated Finno-Ugric languages, as shown by Kalinina et al. (2006). This is in line with the approach to argument structure advocated in Hale and Keyser (1993) among others. See also section 2.2 for further discussion.

guages most frequently entertain one of the two possibilities in extending the case-marking pattern found in intransitive constructions. If the case-marking pattern used for intransitive subjects is extended to also cover transitive subjects, and direct objects are marked with a different case, we speak of a nominative-accusative system, as exemplified by Latin in (16). If, on the other hand, the case marking used for intransitive subjects is extended to cover the direct object of a transitive verb, and at the same time the transitive subject is marked with a different case, we speak of an ergative-absolutive system. The latter system is exemplified in (17) with examples from Yup'ik.

LATIN (Indo-European; Song 2001:143)

- (16) a. *Puer labora-t.*
 boy.NOM work-3SG
 'The boy is working.'
 b. *Magister puer-um lauda-t.*
 teacher.NOM boy-ACC praise-3SG
 'The teacher praises the boy.'

YUP'IK (Inuit; Bok-Bennema 1991:2)

- (17) a. *Arnaq yurar-tuq.*
 woman.ABS dance.IND-3SG
 'The woman dances.'
 b. *Angut-em tangrr-aa arnaq.*
 man-ERG see.IND-3SG.3SG woman.ABS
 'The man sees the woman.'

In an accusative/ergative language the NOM-ACC/ERG-ABS case frame is most often used for the realization of a semantically two-place relation. Accordingly, some authors have labelled them transitive case frames (e.g., Tsunoda 1981, 1985). We do, however, also find deviations from these transitive case frames. For instance, in many languages dative case is used for experiencer subjects to contrast them with agent subjects which receive nominative or ergative case (see, for instance, the contributions to Bhaskararao and Subbarao 2004). Returning to the notion of volitionality, discussed for intransitive verbs in the previous section, we also find transitive constructions in which the marking of the subject changes when it is more or less volitional. A good example is the so-called 'involuntary agent construction', which is attested in many languages (Kittilä 2005), and demonstrated below with examples from Lezgian.

LEZGIAN (Caucasian; Haspelmath 1993:292)

- (18) a. *Zamira-di get'e xana.*
 Zamira-ERG pot.ABS broke
 'Zamira broke the pot.'
 b. *Zamiradi-waj get'e xana.*
 Zamira-ADEL pot.ABS broke
 'Zamira broke the pot by accident, involuntarily.'

The examples in (18) show a clear difference in the marking of the subject of the transitive construction. In (18a) the subject is marked with ergative case whereas in (18b) it shows up with adelative case. A concomitant change in meaning can be observed, in (18a) the subject is interpreted as performing the action of breaking volitionally in contrast to (18b) in which the subject performs the action in an involuntary manner. As with intransitive verbs, discussed in the previous section, the degree of volitionality of the subject can be marked on the verb in transitive constructions as well. This is illustrated by the following examples from Lhasa Tibetan:

LHASA TIBETAN (Tibetan; DeLancey 1984 via Kittilä 2002)

- (19) a. *ŋa-s dkaryol bcaq-pa-yin.*
 I-ERG cup break-PF-VOL
 'I broke the cup purposefully.'
 b. *ŋa-s dkaryol bcak-soŋ.*
 I-ERG cup break-PF.INVOL
 'I broke the cup accidentally.'

The examples in (19) essentially express the same opposition as the ones in (18). The main difference lies in the fact that in Lhasa Tibetan the difference in volitionality is expressed on the verb by means of volitionality markers and not through case marking, as the subject is marked with ergative case in both sentences. As with intransitive constructions we find much variation in the marking of transitive constructions, but I will not venture deeper into this here.

2.1.3 (In)transitivity

Up to now I have given a rather simplistic view of the differences between intransitive and transitive constructions. As we have seen, the difference between the two can be conceived of as a difference in valency. Intransitive verbs take only one argument which shows up as the subject, and transitive verbs take two arguments, one showing up as the subject the other as the direct object. But how strong is this correlation between the absence/presence of a direct object and (in)transitivity?

In the remainder of this section I want to present some test cases to examine the validity of this proposed correlation. The main questions I want to address are the following two: (i) is a direct object a necessary ingredient in order for a construction to be classified as transitive or do we find transitive constructions without a direct object?; (ii) does the presence of a direct object automatically entail we are dealing with a transitive construction or do we find constructions with a direct object which should still be considered intransitive? These two questions can be approached and answered from both a syntactic and a semantic point of view. Most importantly, the answers to these questions can shed some light on the relation between form and meaning. If we make a semantic distinction between one-place predicates and two-place predicates, will the first always be realized as a syntactically intransitive construction and the second as a transitive one? Or may it be the case that we find variation, that is, a one-place predicate can also be realized as a transitive construction and a two-place predicate as an intransitive one? In the first case, the relation between semantic and morphosyntactic transitivity can be considered a one-to-one relation. If, on the other hand, the second scenario holds, we have to treat this relation as asymmetrical.

Consider a verb like *kill* which is often treated as a prototypical transitive verb as the action indicated by the verb involves a clear individuated agent and patient (see, e.g., Tsunoda 1985). In principle, we might expect this verb always to occur with a direct object. An example of such a transitive use is given in (20).

(20) The bear killed a sheep.

Now consider the following (real-life) scenario. In the spring of 2006 a bear, named Bruno by the media, coming from the Italian Alps made his way through the southern part of Germany killing sheep and other farm animals. Day after day news reports reported killings made by the bear.⁶ In such a situation one could have uttered the following:

(21) Last night the bear killed again.

This example shows that given the right discourse, even a strongly transitive verb such as *kill* can occur without a direct object, i.e., in a formally intransitive construction (see Goldberg 1995 for the original tiger-example and further discussion). Due to the absence of a direct object the occurrence of *kill* in (21) should be considered an intransitive use, despite the fact that on the semantic level the construction has to be consid-

⁶Eventually, Bruno was shot dead in the early morning of June 26, 2006.

ered transitive. In order to perform the act of killing there has to be a participant involved that was alive before the killing event and dead afterwards. In other words, in (21) we are still dealing with a semantically transitive event despite its intransitive formal realization. This example clearly shows that there is not a necessary one-to-one correspondence between semantic and formal transitivity. The phenomenon in (21) is much discussed in the literature and sometimes referred to as *indefinite object deletion* (cf. Mittwoch 1982; Goldberg 1995; Næss 2004a).

Not only do we find semantically transitive verbs realized in an intransitive fashion, we also find constructions in which an alleged intransitive verb occurs with something which looks like a direct object. This is the case in the so-called cognate object construction. Cognate objects are objects whose head noun is the event or state nominalization of the verb. Furthermore, it is possible, but not necessary that the object NP shares its morphological root with the main verb. These cognate objects can occur with verbs that normally do not take a direct object, that is, with intransitive verbs. This seems to be the most common scenario cross-linguistically. Consider the examples from Latin in (22) and (23):

LATIN (Indo-European; Sall., *Cat.* IX,4; Plaut., *Ps.* 525)

(22) *In hoste-m pugna-v-erunt.*
 in enemy-ACC fight-PF-3PL
 ‘They have fought against the enemy.’

(23) *Ista-m pugna-m pugna-b-o.*
 that-ACC fight-ACC fight-FUT-1SG
 ‘I will fight that fight.’

The Latin verb *pugnare* ‘to fight’ normally only takes prepositional complements like *in hostem* ‘against the enemy’ in (22). However, in (23) an accusatively marked noun phrase *istam pugnam* ‘this fight’ occurs with this verb. Cognate objects are also found with verbs that normally take only one direct complement, i.e., transitive verbs. This is not only found in Latin but also, for instance, in Arabic and Ancient Greek. The example in (24) is from Arabic.

ARABIC (Arabic; Lazard 2003b:8)

(24) *Yafhamu l-’adab-a fahm-an ’amîq-an.*
 he.understand the-literature-ACC understanding-ACC deep-ACC
 ‘He has a profound understanding of literature.’ (lit. he understands the literature a profound understanding)

The Arabic verb for ‘understand’ normally takes as its direct object only

that entity of which the subject has understanding. In (24) we see that the verb can take a second accusatively marked complement, which in this case expresses the degree to which the person in question has understanding of literature.

Cognate objects provide us with another example on the basis of which we might consider the relation between semantic and formal transitivity to be asymmetric in nature. The present asymmetry proceeds in the opposite way from the asymmetry observed above in the case of indefinite object deletion. It can be argued that in the case of the cognate object construction in (23) the formal construction is transitive due to the occurrence of the cognate object whereas on the semantic level it is intransitive as it represents a one-place predicate. Likewise in the case of example (24), where we have a semantically two-place relation which is morphosyntactically realized as a construction with two direct objects. The exact relation between semantic and formal transitivity in the cognate object construction is more complicated than can be done justice here. I will therefore return to this issue in section 2.4.

In the phenomena discussed so far I have observed an asymmetry between formal and semantic transitivity. Either a semantically transitive configuration was realized as a formally intransitive construction or a semantically intransitive configuration was realized as a formally transitive construction. There are also situations which pose interesting questions concerning the relation between formal and semantic transitivity but in which a profound asymmetry as discussed above is absent. In these phenomena a change in the referential properties of one of the participants correlates with a change in the formal realization of the construction. We have already seen such situations above in the discussion of volitionality and its effects on morphosyntactic expression. In the above discussion, however, I have focused on the variation in marking due to the semantics of the subject, the argument shared by transitive and intransitive constructions. In the following discussion I focus solely on the influence of changes in the referential properties of direct object arguments on the formal structure, as direct objects have been considered a defining formal characteristic of transitivity.

Differential object marking, introduced in the previous chapter (see also chapters 3 and 4), is a prime example of a phenomenon in which the referential features of a direct object influence its formal realization. Bossong (1991) reports that over 300 languages in the world are known to exhibit some sort of differential object marking system. The referential properties involved differ from one language to the other but two recurrent dimensions are animacy and definiteness/specificity. Hebrew, for instance, is a language in which only definite objects receive the ac-

cusative marker *'et*, indefinite objects stay unmarked.

HEBREW (Semitic; Aissen 2003:453)

(25) *Ha-seret her'a 'et-ha-milxama.*

the-movie showed ACC-the-war

'The movie showed the war.'

(26) *Ha-seret her'a (*'et)-milxama.*

the-movie showed ACC-war

'The movie showed a war.'

In example (25) the object *milxama* 'war' occurs with the definite article *ha* and consequently is marked with the object marker *'et*. In (26) the object occurs without a definite article and as a result use of the object marker leads to ungrammaticality. Differential object marking presents an interesting case for the relation between semantic and formal transitivity. From a semantic point of view the two examples differ in the referential status of the direct object, definite versus indefinite, but arguably both constructions are semantically transitive, as in both cases we are dealing with a two-place relation.

The formal realization leaves room for discussion with respect to its transitivity. Judging from the number of noun phrases both examples are equally transitive. There is, nevertheless, a difference in the encoding of the object noun phrases in the two examples, i.e., the presence vs. absence of *'et*, which may point to a difference in transitivity. On the assumption that (in this language) accusative case is a signal of direct objecthood, we must conclude that only (25) but not (26) has a direct object, and that as a result only (25) should be considered transitive. The consequence of this view is that in (26) the relation between semantic and formal transitivity is asymmetrical, i.e., a semantically two-place relation is realized as an intransitive construction. Although we have seen that such an asymmetrical relation is not uncommon in language, we can question whether it is the right analysis for the present example. The problematic aspect is the treatment of (26) as an intransitive construction. The fact that the postverbal noun phrase does not receive accusative case makes the construction different from a transitive one, but at the same time it is the presence of this noun phrase that makes the construction different from an intransitive one as well. Hence, example (26) does not so much seem to advocate against a one-to-one relation between semantic and formal transitivity but more so against a black-and-white contrast between intransitivity and transitivity.

A phenomenon related to differential object marking is that of object incorporation. In an object incorporation construction the direct object

argument is not constructed syntactically as a separate entity but is included in the predicate instead. Compare the following two examples from West-Greenlandic.

WEST-GREENLANDIC (Inuit; Van Geenhoven 1998a:232)

(27) *Nuka-p iipili neri-v-a-a.*
 N.-ERG apple.ABS eat-IND-3SG-3SG
 ‘Nuka ate the/a particular apple.’

(28) *Nuka iipili-tur-p-u-q.*
 N.ABS apple-eat-IND-INTR-3SG
 ‘Nuka ate an apple/apples.’

We can observe two differences between the two examples in (27) and (28). When we consider the form, (27) shows an ergative-absolutive transitive construction with two independent noun phrases. In (28), on the other hand, the object is not expressed as an independent noun phrase but rather as a part of the predicate. Furthermore, the morphology has shifted from transitive in (27) to intransitive in (28).⁷ Given its morphosyntactic realization, the West-Greenlandic incorporation construction has to be considered intransitive on structural grounds. But what about its semantic transitivity? Is it the case that only (27) should be analyzed as a semantically two-place relation whereas (28) should be considered to be intransitive at the semantic level? As in the case of the Hebrew differential object marking example, we can observe a difference in the semantic interpretation of the object when we compare (27) to (28). In (27) the O-argument is referential whereas in (28) this is not the case. The absence of case in Hebrew and the use of noun incorporation in West-Greenlandic do not seem to be due to the fact that they express a semantically intransitive construction, but instead they seem to be correlated with the referential feature of the patient argument.⁸

⁷West-Greenlandic has two verbs which can express the meaning ‘to eat’ (see, e.g., Van Geenhoven 1998a:240-243). One is the incorporating verb *-tur-* ‘to consume’, illustrated in (28), which depending on the incorporated noun can mean ‘to drink’ or ‘to eat’. The other is the non-incorporating verb *neri-* ‘to eat’, illustrated in (27).

⁸Baker (1996) notes that not in every language with object incorporation does this process occur with such differences in interpretation of the object NP. In particular, these meaning differences seem to be absent in (most) polysynthetic languages. For instance, Baker (1996:287-291) shows that in Mohawk (Iroquoian) “incorporated nouns can have the full range of interpretations of any other nominal, except for those associated with focal stress” (Baker 1996:291). Furthermore, he shows that in some languages the incorporation construction remains transitive as witnessed by verbal agreement with the object argument (see also Baker et al. 2004 for discussion). These cross-linguistic differences point to the fact that different languages may show different types of object incorporation (see Mithun 1984 for an overview of such types and Baker

Indeed, Van Geenhoven (1998b) presents a semantic analysis of object incorporation in West-Greenlandic in which the incorporated object is semantically still an argument of the verb, although of a different semantic type than a non-incorporated object. That is, we are still dealing with a semantically transitive configuration in (28). More specifically, Van Geenhoven (1998b) argues that not only at the morphological level does the object get incorporated but also at the semantic level. In her framework an incorporating verb is of the semantic type $\langle\langle e,t\rangle,\langle e,t\rangle\rangle$ and an incorporated object of the semantic type $\langle e,t\rangle$, resulting in a VP of type $\langle e,t\rangle$ when the verb takes the object as its argument.⁹

This shows that in West-Greenlandic a formally intransitive construction can correspond to a semantically transitive configuration.¹⁰ Furthermore, it shows that we should allow for different characterizations of semantic transitivity instead of a strict division between intransitive and transitive.

Although the above discussion is somewhat simplified it has made clear two important points. First, it has been shown that the relation between semantic and morphosyntactic transitivity is not necessarily a one-to-one relation. That is, formally transitive constructions can correspond to semantically intransitive configurations, as for instance in the case of the cognate object construction, and at the same time semantically transitive configurations can correspond to formally intransitive constructions, as in the case of indefinite object deletion and object incorporation. Secondly, the discussion has made clear that the distinction between intransitivity and transitivity is not as strict as has often been assumed, as there exist inbetween configurations both on the syntactic and on the semantic level, cf. the phenomena of differential object marking and object incorporation.

In the next two sections I turn to theoretical approaches to transitivity. First, I discuss the representation of transitivity in the structural framework of generative grammar (section 2.2). I then argue that we

1996:19-20 for the defining characteristics of true noun incorporation).

⁹Van Geenhoven (1998b) phrases her approach in an intensional semantics. In her framework the lexical meaning of an incorporating verb can be represented as in (i) and that of a regular (non-incorporating) transitive verb as in (ii) (Van Geenhoven 1998b:132):

(i) $\lambda P_{\langle s, \langle e, t \rangle \rangle} \lambda w_s \lambda x_e \exists y [\text{Verb}_w(x, y) \wedge P_w(y)]$

(ii) $\lambda w_s \lambda x_e \lambda y_e [\text{Verb}_w(x, y)]$

¹⁰This view is, for instance, also defended in Baker (1988) who argues that “verbs with incorporated objects in . . . Eskimo are morphologically (*although not semantically* or syntactically) intransitive” (Baker 1988:126, emphasis added).

need a more gradient view on transitivity as for instance developed in functional-typological approaches (section 2.3). In section 2.4, I show how such a gradient view on transitivity can be applied to the English cognate object construction.

2.2 Transitivity in Generative Grammar

Transitivity plays an important role in many of the (formal) syntactic theories out on the market today. The present section cannot and, more importantly, does not want to provide a full overview of approaches to transitivity in syntactic theory in general. Instead it presents a discussion of a single framework, that of Chomskyan generative grammar, as a test bed for the implementation of the intransitive-transitive distinction in a structural framework.

In the previous section I have argued that intransitive verbs are less complex than transitive verbs as the former in contrast to the latter only take one argument, i.e., the subject. If we are going to implement this distinction between the two types of verbs in a structural framework we would expect that transitive verbs end up structurally more complex than intransitive verbs. When we consider the development of the notion of transitivity in Chomskyan generative grammar, we will see this prediction is borne out by and large.

Chomsky (1965) argues that transitivity should be represented as a contextual feature. That is, if we consider the subcategorization of verbs as context-sensitive rules, then the contextual feature [+_{NP}] indicates that a verb is transitive and [+_#] that a verb is intransitive. In other words, the classification of verbs into the two classes is based on the presence of a direct object. In this sense it resembles the simple view of transitivity as presented at the very beginning of this chapter. This specific formulation of the distinction between intransitive and transitive verbs has been challenged by many authors, on different grounds (see, for example, Gazdar 1982 on word order variation, and Amritavalli 1979 on the relevance of transitivity for transformational rules instead of lexical insertion only). But what is most important to the present discussion is that instead of relating transitivity to the presence of a direct object more recent proposals have argued that it is not the object but rather the subject which is of importance for the notion of transitivity. For instance, Hoekstra (1984) claims that “a more sensible classification of verbs could be made in terms of the property of selecting a Θ -subject. The traditional class of intransitives can be divided into two subclasses, one of which displays the properties of transitives, while the other share[s] its properties

with passives of traditional transitives. I suggest that transitivity is regarded no longer as a property of combining with an NP to form a VP (or rather V'), but rather as having an external Θ -role" (Hoekstra 1984:227). The thematic role that is assigned to the subject is usually referred to as an 'external' role because it is assigned to an argument outside the VP (cf. Williams 1981). An external thematic role is written as ' Θ '.

Hoekstra, thus, proposes to change the traditional classification based on subcategorization as shown in (29) into a classification based on the presence of an external thematic role as shown in (30) for some Dutch verbs.¹¹

- (29) Verb classification based on subcategorization:
- intransitive: [V' --]
 examples: *lachen* 'laugh', *sterven* 'die', *breken*
 'break' (non-causative)
- transitive: [V' NP --]
 examples: *doden* 'kill', *breken* 'break' (causative),
opvallen 'strike'
- (30) Verb classification based on external theta roles:
- intransitive: no Θ -subject
 examples: *sterven* 'die', *breken* 'break' (non-causative), *opvallen* 'strike'
- transitive: Θ -subject
 examples: *doden* 'kill', *lachen* 'laugh', *breken* 'break'
 (causative)

As the examples above show, some verbs, e.g., *lachen* 'laugh', which were classified as intransitive under the subcategorization approach are classified as transitive under the external subject approach in (30). At the same time other verbs, e.g., *opvallen* 'strike', which were classified as transitive are now classified as intransitive. Hoekstra claims that there is no relation between semantic and formal transitivity: "I claim that the logical nature of the predicate [i.e., being one-place or two-place] that is expressed by a particular verb is not a relevant property from a linguistic point of view" (Hoekstra 1984:227). The intransitive verbs that are classified together with transitive verbs are the so-called unergative verbs, whereas the class of intransitive verbs in Hoekstra's classification corresponds to

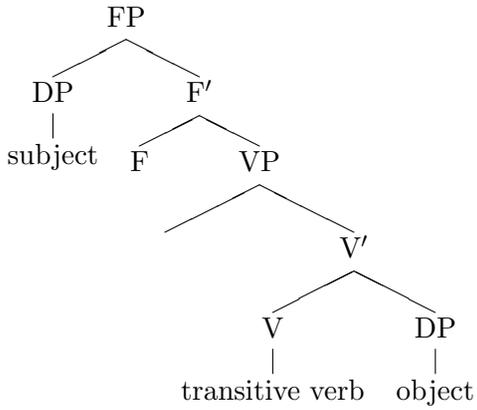
¹¹Example (29) corresponds to Hoekstra's example (223) and (30) to his (224). The ordering [V' NP --] for transitive verbs in (29) reflects the fact that Dutch, in contrast to English, has a head-final VP.

the class of unaccusative verbs. As noted by Hoekstra evidence for this split within the class of intransitives is based on their linguistic behavior. Unergative verbs often share properties with transitive verbs. In Dutch, for instance, transitive verbs and unergative verbs select the same perfective auxiliary *hebben* ‘to have’ whereas unaccusative verbs select *zijn* ‘to be’ (cf. Perlmutter 1978; a similar situation is found in Italian, as is well-known from Burzio 1986). Furthermore, we find languages in which unergative verbs surface as transitive constructions with a direct object, similar to transitive verbs, as is the case in Basque (Levin 1989). As we will see in section 2.4, the cognate object construction, introduced above, occurs much more readily with unergative verbs than with unaccusative verbs, which is often taken to be an argument for the higher transitivity of the former class of verbs. In fact, Hale and Keyser (1993) assume that unergative verbs are derived from underlying transitive verbs with an incorporated cognate object.

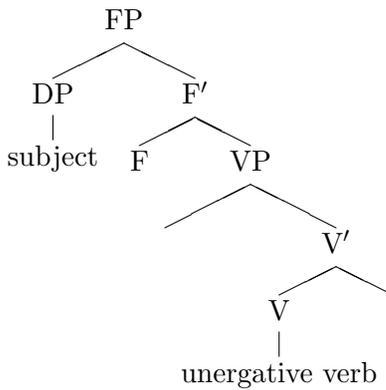
The observation that transitivity should not be equated with the presence of a direct object but rather with properties of the subject also made its way into recent formulations of the generative framework as proposed in Chomsky (1995) and related literature. In most accounts the external subject is positioned in a special functional projection (but see Horvath and Sioni 2002). As Bowers (2002) reports “[c]urrent minimalist accounts of argument structure all share the assumption that there is a functional category between T and V that has the following two correlate properties: (a) its specifier contains the external argument of transitive and unergative sentences; (b) its head contains a probe with object agreement features” (Bowers 2002, footnote 1). This functional projection comes in many guises depending on the author as the following non-exhaustive list shows: *vP* (Chomsky 1995), *VoiceP* (Kratzer 1993), *TrP* (Collins 1997), *Pr(ed)P* (Bowers 1993). Several authors (e.g. Ramchand 1997; Ritter and Rosen 2001) have argued that this functional projection is realized as an aspectual projection *AspP*.

The examples in (31)-(33) provide the tree structures corresponding to the three types of verbs, transitive, unergative, and unaccusative respectively (where FP indicates the functional projection associated with the external subject):

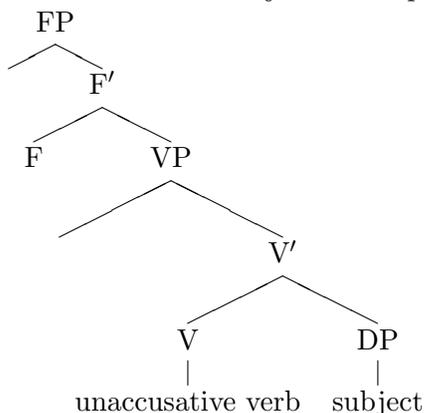
- (31) **Transitive:** subject in specFP, object in complement of V (e.g. *kill*)



- (32) **Unergative:** subject in specFP (e.g. *laugh*)



(33) **Unaccusative:** subject in complement position of V (e.g. *fall*)



The above structures show that transitive and unergative verbs share the property of having a subject argument in the specifier of the functional projection. Furthermore, transitive verbs also have an object in the complement position of V. Unaccusatives only have a subject argument in the complement position of V (which subsequently raises to a higher position in the structure). It should be noted that there exists some disagreement about the precise realization of the functional projection above the VP containing unaccusative verbs. I have drawn it here as a full-fledged functional projection, but some would consider it to be a functional projection lacking a specifier position, whereas others would argue that there is no functional projection at all with these verbs. Irrespective of one's preference in this matter, the characteristic which sets unaccusative verbs apart from transitive and unergative verbs is their VP-internal subject.

As for their complexity, the structures show that it is not simply the case that intransitive verbs are less complex than transitive verbs but that we also have to make a distinction within the class of intransitives, where unergative verbs arguably are more complex than unaccusative ones (see also footnote 5). In this framework, there is a strict structural division between the three different kinds of verbs, and variations in the surface transitivity of a sentence have to be related to a structural difference. For instance, the differential object marking pattern observed in Hebrew and discussed above can be analyzed by having the definite object move out of the VP where it gets assigned accusative case and leaving the indefinite object in a caseless position inside the VP. Likewise, structural

	Parameter	high	low
A.	Participants	2 or more, A and O	1
B.	Kinesis	action	non-action
C.	Aspect	telic	atelic
D.	Punctuality	punctual	non-punctual
E.	Volitionality	volitional	non-volitional
F.	Affirmation	affirmative	negative
G.	Mode	realis	irrealis
H.	Agency	A high in potency	A low in potency
I.	Affectedness of O	O totally affected	O not affected
J.	Individuation of O	O highly individuated	O non-individuated

Table 2.1: Hopper and Thompson's (1980) transitivity parameters

explanations can be provided for other transitivity alternations, although perhaps not with equal ease for every (semantic) feature involved in such alternations. In particular, argument features such as volitionality and animacy do not have a straightforward position in such an approach. In the next section, I turn to a discussion of semantic features which have been argued to influence the transitivity of a clause and I discuss a (non-structural) gradient approach to transitivity.

2.3 Transitivity As a Gradient Phenomenon

2.3.1 Hopper and Thompson (1980)

The study of transitivity and related phenomena has a long history in the typological literature and made enormous headway due to the contribution of Hopper and Thompson (1980). After having studied the grammars of a number of languages these authors concluded that transitivity should be regarded as a complex notion which is determined by the parameters listed in Table 2.1.¹² On the basis of these parameters a sen-

¹²Independently of Hopper and Thompson (1980), Tsunoda (1981) developed a multifactorial account of transitive encoding based on similar parameters as the ones proposed by Hopper and Thompson. Tsunoda (1981) formulates the so-called *Effectiveness Condition* (EF-CON) a measurement of the degree to which the action described by the verb is transferred from the agent to the patient. The degree of satisfaction of the EF-CON is determined by parameters such as the impingement of the action on O, O-individuation, completeness of the verbal action, actuality and telicity of the event. The degree of satisfaction of the EF-CON determines the degree of transitivity encoding of a two-argument clause. With the EF-CON Tsunoda wants to describe not only transitivity alternations, where the same verb takes alternative case frames depending on the properties of the clause (tense, aspect, mood (TAM) properties) but also verb splits, in which different classes of verbs select different case frames. He ar-

tence can be qualified as more or less transitive. In other words, Hopper and Thompson argue that transitivity should be viewed as a gradient or scalar phenomenon: the more features a sentence has in the high column the more transitive it should be regarded to be and the more marking for transitivity we should expect. That is, a sentence that scores high on all parameters listed in the table should show more marking for transitivity than one that scores low on all parameters. As this table shows, transitivity in this view involves much more than only the presence of an object to the verb. With respect to the interaction of the transitivity parameters Hopper and Thompson introduce the notion of *co-variation*. As they state “we find that these component features of Transitivity CO-VARY extensively and systematically . . . whenever an obligatory pairing of two Transitivity features occurs in the morphosyntactic or semantics of a clause, THE PAIRED FEATURES ARE ALWAYS ON THE SAME SIDE OF THE HIGH-LOW TRANSITIVITY SCALE” (Hopper and Thompson 1980:254; emphasis in original). This notion of co-variation is reflected in their Transitivity Hypothesis:

Hopper and Thompson’s Transitivity Hypothesis:

If two clauses (a) and (b) in a language differ in that (a) is higher in Transitivity according to any of the features A-J, then, if a concomitant grammatical or semantic difference appears elsewhere in the clause, that difference will also show (a) to be higher in Transitivity. (Hopper and Thompson 1980:255)

Let me illustrate this hypothesis by reconsidering the differential object marking examples from Hebrew discussed above (examples (25) and (26)), repeated as (34) and (35) for convenience.

HEBREW (Semitic; Aissen 2003:453)

(34) *Ha-seret her’a ’et-ha-milxama.*
the-movie showed ACC-the-war
‘The movie showed the war.’

(35) *Ha-seret her’a (*’et)-milxama.*
the-movie showed ACC-war
‘The movie showed a war.’

On the morphosyntactic level the two sentences differ in the absence and presence of the object marker *’et*. On the semantic level this morphosyn-

gues that TAM splits and verb splits are “fundamentally no different from each other, their semantics and case-marking mechanisms involving common principles” (Tsunoda 1981:391).

tactic difference is accompanied by a difference in the definiteness of the object *milxama* ‘war’: in (34) the object is definite, in (35) it is indefinite. Given that definiteness contributes to the individuation of the object in that definite objects are more individuated than indefinite objects, (34) scores higher on the individuation parameter (parameter J) than does (35). As a result, the former is higher in transitivity than the latter. In accordance with the Transitivity Hypothesis, the morphosyntactic difference between the two sentences, i.e., the presence/absence of accusative case, also shows (34) to be higher in transitivity than (35). In this way Hopper and Thompson’s framework provides an account of the relation between semantic and formal transitivity.

Hopper and Thompson present a large amount of cross-linguistic data to support their view that transitivity should be regarded as a continuum. Their view inspired many authors but has also been criticized.

Strikingly, in the view presented by Hopper and Thompson a sentence with two participants may rate lower on the transitivity scale than a clause with a single participant. That is, the distinction between intransitivity and transitivity has disappeared in their framework. Hopper and Thompson (1980:254) illustrate this with the following two English examples.

- (36) Susan left.
Kinesis: action
Aspect: telic
Punctuality: punctual
Volitionality: volitional
- (37) Jerry likes beer.
Participants: two

For the parameters on which they differ, the intransitive sentence in (36) scores high on four of the transitivity parameters. This in contrast to the transitive example in (37) which scores high on only one parameter. This means that the intransitive construction should be considered to be higher in transitivity than the transitive one. The authors themselves seem perfectly at ease with this consequence of their view. Other authors, however, have expressed their doubts about it. Kittilä (2002:118) for instance writes “[u]nlike Hopper and Thompson (1980:253), we do not wish to claim that intransitive clauses can rate higher for transitivity than transitive ones . . . Different features become relevant only if there are two participants involved.” Lazard (2003a) shares the view that only within the class of two-participant clauses we can distinguish degrees of transitivity. He argues that the requirement of two participants should

not be placed on a par with the other transitivity parameters. Instead, two-participancy should be regarded as a basic condition of transitivity. This does not mean that Lazard wants to argue that we cannot make any differentiation within the class of one-participant clauses but that “they are better studied outside the framework of transitivity” (Lazard 2003a:180). Thus, these authors maintain the (traditional) distinction between intransitivity and transitivity, but at the same time they allow for different grades within each category.

The relative importance of the different parameters has been debated by other authors as well. In Hopper and Thompson’s view all Transitivity parameters are equally important and all of them are predicted to co-vary with each other. Tsunoda (1985), however, argues that the Transitivity Hypothesis as expressed by Hopper and Thompson is too strong as some parameters show structural co-variation whereas other parameters simply cannot co-vary. Furthermore, he argues that not all parameters are equally relevant. As for the first criticism, Tsunoda notes that some parameters have a very close correlation with each other. As examples he puts forward the parameters (E) Volitionality and (H) Agency which appear always to co-vary. On the other hand, co-variation seems to be non-existent for some parameters as is, for instance, the case for the parameters (E) Volitionality and (H) Agency on the one hand and (I) Affectedness on the other. As Tsunoda (1985:386) puts it “in certain instances, they always contradict each other and never co-vary.”

For his second point of criticism which affects the equal importance of all parameters Tsunoda remarks “[f]eatures/notions such as (E) Volitionality, (H) Agency or agentivity are often referred to in the discussions of transitivity or related issues. However, as far as the manifestation of a transitive case frame is concerned, they appear to be irrelevant.” (Tsunoda 1985:393). He argues that on the other hand a feature like (I) Affectedness is a crucial parameter in the marking of transitivity. Tsunoda thus concludes that the conception of the transitivity parameters formulated by Hopper and Thompson as an unordered list cannot be validated.

More recently, Malchukov (2006) reassesses the discussion of co-variation initiated by Tsunoda (1985). He proposes to group the transitivity parameters formulated by Hopper and Thompson on the basis of the element in a sentence they primarily pertain to. He distinguishes between A-related parameters (e.g., volitionality), O-related parameters (e.g., affectedness) and V-related parameters (e.g., aspect). Malchukov proposes to transform the unhierarchized list of Hopper and Thompson into a transitivity scale. This scale, presented in Figure 2.1, explicates the “mutual semantic affinities between particular transitivity parameters” (Malchukov 2006:333).

A-parameters	V-parameters	O-parameters
[animacy] [volitionality]	[kinesis] [factivity] [tense/aspect]	[affectedness] [individuation]

Figure 2.1: Malchukov’s (2006) transitivity scale

In Malchukov’s view “[t]his scale is intended to represent selective semantic affinities between individual parameters through placement of the related parameters adjacently on the scale. Some of these affinities can be captured in semantic terms while some other are rather pragmatic in nature and based on world knowledge. Thus, volitionality presupposes animacy of the A argument while completeness/non-completeness of a transitive action [=aspect, PdS] entails that O is completely/partially affected. Affectedness in its turn is related to O-individuation, inasmuch as total affectedness is easier to envisage in case of definite objects” (Malchukov 2006:333). With respect to the notion of co-variation and the Transitivity Hypothesis Malchukov assumes “a weaker form of the Transitivity Hypothesis that predicts that only parameters that are semantically related (and placed adjacently on the Transitivity Scale) will show a systematic co-variation” (Malchukov 2006:334).

By means of his transitivity scale, Malchukov constrains the co-variation of parameters proposed by Hopper and Thompson and thus meets the main criticism advocated by Tsunoda and others (e.g., Lazard 1998). The representation of the parameters in the form of a scale, nevertheless, has limitations of its own. The division between verb related and argument related features is useful and straightforward. The further division among the argument related parameters into A-related and O-related parameters and their subsequent positioning at other ends of this scale seems to be more useful for some features than for others.

A clear case in point is the feature of animacy. Malchukov puts animacy at the higher end of the scale as in his view it is closely connected with volitionality and agency. Indeed, animacy, and in the case of volitionality, humanness, is a necessary condition for both features. Without being animate it is impossible to be agentive let alone volitional. Animacy, however, is also argued (for instance by Hopper and Thompson themselves) to be relevant for the feature of O-individuation and affectedness (see Næss 2004b for a discussion of the relation between individuation and affectedness). This is, for instance, illustrated among other phenomena by differential object marking (cf. the discussion of Malayalam in chapter 1; see also chapters 3 and 4).

This shows that animacy should be considered both an A-related and an O-related feature. This ‘dual’ behavior of animacy is impossible to capture in a scalar approach presented by Malchukov in which A-related

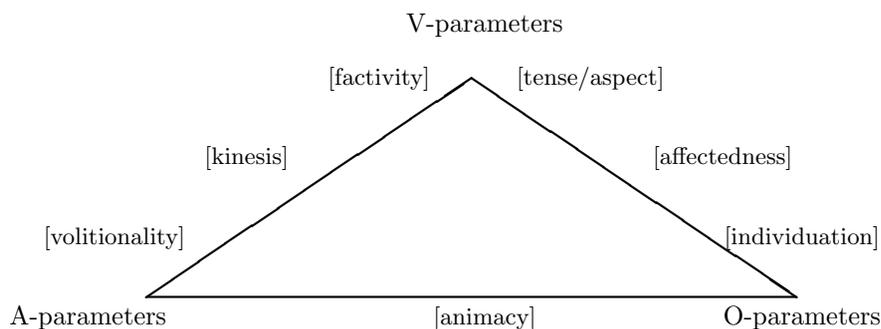


Figure 2.2: Transitivity triangle

and O-related parameters each represent one end of the scale. It requires a more complicated configuration than a scale. As long as we maintain the important insight that the adjacency of parameters corresponds to their possible co-variation, we can replace the scale by any other configuration. This is due to the fact that Malchukov's scale is not really a scale but rather an ordered list. That is, his scale does not possess characteristics normally associated with (typological) scales such as hierarchization, i.e., the features towards the top end are more important than the ones towards the lower end, and implication, i.e., if a feature at a certain position on the scale is involved in the process under investigation, so are all higher features. The most straightforward way to modify the 'scale' in order to incorporate the 'dual' behavior of animacy is by joining the two ends such that a closed circuit is created. This modification preserves the established adjacency of the features and it furthermore adds the adjacency between animacy and individuation. A graphic representation of such a configuration is given in Figure 2.2.

In the next chapter, the fact that animacy is both an A-related and an O-related feature will be shown to be an important source for variation in formal transitivity. Given that animacy is related to both arguments of a transitive relation, ambiguity may arise when they are equal in animacy. In order to eliminate such ambiguities, languages can be shown to develop certain mechanisms. For instance, they mark objects with overt accusative case to secure one interpretation over the other, in this way also increasing the formal transitivity of a clause.

2.3.2 The Relation between Meaning and Form

A final problematic aspect of Hopper and Thompson's framework concerns the relation between semantic and morphosyntactic transitivity. Lazard (2003a) provides an in-depth study of Hopper and Thompson's contribution to the study of transitivity. Although he agrees with them and credits them for the observation that transitivity should be regarded as a gradient phenomenon, he is very critical about the relation between semantic and formal transitivity, in particular the formulation of their Transitivity Hypothesis. In order to fully appreciate this discussion let me first quote the relevant passage from Hopper and Thompson (1980:255) "[t]he Transitivity Hypothesis is stated in such a way that the transitivity features can be manifested either morphosyntactically or semantically". As Lazard notes "[a]ccording to this formulation, morphosyntax and semantics are somehow on a par and both are able to 'manifest' such a quality as transitivity" (Lazard 2003a:176). In his view this is a strange conception of language as we should not view language as a mixture of morphosyntactic and semantic features but rather as a correlation between the two. By having the degree of transitivity determined by both semantic and morphosyntactic parameters, Hopper and Thompson obscure the relation between semantic transitivity on the one hand and morphosyntactic transitivity on the other.

Lazard (2003a) himself develops an asymmetric view of the relation between form and meaning: whereas different meanings can be expressed by the same form, different forms express different meanings. His approach is very much in line with what I am arguing for in the present chapter (barring any sociolinguistic variation, cf. Weiner and Labov 1983). We should refrain from an approach in which semantic and formal transitivity are devoted to each other in a one-to-one fashion, but rather opt for a view which allows for an asymmetric relation between the two. A concomitant advantage of such an approach is that it can account for attested cross-linguistic variation in the mapping from semantic to formal transitivity. As shown by Drossard (1991) not every language relates variation in semantic transitivity to formal transitivity in the same way (see the discussion in 2.4.4; see also Hawkins 1986; Müller-Gotama 1994; Testelec 1998). English, for instance, is a language which uses a single formally transitive construction to cover a wide domain of semantic transitivity. This in contrast to Russian which mirrors changes in the semantics more closely in its morphosyntax. In other words, we can state that English shows a strong asymmetry between semantic and formal transitivity, whereas Russian comes closer to a one-to-one relation.

In the next section I apply such an asymmetric view between meaning

and form to the cognate object construction and I show how such a view provides a fruitful approach to this phenomenon.

2.4 Cognate Objects and the Syntax-Semantics Interface

In section 2.1, I presented the cognate object construction as an example of divergence between semantic and formal transitivity. In this section, I show how exactly these two levels of transitivity relate to each other in the construction under discussion.

Cognate objects can be characterized as elements which look like direct objects but which occur with verbs which normally do not take a direct object. Consider the following examples.

- (38) While in The Who, Keith Moon lived a fast life.
- (39) Right in the middle of the scene, the actress sneezed a horrific sneeze.
- (40) After he told the joke, the comedian laughed a loud laugh.

Verbs like *live*, *sneeze*, and *laugh* would normally be considered to express a predication over a single participant. Nevertheless, these examples seem to occur with a second argument. The occurrence of this additional noun phrase poses several questions. In this section I am concerned with the following three: (i) Are cognate objects proper semantic arguments or do they constitute a different semantic type?; (ii) Should cognate objects be considered real syntactic arguments or are they of a different type?; and (iii) What is the relation between the semantic and syntactic status of cognate objects?

The cognate object construction is most frequently discussed in relation to Indo-European, Semitic, and West African languages, but has also been reported for Chinese, Vietnamese, and Australian languages (see Rice 1987; Pereltsvaig 1999b). My main focus is on the cognate object construction in English with occasional reference to other (Germanic) languages, but in the second part of this section I will embed it in a wider cross-linguistic perspective. Before I turn to the three questions posited above, I will first discuss some characteristics of the cognate object construction in English.

2.4.1 Ingredients of the Cognate Object Construction in English

Can we predict which verbs enter the cognate object construction and which ones do not? Placing it in a cross-linguistic perspective Pereltsvaig (1999a) answers this question in the negative as she claims that “whether a particular object is cognate to the verb or not is a matter of language-specific lexical idiosyncrasy” (Pereltsvaig 1999a:287). Even for a single language like English, it has been proven difficult to present a good working definition of the cognate object construction (see, e.g., Macfarland 1995 for discussion). Nevertheless, I want to use this section to give some ingredients of the cognate object construction in English in order to arrive at a recipe for this phenomenon. First, I discuss some restrictions on the verb in the cognate object construction, followed by a discussion of the restrictions on the cognate object itself.

One restriction often referred to in the discussion about the types of verbs, which can enter the cognate object construction is unergativity. Following Kuno and Takami (2004) we can refer to this as the unergative restriction on the cognate object construction which states that only unergative verbs can appear in the cognate object construction.¹³ Unaccusative verbs, on the other hand, are generally thought to be ungrammatical with a cognate object (but see below).

(41) *Unergative:*

- a. Mary laughed a sad laugh at the meeting.
- b. Bob grinned a sideways grin.
- c. Jack sneezed the most tremendous sneeze I had ever heard.

(42) *Unaccusative:*

- a. *The glass broke a crooked break.
- b. *The door opened its noisy opening.
- c. *She arrived a glamorous arrival.

In generative grammar this asymmetry between unergative and unaccusative verbs is often related to an assumed difference in underlying structure between them. As discussed in section 2.2, the subject of unergative verbs is assumed to occupy a specifier position of a functional projection above the VP. This subject is assigned a theta-role by the unergative verb and following Burzio’s Generalization (Burzio 1986), given in (43), the verb can assign accusative case to a potential (cognate) object.

¹³Levin and Rappaport Hovav (1995) take the ability to occur with a cognate object to be a test for unergativity.

- (43) Burzio's Generalization:
All and only the verbs that can assign a thematic role to their external argument can assign accusative case to an object.

The subject of unaccusative verbs, on the other hand, is assumed to occupy the complement position in the initial structure, i.e., direct object position, where it is assigned a thematic role. By Burzio's Generalization the verb cannot assign case to its object position, the object therefore has to move to the subject position in order to escape a violation of the Case Filter which requires overt NPs to have case. This then is possible because no theta-role is assigned to the standard subject position. Hence, the Theta Criterion, which states that an argument must be assigned one and only thematic role, is not violated either. Given that unaccusative verbs cannot assign accusative case to complements, cognate objects are predicted to be ungrammatical as they would violate the Case Filter.

At first sight, the unergative restriction seems to give us the right descriptive statement, but under closer scrutiny it comes out problematic. Kuno and Takami (2004) argue that some unaccusative verbs can actually enter the cognate object construction. Relevant examples are the following (Kuno and Takami 2004:116):

- (44) a. The tree grew a century's growth within only ten years.
b. Stanley watched as the ball bounced a funny little bounce right into the shortstop's glove.
c. The stock market dropped its largest drop in three years today.

The occurrence of a cognate object with the unaccusative verbs in (44) shows that the unergative restriction is not the right descriptive statement with respect to the distribution of cognate objects. What then restricts the ability of verbs to enter the construction?

In my view the aspectual nature of the verb plays a crucial role. As noted by different authors, in order for a verb to enter the cognate object construction it must have certain aspectual features. According to Masam (1990) verbs which can occur in cognate object constructions tend to be activities. Kuno and Takami (2004) claim that the verb must represent an activity or event involving a temporal process (duration) without a set endpoint.

A well-known test to distinguish between atelic and telic verbs is modification with frame-adverbials *in a time* and durative adverbials *for a time* (see, e.g., Vendler 1967; Dowty 1979). Frame-adverbials pick out telic events, i.e., they have a natural endpoint, whereas durative adverbials select events which are atelic, i.e., ongoing events without a natural

endpoint.¹⁴ This test opposes the class of states and activities (processes) against the class of accomplishments and achievements (transitions). It is demonstrated in (45):

- (45) a. Mary was happy with John for twenty years/*in twenty years.
[*state*]
b. Max ran for half an hour/*in half an hour. [*activity*]
c. Max read a book in twenty minutes/*for twenty minutes.
[*accomplishment*]¹⁵
d. The vase broke in a second/*for a second. [*achievement*]

Cognate object verbs pattern with atelic verbs as they reject modification with frame adverbials, but allow for durative adverbials:

- (46) a. Mary laughed for a minute/*in a minute.
b. Chris smiled for a minute/*in a minute.

A second test for telicity is the behaviour of verbs with respect to the *imperfective paradox* (cf. Dowty 1979). For atelic verbs the progressive form entails the corresponding perfect form, cf. (47a), which is not the case for telic verbs, cf. (47b).

- (47) a. Max is running ENTAILS Max has run.
b. The vase is breaking DOES NOT ENTAIL The vase has broken.

Again cognate object verbs pattern with atelic verbs:

- (48) a. Max is smiling ENTAILS Max has smiled.
b. Max is laughing ENTAILS Max has laughed.

Given this behavior of cognate object verbs, I argue the following restriction to hold for such verbs:

- (49) *Aspectual Restriction on the Cognate Object Construction:*
Only atelic verbs, i.e., verbs without an inherent endpoint, can occur in the cognate object construction.

My claim that only verbs which are atelic can enter the cognate object construction is in conflict with Macfarland's (1995) claim that such

¹⁴Verbs without an inherent endpoint are also referred to as, unbounded, non-delimited, non-culminating and verbs with an inherent endpoint are referred to as telic, bounded, delimited, culminating.

¹⁵Modification with *for twenty minutes* is possible with accomplishment predicates but then the overall interpretation of the sentence is that of a non-telic accomplishment, cf. Rothstein (2004:24).

verbs may be specified as telic. More specifically, Macfarland claims that these verbs do not form a homogeneous class aspectually and she argues that cognate object verbs must only be specified for the feature [+dynamic] and may but need not be specified for the features [+telic] and [+durative]. Her claim is based on the occurrence of cognate objects with obligatorily transitive verbs such as *tell*, *do*, and *say*. Consider the following examples (from Macfarland 1995:11):

- (50) a. Oh, sometimes within our family we told a tale about a bull howling at the crescent moon, thinking it was his own horn caught up there.
 b. From the way she talked to him then, you would have thought that he had done some noble deed.

It is, however, problematic to use these verbs to support a claim about the telicity of bare cognate object verbs. Consider the examples in (51):

- (51) a. Max is telling *(a joke).
 b. Max is doing *(this project).
 c. Max is saying *(a toast).

These examples show that it is ungrammatical for such verbs to occur without a direct object. As a result we cannot properly test the aspectual class of the bare base verb, and hence these verbs do not constitute a counterexample to my claim that base verbs have to be atelic.

Moreover, I do not consider the examples in (50) to be proper cognate object constructions due to the fact that when a cognate object appears with these verbs it substitutes for the normal direct object. That is, cognate objects cannot occur as an additional direct object with such verbs, as the examples in (52) show.

- (52) a. *Max is telling a joke a tale.
 b. *Max did his project a deed.

Obligatorily transitive verbs such as *tell*, *do*, and *say* can only enter the cognate object construction when their cognate object replaces any other direct object and expresses a supertype of the range of direct objects the verb normally takes. This in contrast to the occurrence of cognate objects with intransitive verbs, where the cognate object acts as an additional argument.

Given the existence of the aspectual restriction on the cognate object construction, the following examples are not ruled out because they are unaccusative verbs but rather because they have the wrong aspectual specification (cf. Kuno and Takami 2004:123). All verbs in (52) are

achievement verbs which have an inherent endpoint.

- (53) a. *The glass broke a crooked break.
 b. *She arrived a glamorous arrival.
 c. *The accident occurred a sudden occurrence.

How can this aspectual restriction account for the occurrence in the cognate object construction of the unaccusative verbs in (44) above?¹⁶ The answer to this question lies in the fact that these are atelic verbs. But then, if there exists such a strong correlation between telicity and participation in the cognate object construction, one wonders why the cognate object construction has always been approached from the viewpoint of unergativity? This can be explained by the relation between the two factors telicity and unergativity.

Different researchers (e.g., Levin and Rappaport Hovav 1995:172ff; Alexiadou et al. 2004; van Hout 2004; see also Van Valin 1990; Zaenen 1993) have claimed that there exists a strong correlation between telicity and unaccusativity/unergativity. Unergative verbs turn out to be atelic verbs very often, whereas unaccusative verbs are generally telic verbs. In this way the aspectual restriction seems to have been obscured by the unergative restriction. This correlation between atelic verbs and unergativity on the one hand and telic verbs and unaccusativity on the other hand is nevertheless not perfect. As Levin and Rappaport Hovav (1995:172ff) argue there exist two classes of atelic unaccusative verbs: de-

¹⁶There seems to exist one exception to the aspectual restriction formulated in (49) and that is the verb *die*. Even though this verb is telic, *die* is an achievement verb, it figures frequently in the cognate object construction (*she died a splendid death*). This is unexpected under the present analysis. Note, however, that this verb is also problematic in the light of an analysis of the cognate object construction in terms of unaccusativity/unergativity as *die* is traditionally taken to be an unaccusative verb. Macfarland (1995) argues at length that *die* should not be considered unaccusative, but unergative. However, Kuno and Takami (2004) argue that the tests on which she bases her conclusions are problematic as tests of unergativity. Furthermore, they show that *die* behaves exactly like unaccusative verbs on other tests. Given that *die* is an unaccusative achievement verb it presents a problem to both the unergative restriction and the aspectual restriction on the cognate object construction.

This problem nevertheless disappears when one takes into account the historical road to the cognate object construction taken by *die*. Basing themselves on the Oxford English Dictionary, Kuno and Takami (2004) report that in Middle English the noun *death* in 'to die a death' was used with a variety of prepositions and described only the manner in which one died but not the result. In present-day English this preposition is dropped making *die*'s occurrence in the cognate object construction similar on the surface to that of other cognate object verbs.

If this historical explanation holds, it sets *die* off from other cognate object verbs and takes away the problem this verb poses to analyses of the cognate object construction in English.

gree achievement verbs such as *cool*, *widen*, *harden* and atelic inherently directed motion verbs such as *rise*, *descend*, and *fall*. These atelic unaccusative verbs can distinguish between the unergative restriction and the aspectual one. If they can occur in the cognate object construction, the latter restriction should be considered the relevant one. Indeed, it seems that we find cognate objects exactly with unaccusative verbs, belonging to one of the two classes described above. This is illustrated for *fall* in (54) (see also (44) and Kuno and Takami 2004:116 for examples).

- (54) They fell a fall that went on and on as though the world had been switched into slow-motion mode.

It should be noted, however, that not all atelic unaccusative verbs can occur in the cognate object construction. This is explained by that fact that apart from telicity other factors influence the occurrence of a verb in the cognate object construction as well. One of these is the existence of a rivalling transitive use of the verb in question. Consider the following examples (where # indicates the unavailability of a cognate object reading):

- (55) #He descended a fast descent.
 (56) He descended the hill/the steps of the temple/the ladder.

Descend is an atelic unaccusative verb and is therefore expected to occur in the cognate object construction. Example (55) shows the opposite to be true. In my opinion this is due to the fact that there also exists a transitive use of *descend*, as shown in (56). The difference between the objects in the cognate use and the transitive use is that in the latter case the object is interpreted as an entity existing prior to the act of descending whereas in the former case the object is the result of the action of descending. The cognate object use and the transitive use of the verb are morphologically indistinguishable and it seems that the transitive interpretation takes priority over the cognate object interpretation. That is, the only possible interpretation for (55) is one in which *a fast descent* is interpreted as an object which can be descended, on a par with a hill or a ladder. This is impossible under a cognate object reading. In other words, we can say that the transitive use blocks a potential cognate object use of the verb.¹⁷

¹⁷The absence of a cognate object use for a verb due to blocking by the existence of a transitive use of that verb can also be illustrated with the verb *climb*. The cognate object use of *climb* is excluded because a result reading is blocked by a competing transitive use. Such a transitive use of *climb* is illustrated in (i).

- (i) I climbed the climb called “The Bear”.

Let me now turn to restrictions on the cognate object construction related to the cognate object itself. Most importantly, the verb must have a noun phrase which can function as a cognate object. As stated above, according to Kuno and Takami (2004) this means that there must exist an NP which represents a specific state or event that is a (subset of the) possible states/events resulting from the action presented by the verb.¹⁸ The cognate object can thus be characterized as a type of effected object. As such, it contrasts with the class of affected objects. The distinction between effected and affected objects can be illustrated with the following example (cf. Fillmore 1968; Hopper 1985).

(57) Max is painting a house.

On the effected object reading of (57) Max is drawing a picture of a house, i.e., he is creating (an image of) a house. On the affected object reading Max is changing the colour of a pre-existing house. On this reading the house is not created by the action of painting but rather undergoes a change of state. If we now consider the cognate object construction in (58) we see that the cognate object goes together with an effected object reading.

(58) Max laughed a loud laugh.

The only possible interpretation for (58) is that *a loud laugh* is the result of the laughing action performed by Max. There is no way in which (58) can be interpreted as saying something about a pre-existing laugh which has undergone a change of state.

Let me return to the restriction posited by Kuno and Takami (2004) that the cognate object should represent a specific state or event that is a (subset of the) possible states/events resulting from the action presented

In this example, the morphologically cognate noun phrase *the climb* represents an entity (path) which exist prior to the action of climbing.

¹⁸Often a cognate object is defined in terms of its morphological relationship to the verb. Macfarland (1995) shows that different authors include different types in their definition of cognate object. She herself includes only cognate object which are “zero-related or which share the same root despite morpheme-internal changes (e.g., *sing a song, live a life, die a death*) but which are not related through affixation” (Macfarland 1995:4). As Pereltsvaig (1999a:287) observes “[e]ven though restricting the domain of the study in this way may have its merits as far as English cognate objects are concerned, it can hardly be useful for a study of other languages”. For instance, Pereltsvaig points out that this definition excludes the possibility of having cognate objects in a language in which verbs and nouns are always related through affixation, as she argues to be the case in Russian. Likewise, I will not take morphological cognacy to be a necessary characteristic of cognate objects in English, although there may be certain restrictions.

by the verb. The example in (59) does not meet this restriction, as *a very interesting writing* cannot be the result of a reading event.

(59) Max read a very interesting writing.

This restriction explains why we do not find cognate objects with atelic unaccusative degree achievements such as *cool* discussed above. These verbs simply do not have a noun phrase which represents a result state. This restriction can be carried over to some unergative verbs. Unergative verbs which do not occur in the cognate object construction are, for instance, so-called manner of motion verbs that are vehicle names (cf. Macfarland 1995:38-39).

(60) *We helicoptered a quick helicopter to the airport.

The ungrammaticality of (60) is due to the fact that *helicopter* does not represent a result of the act of helicoptering but rather names the instrument. Such manner of motion verbs can only occur in the cognate object construction when such a result noun does exist. This is illustrated in (61) for the verb *skate*. In this example *a quick skate* should clearly be interpreted as the result of the skating event and not as the instrument by means of which the skating is performed (Macfarland 1995:39).

(61) She skated a quick skate around the rink before rejoining the team in the center of the ice.

The fact that the cognate object noun phrase must represent a specific state or event resulting from the action is supported by the difference in grammaticality of *grin* and *grinning* in (62). The noun *grin* represents a specific activity which is bounded in time, whereas *grinning* represents a continuous activity or “a temporal abstract substance” (Kuno and Takami 2004:125). Therefore, the use of *grinning*, or for that matter any gerundive nominal, as a cognate object results in ungrammaticality.

(62) Max grinned a sideways grin/*grinning.

Finally, the restriction on cognate object noun phrases formulated by Kuno and Takami (2004) also correctly predicts the asymmetry between (63) and (64), the latter example is taken from Macfarland (1995:90).

(63) *He grinned a smile at the meeting.

(64) Nancy grinned a mischievous smile of recognition.

A *smile* does not represent a subset of possible states or events resulting from the act of grinning. Nevertheless, when this noun is modified

by a number of adjectives or prepositional phrases as in *a mischievous smile of recognition* it does become an element of this subset. This then licenses the use of this noun phrase in the cognate object construction with the verb *grin* as shown in (64).

On the basis of the above discussion, I arrive at the following characterization of the cognate object construction in English:

- (65) The cognate object construction consists of:
1. A verb which:
 - is atelic.
 - has no transitive counterpart with a non-result object (reading).
 2. A noun phrase which:
 - represents a subset of the possible states/events resulting from the action of the verb.
 - functions as an ‘additional’ object.

Three remarks should be added to (65). First, although only atelic verbs can enter the cognate object construction, it is not clear whether they acquire a telic reading in the cognate object construction. Different researchers (Tenny 1994; Macfarland 1994, 1995) have claimed that the cognate object construction is telic and intuitively this seems to be the case, as the cognate object represents the result of the action described by the verb. However, its telic nature does not follow unequivocally from the aspectual diagnostics discussed above.

With respect to the *in/for α time*-test, cognate objects seem to allow both frame adverbials (*in α time*) and durative ones (*for α time*):

- (66) a. Mary laughed a mirthless laugh for a minute/?in a minute.
 b. Chris smiled a happy smile for a minute/?in a minute.

Tenny (1994) notes that speakers vary in how much they like the sentences with *in a minute* and Macfarland (1994) even marks them with a question mark. Modification with *for a minute*, on the other hand, is perfectly well-formed. This clearly indicates that the cognate object construction is not telic per se.

Application of the imperfective paradox to the cognate object construction does not give a uniform result either. Macfarland (1995) claims that the progressive form of the cognate object construction does not entail the corresponding perfect form, and therefore should be considered telic. To me these judgments seem questionable.

- (67) a. ?Max is laughing a mirthless laugh DOES NOT ENTAIL Max has laughed a mirthless laugh.
 b. ?Chris is smiling a silly smile DOES NOT ENTAIL Chris has smiled a silly smile.

This discussion shows that the cognate object construction does not exhibit uniform behaviour with respect to test for aspectual class. This may be ascribed to properties of the cognate object. In particular, the existential dependence of the cognate object on the event described by the verb may play a role, i.e., the simultaneity between the occurrence of the event described by the predicate and the existence of the cognate object.

A second remark to (65), morphological cognacy does not play a role in the current definition (see footnote 18). This means that morphological cognacy is neither a necessary nor a sufficient condition for a construction to be classified as a cognate object construction. There are indeed many verbs which take a morphologically cognate noun as their object but which in my view do not classify as cognate object verbs. Consider the following examples.

- (68) In the burning heat, the fireman drank an ice cold drink.

DUTCH (Germanic)

- (69) *Max eet zijn eten het liefst met een lepel.*
 Max eats his dinner the most.preferable with a spoon
 ‘Max eats his dinner preferably with a spoon.’

In both examples the object, although morphologically cognate to the verb, does not represent a result noun but rather an affected object. Given the characterization in (65) neither example qualifies as a cognate object construction.

The final remark concerns the restriction that the noun in the cognate object construction should function as an ‘additional’ object with which I mean an object which is added to a verb but does not belong to the basic valency of this verb. I have included this restriction in order to exclude examples such as the one in (70).

- (70) Apple produces electronic products.
 (71) *Apple produces iPods electronic products.

Although the example in (70) qualifies as a cognate object construction according to the other restrictions in (65), I do not consider it to be a real cognate object construction for two reasons. First, the cognate object

electronic products expresses the supertype of possible objects to *Apple produces*. As illustrated by the ungrammaticality of (71) this cognate object can only occur when it replaces other possible objects. In this respect it differs crucially from cognate objects with intransitive verbs discussed above. Secondly, English contrasts with other languages which do have real cognate objects with transitive verbs such as, for instance, Ancient Greek. Example (72) gives an example from this language in which the cognate object *plēgas* ‘blows’ occurs as an additional object with the transitive verb *tuptein* ‘to hit’.

ANCIENT GREEK (Indo-European; Antiph., *Tetr.*, γ.1)

- (72) *ton andra tuptein tas oligas plēgas*
 the.ACC man.ACC strike the.PL.ACC few.PL.ACC blow.PL.ACC
 ‘to strike the man few blows.’

In this example, *ton andra* ‘the man’ is the regular (affected) object of the verb and *tas oligas plēgas* ‘few blows’ functions as an additional accusative object. This example is grammatical both with and without the latter object. Furthermore, unlike the English example in (70), this cognate object does not replace the regular object of the verb. In this respect Ancient Greek differs crucially from English with respect to the behaviour of cognate objects with transitive verbs.

From now on I exclude English transitive verbs from the discussion as they cannot take a cognate object in a way similar to intransitive verbs. This also holds for verbs of re-creation like *sing* and *dance* which are often discussed as prime examples of cognate object verbs (*he sang a beautiful song, they danced a wild dance*). However, they are different from other cognate object verbs in that they can take a range of other objects as well. As in the case of *produce* above, these objects represent a subtype of the morphologically cognate nouns. They are subject to the same co-occurrence restriction as are transitive verbs, cf. the ungrammaticality of (73).^{19,20}

- (73) *John and Mary danced the tango a beautiful dance.

¹⁹Note that this sentence is well-formed under an appositive reading of *a beautiful dance* with an accompanying intonational break:

- (i) John and Mary danced the tango, a beautiful dance.

In this example, *a beautiful dance* functions as an evaluative statement pertaining to the direct object *the tango*.

²⁰See also footnote 30 for another difference between regular cognate objects and result objects of re-creation verbs.

Moreover, the objects of these verbs are not necessarily the result of the action. Instead, they should be seen as the realizations of a pre-existing object, e.g., a score in the case of *sing* and a choreography in the case of *dance*. In this respect, they are different from other cognate objects which constitute a unique entity which does not exist in any other form independent of their realization at a given time.²¹

2.4.2 The Semantic Status of Cognate Objects

Now that we have a firm idea of what the cognate object construction is, we can start looking at its semantic and syntactic aspects. In this section I concentrate on the semantic status of the cognate object. In particular, I address the question what kind of semantic entity is the cognate object.

Massam (1990) claims that the cognate object is an element “which receives a patient theta role from the verb” (Massam 1990:161). She takes examples such as (74) in which a cognate object cannot occur together with a direct object to be evidence for this claim. In Massam’s view the ungrammaticality of this example results from the fact that both objects are affected patients and the verb only allows for one.

(74) *Mordred killed the knight a gruesome kill.

Furthermore, Massam argues that the cognate object construction “may only appear with verbs which in their basic sense do not involve an affected entity” (Massam 1990:176). This argument is based on the fact that the occurrence of a cognate object with verbs which necessarily involve an affected patient such as *break*, *eat*, and *kill* results in ungrammaticality, cf. (75).

- (75) a. *Jo ate her eat.
 b. *Meg broke her break.
 c. *Beth destroyed a destroy/destruction.

In my view the characterization of cognate objects as affected patients cannot be right. For, if a cognate object is an affected patient, we would expect it to occur with verbs that require an affected patient. That is, we would predict the examples in (75) to be fully grammatical. Moreover, if the cognate object and the direct object –both being affected patients– are competing for the same position with a single verb as in (74) we would

²¹The verb *dream* is another verb that is often referred to as a typical cognate object verb. I am not sure about its status. Although it seems to be more transitive than other cognate object verbs, e.g., it seems related to a verb like *say* in taking *that*-complements (indeed Massam 1990 treats this verb as more transitive than cognate object verbs), my inclination is to call it a true cognate object verb.

expect the construction to be grammatical if we leave out either the direct object or the cognate object. However, as the contrast between (76a) and (76b) shows, this does not hold true (see also Khalaily 1997).

- (76) a. Mordred killed the knight.
 b. *Mordred killed a gruesome kill.

It thus seems that the cognate object and the direct object are not competing for the same theta-role. This is in line with the characterization of cognate objects as objects of result, or effected objects, given above. In other words, cognate objects are not pre-existing entities affected by the action denoted by the verb, rather they are entities created by the action of the verb. It is therefore no surprise that these kinds of objects do not fit in a thematic slot reserved for affected patients, cf. (75) and (76b). I conclude from this that Massam's characterization of cognate objects as affected patients cannot be maintained.

This conclusion is corroborated by the following data from Russian, a language which does allow cognate objects with transitive verbs, cf. (77a). In the absence of a direct object, the sentence is only grammatical if the referent of the object is understood from the context (Pereltsvaig 1999a). In other words, it is not possible to interpret the cognate object as the direct object instead (note that Russian does have instrumental-marked objects).

RUSSIAN (Slavic; Pereltsvaig 1999a:271)

- (77) a. *Ja vas ljublju ljubovju brata.*
 I.NOM you.ACC love love.INSTR brother.GEN
 'I love you with a brotherly love.'
 b. *Ja ljublju ljubovju brata.*
 I.NOM love love.INSTR brother.GEN
 'I love (somebody) with a brotherly love.'

I have established that the cognate object should not be characterized as an affected patient but rather as a result object. Nevertheless, the question what is the semantic contribution of a cognate object is not answered by this characterization. Many researchers have noted that the cognate object does not add much information to a sentence as it simply seems to repeat the meaning of the verb. In other words, it seems to be tautological. Consider, for instance, the following quote from Rice (1987): "cognate objects in all languages are redundant; they offer little in the way of new information and they describe entities in the world that are non-salient or indistinguishable from the activity that engenders them" (Rice 1987:203). In the remainder of this section, I show that we,

nevertheless, can single out a clear semantic contribution of the cognate object.

Pustejovsky (2000) argues that cognate objects are so-called shadowed arguments, i.e., they are obscured by the semantics of the verb. The shadowing of an argument can result in the blocking of its syntactic expression. When we modify the shadowed argument, i.e., we specify it such that it comes to stand in a subtype relation with the semantic content of the verb, this shadow can be lifted and the syntactic expression becomes available.²² Consider the following examples (adapted from Pustejovsky 2000:68):

- (78) a. Mary buttered her bread (*with butter).
 b. Mary buttered her bread with an expensive butter from Wisconsin.
- (79) a. Mary elbowed her partner.
 b. Mary elbowed her partner with her *(arthritis) elbow.
- (80) a. Mary laughed.
 b. Mary laughed a *(happy) laugh.

The verb *butter* has as part of its semantic content the information that the act of buttering is performed with butter. Therefore, the expression *with butter* is shadowed by the semantics of the verb and syntactic expression is blocked, cf. (78a). In case the argument is modified as in (78b) the shadow is lifted and syntactic expression is possible. Likewise for the verb *elbow* in (79) for which the expression of the argument *elbow* is blocked unless it is modified by an adjective such as *arthritis*. Pustejovsky argues that also for the cognate object construction to be grammatical the argument has to be modified.²³ Although, unmodified cognate objects do appear (see Macfarland 1995 for examples), most authors seem to agree that modification is an essential ingredient of the cognate object construction. Some of them even argue that the primary function of a cognate object is to act as a placeholder for modificational elements (see, e.g., Rosén 1981; Moltmann 1989).

But what exactly is modified by these modificational elements? Given that a cognate object represents the end state or result of the event de-

²²Pustejovsky's notion of shadowing is very similar to the notion of exteriorization used by Lehmann (1991), who also applies it to cognate objects.

²³In a similar vein Goldberg and Ackerman (2001) attribute this obligatory modification to general conversational pragmatics. The expression of a bare cognate object would not contribute new information to the sentence and hence is in conflict with pragmatic principles, in particular Grice's Maxim of Quantity ('Make your contribution necessary').

scribed by the verb it occurs with and exists simultaneously with this event, the modification of the cognate object also modifies this event and thus functions as a (manner) adverb. The similarity between manner adverbs and cognate objects has been observed by several authors (e.g., Jones 1988; Moltmann 1989; Khalaily 1997) most of whom notice that cognate objects can be easily paraphrased in terms of manner adverbs.²⁴ This is illustrated by (82), which is a semantic equivalent paraphrase of (81).

(81) Bill sighed a weary sigh.

(82) Bill sighed wearily.

Khalaily (1997) argues that the difference between the use of cognate objects and adverbials is a matter of difference in style or register. Cognate objects represent a poetic or formal register.²⁵

It is, however, not always possible to paraphrase a cognate object construction by means of a manner adverb. The following example can help to illustrate this:

(83) John lived the life of a rockstar.

Obviously, this sentence gives a description about John's way of life. Nevertheless, it is not easy to come up with an adverbial paraphrase of (83) mainly due to the fact that there is no lexical adverb *rockstarrily*. As such, this example nicely illustrates how a cognate object construction can be used as an adverbial description in case no alternative (lexical) adverb is available.^{26,27}

²⁴Zaenen et al. (1985:122-123), discussing Icelandic, also conclude that the semantic contribution of a cognate object is like that of a manner adverbial. Moreover, they argue that cognate objects do not undergo the movement or action described by the verb and in this respect differ from normal accusative direct objects.

²⁵Indeed, the cognate object is not frequent in everyday language (at least not in English or Dutch, but see footnote 27) but more so in poetic language and also in lyrics of pop songs. In the Latin grammar tradition the (morphologically related) cognate object is often considered a literary figure referred to as 'figura etymologica'. Rosén (1996), in an article on cognate objects in Latin, however, argues that the figura etymologica in Latin should not be considered a stylistic phenomenon as each of the three types of this construction attested in Latin (nominative, accusative, and ablative cognates) has its own function.

²⁶Rosén (1996:141) presents the following quote from Jespersen (1928-1943:III 235) which expresses the same intuition: "In real speech this kind of object [=cognate object, PdS] is used for one purpose only, namely to add a descriptive or qualifying trait, which could not conveniently be joined to the verb in the usual way as a subjunct [=adverb, PdS]."

²⁷Mittwoch (1998) also treats cognate objects as functionally similar to regular adverbs. She discusses the cognate object construction in Hebrew and shows that this

A semantic analysis of cognate objects as manner adverbs is provided by Moltmann (1989). She analyzes cognate objects as predicates over the (Davidsonian) event argument e of the verb (see Mittwoch 1998 for an analysis in the same spirit). Davidson (1967) proposed that certain classes of verbs have a so-called event argument which plays a crucial role in adverbial modification. Moltmann extends this analysis to include cognate objects as well. A cognate object construction like (84a) in her analysis is assigned the semantic representation in (84b).

- (84) a. John screamed a terrifying scream.
 b. $\exists e[\text{scream}(e, \text{John}) \wedge \text{terrifying.scream}(e) \wedge \text{PAST}(e)]$

In this respect, the semantic analysis of cognate objects runs parallel to that of adverbs in an event-based framework. As example (85) shows, adverbs are also treated as predicates over events.

- (85) a. John walked slowly.
 b. $\exists e[\text{walk}(e, \text{John}) \wedge \text{slow}(e) \wedge \text{PAST}(e)]$

More recently, an adverbial analysis for cognate objects was proposed by Bary and de Swart (2005). They argue that (in a non-event semantics) cognate objects in Ancient Greek and Latin can be analyzed in terms of predicate modification. Building on work by de Hoop (1992) on the interpretation of object NPs, they assign cognate objects the semantic type $\langle\langle e, t \rangle, \langle e, t \rangle\rangle$ of predicate modifiers. This means that cognate objects are not semantic arguments of a verb but rather act as its modifier. The

construction has a much higher frequency in this language than in English. In an attempt to explain this difference between these languages, Mittwoch argues that cognate objects “may be said to help fill a gap in the structure of Hebrew” as this language does not “have a fully productive method of adverb formation analogous to the English suffix -ly” (Mittwoch 1998:327).

I believe that there might be some truth in the complementarity between a high frequent cognate object construction and the presence of a productive mechanism of adverb formation (see also below). This correlation, however, seems hard to maintain in the light of a language like Ancient Greek, which has productive adverb formation, but at the same time has a highly frequent, although according to Mittwoch less so than in Hebrew, cognate object construction.

An argument without force about the frequency of the Ancient Greek cognate object construction can be found in Kühner and Gerth (1963:III,304) who state that “in keiner Sprache hat sich der Gebrauch dieses Akkusativs, . . . so umfangreich und zugleich so ungemein sinnreich ausgebildet wie in der griechischen.” (in no language has the use of the cognate accusative been developed to such an extent and at the same time with so much meaning as in Greek, translation mine).

Even if such a correlation between a highly frequent cognate object construction and the absence of a productive mechanism of adverb formation cannot be maintained, this does not take away the functional similarity between adverbs and cognate objects.

cognate object takes the predicate as its argument and delivers a new predicate. This means that cognate objects are interpreted as a part of the predicate.

The event-based analysis and the predicate modification analysis of cognate objects both treat them in a way similar to adverbs. In fact, the two approaches represent the two main semantic approaches to adverbial modification. Eckardt (1998) argues that these two approaches are not necessarily incompatible with one another but that they can be combined in a unified account. I will not explore that possibility here (but see Schäfer 2005 for additional discussion).

I started this section with the question what is the semantic contribution of the cognate object. I have established that the modification of the cognate object modifies the action described by the verb. In this respect, cognate objects function semantically in a way similar to manner adverbials.

2.4.3 The Syntactic Status of Cognate Objects

Does the syntactic status of the cognate object mirror its semantic status? In the literature on cognate objects the syntactic argumenthood of the cognate NP is the most debated issue. Whereas some researchers have argued that cognate objects should be treated as internal arguments of the verb they occur with, i.e., on a par with regular direct objects, others have argued for an adjunct status of cognate objects. In this section I give an overview of the arguments put forward by each side.

Jones (1988) argues that cognate objects are adjuncts, i.e., modifiers of the VP on a par with manner adverbials (cf. also Zubizarreta 1987). One of the motivations for this analysis comes from the fact that the one can be paraphrased easily in terms of the other, as was discussed in the previous section. His main argument for this position, however, is that in his view cognate objects do not readily passivize as the following examples illustrate (Jones 1988:91; this argument is repeated by Moltmann 1989).

- (86) a. *An uneventful life was lived by Harry.
 b. *A weary sigh was sighed by Bill.

If cognate objects were considered to be direct objects of the verb, Jones argues, they would receive a theta role and case and we would expect them to passivize. By treating cognate objects as adjuncts they fall outside the scope of the theta criterion and we do not have to worry about the fact that the verb has available only one (external) theta role.

Macfarland (1994, 1995) takes issue with Jones' claim that cognate objects cannot passivize.²⁸ As she notes “[t]he passive is as marked for cognate object constructions as it is for all other constructions, and it requires contextual justification, rather than syntactic rules, to make it acceptable” (Macfarland 1994:179). She illustrates her claim with examples such as the following (Macfarland 1995:112):

- (87) a. Each person's life is lived as a series of conversations.
b. It is a smile that could be smiled by the whole country.

Why do different researchers have different opinions about the grammaticality of passive cognate object constructions? According to Macfarland we can distinguish two factors which influence the acceptability of such passives. The first factor is the aspectual nature of the cognate object construction (see also the discussion in 2.4.1). According to Macfarland (1994) the cognate object construction should be aspectually characterized as a transition, i.e., a sequence of a process followed by a state. Following observations by Grimshaw and Vikner (1993), she claims that with so-called “constructive transitions” both parts of the complex event structure have to be identified syntactically. This analysis is carried over to cognate objects. The state part of the complex event is identified by the cognate object in subject position, e.g., “the laugh laughed”, and the process part of the event has to be realized as an adjunct, either as a *by*-phrase or as a temporal, location or manner phrase. Absence of such a *by*-phrase may downgrade the acceptability of a passive cognate object construction.

This aspectual restriction on passive formation of cognate object constructions can partly explain the mixed attitudes people express towards these kind of constructions. However, as Macfarland notes, it still has to be explained why so many people, among them Jones (1988) and Moltmann (1989), object to passive cognate object constructions even when an overt *by*-phrase is present, cf. the examples in (86) above. The answer to this comes from discourse considerations. According to Macfarland (1994, 1995) a passive construction in general, because of it being the marked member of the opposition active-passive, needs contextual justification, cf. the acceptability of (88). That this also holds for ‘normal’ transitive constructions with a direct object is illustrated by the asymmetry in acceptability between the examples in (89). The awkwardness of the examples in (86) and (89a) is then explained by the fact that

²⁸A discussion of the possibility of cognate objects to passivize can already be found in Rice (1987). She also presents examples of passive constructions involving cognate objects (Rice 1987:210-211).

the indefinite subjects in these examples express new information, which clashes with the factor that the subject position is ordinarily reserved for old information (cf. also Kuno and Takami (2004) on cognate passive constructions). This clash can be overcome by embedding these indefinite subjects in a wider context, as in the examples in (88) and (89b) (from Macfarland 1994:178-179).

- (88) a. An uneventful life was lived by Clark Kent after he gave up his superhero status.
 b. A weary sigh was sighed by the overworked field worker at the end of a long day.
- (89) a. #A new dress was bought by Becky.
 b. A new dress was bought for the first time in three years by the homeless woman with her first welfare check.

The above discussion shows that Jones' claim that cognate objects cannot passivize does not hold true. As a result, his main argument for treating cognate objects as adjuncts loses its force. Instead of patterning with adjuncts, cognate objects behave like regular direct objects with respect to passivization. It should be noted however that this behaviour of cognate objects with respect to passivization cannot be taken as a direct evidence for direct argument status of cognate objects. This is due to the fact that passivization in English is not restricted to direct internal arguments but can also apply, for instance, to NPs inside prepositional phrases.

Moltmann (1989), as discussed above, takes a view similar to that of Jones (1988). She argues that cognate objects are adjuncts, i.e., predicates over the Davidsonian event argument of the verb. Moltmann adduces several types of evidence for her claim. She notes that cognate objects exhibit several characteristics of adjuncts. For instance, like adverbs, cognate objects are optional, cf. (90).

- (90) John screamed (a terrifying scream).

One can debate the status of this argument. In the introduction to this chapter, I have shown how even with highly transitive verbs the direct object can sometimes be omitted. Moreover, taking optionality as a characteristic of adverbs is problematic in itself as some verbs require an adverb to be present, cf. (91). As such, the optionality of cognate objects cannot be taken as conclusive evidence for their status.

- (91) They treated her *(well).

A second argument discussed by Moltmann concerns the influence of cognate objects on auxiliary selection. In German, cognate objects do not change the *have/be* alternation, where regular direct objects require the auxiliary *have*, cf. (92).

GERMAN (Germanic; Moltmann 1989:301)

- (92) a. *Maria ist/*hat gesprungen.*
 Maria is/has jumped.
 ‘Maria has jumped.’
- b. *Maria ist/*hat einen weiten Sprung gesprungen.*
 Maria is/has a far jump jumped
 ‘Maria has jumped a far jump.’
- c. *Maria hat/*ist den Mann gesehen.*
 Maria has/is the man seen.
 ‘Maria saw the man.’

A further argument for the adjunct status of cognate objects presented by Moltmann concerns her observation that cognate objects share with predicates an indefiniteness effect as they cannot occur with strong determiners:

- (93) a. *John screamed this scream/every scream we heard today.
 b. John is a/*every man.

Subsequent authors (Massam 1990; Macfarland 1995; Kuno and Takami 2004) have shown that such an indefiniteness restriction does not hold and that we do find definite cognate objects (see cited authors for examples; see also example (95) below).

Finally, Moltmann claims that, like certain adverbial event predicates, cognate objects cannot be topicalized, cf. (94).

- (94) a. *A shrill scream, John screamed *t*.
 b. *Beautifully, Mary sang the song.

But again subsequent authors, in particular Massam (1990) and Macfarland (1995), have shown that cognate objects in fact do allow topicalization. The following example from Massam (1990:181) contains a topicalized definite cognate object:

- (95) The big cheery smile, Fran smiled; it was Elsie who smiled the insipid smirky smile.

Massam (1990) and Macfarland (1995) notice that such topicalized cognate objects are indeed rare and that this should not be related to a

structural explanation. Instead, they argue that topicalization is often ruled out by pragmatic and discourse factors.

Moltmann's (1989) main claim is that cognate objects are predicates over the event argument of the verb. Massam (1990) provides evidence for the fact that cognate objects should not be considered predicates but rather referential NPs (see also Macfarland 1995). She comes to this conclusion on the basis of several tests for referentiality as laid out in Doron (1988). With respect to non-restrictive relative clause formation, pronominalization, quantification, and scope facts, cognate objects pattern with referential objects and not with predicate nominals.

As for pronominalization, cognate objects can be referred to by a pronoun (*it*) in a later sentence,²⁹ something which is also possible for direct objects but not for predicate nominals, cf. the contrast between (96a-b) and (96c).³⁰

- (96) a. Mona smiled a tantalizing smile_{*i*}. Penelope noticed it and decided immediately that she would photograph it_{*i*}.
 b. Mona hit the ball_{*i*}. The dog caught it_{*i*} and chewed it_{*i*} up.
 c. *John, Daniel, and Morris have all three been [president of the club]_{*i*}. He_{*i*} is always a distinguished member of the community.

Given the semantic similarity between (96a) and (97), it is questionable whether *it* in (96a) refers to the cognate object or to the event as a whole (see also Mittwoch 1998 for similar examples). As such, pronominalization may not be such a good test for the status of cognate objects.

- (97) Mona smiled. Penelope noticed it and decided immediately that she would photograph it.

Up to now I have mainly discussed arguments put forward by proponents of an adjunct status for cognate objects and the objections that

²⁹As Massam (1990, fn9) notes “[t]he use of *it* is unavoidable here, however, since the objects of CO constructions are never human, thus can never be referred to with *she*, *he*, etc.”

³⁰Pronominalization teases apart the regular cognate object verbs and verbs of re-creation which were excluded as cognate object verbs in section 2.4.1. With a cognate object verb like *smile* pronominal reference is excluded in contexts of object-sharing, cf. (i). Verbs of re-creation, by contrast, do allow pronominalization in these contexts as (ii) shows.

- (i) *Mona smiled a tantalizing smile_{*i*} and then Penelope smiled it_{*i*}.
 (ii) Mona sang a beautiful song_{*i*} and then Penelope sang it_{*i*}.

were opposed against these arguments. Let me now turn to the arguments put forward in favour of an argument status of cognate objects by those who defend such a view.

Massam (1990) argues that “the cognate object is best characterized as a syntactic direct object which receives a patient theta role from the verb” (Massam 1990:161; see also the discussion in the previous section about the theta role associated with cognate objects). According to her the view that cognate objects are adjuncts may explain why cognate objects do not behave like other objects, but it cannot explain why they do not behave like other modifiers. Unlike normal adverbials, cognate objects cannot occur together with a direct object, as the contrast between (98a-b) and (98c-d) shows.

- (98) a. *Mordred killed the knight a gruesome kill.
 b. *Ethel moved her lips a slight move(ment).
 c. Mordred killed the knight gruesomely.
 d. Ethel moved her lips slowly.

According to Massam these ungrammaticalities indicate that cognate objects are syntactically direct objects.³¹

A second argument for this position comes from case. As shown by Jones (1988), in languages with morphological case cognate objects show up with case, often accusative case. The observation that cognate objects need case in English as well is supported by the fact that they need to be adjacent to the verb, as illustrated in (99).

- (99) a. Ben always runs (quickly) that way.
 b. Let Ben run (*quickly) a little run.
 c. Ben sneezed (*that way) a glorious sneeze.
 d. Ben [saw] (*quickly) that man.

These examples show that a (nominal) adverbial can be separated from the verb by an intervening adverbial (99a), whereas this is impossible for both cognate objects (99b-c) and direct objects (99d).

However, as pointed out by Khalaily (1997), the adjacency requirement in (99) fails to distinguish arguments from predicates as adjacency also holds for the latter, cf. (100).

³¹According to Massam, this view allows to account for the fact that cognate objects do not occur with unaccusative verbs and psych verbs as with these verbs the direct object position at D-structure is already necessarily filled. However, as I have shown in section 2.4.1 we do find cognate objects with unaccusative verbs.

- (100) a. John became a doctor very quickly.
 b. *John became very quickly a doctor.

In other words, adjacency cannot prove cognate objects to be arguments. Interestingly, Khalaily (1997) provides another distributional fact which seems problematic for Massam's assumption that cognate objects are thematic objects. Compare the following two pairs of examples.

- (101) a. John smiled a nice smile (to Bill).
 b. *John smiled Bill a nice smile.
- (102) a. John wrote a letter (to Bill).
 b. John wrote Bill a letter.

In treating cognate objects like *a smile* as thematic objects on a par with objects like *a letter* (cf. Massam 1990), it becomes unclear how we can explain the fact that only the latter allows for dative shift. Note, however, that the ungrammaticality of (101b) may be ascribed to the fact that dative shift also seems sensitive to the kind of verb involved (cf. Levin 2007 for a recent overview).

Let me return briefly to the use of case on cognate objects but now from the perspective of languages with overt case marking on their direct objects. Recall the following examples from Latin:

LATIN (Indo-European; Sall., Cat. IX,4; Plaut., Ps. 525)

- (103) *In hoste-m pugna-v-erunt.*
 in enemy-ACC fight-PF-3PL
 'They have fought against the enemy.'
- (104) *Ista-m pugna-m pugna-b-o.*
 that-ACC fight-ACC fight-FUT-1SG
 'I will fight that fight.'

The Latin verb *pugnare* normally only takes a prepositional complement which expresses the person who is fought against. This is shown in (104a) where the PP *in hostem* 'against the enemy' fulfills this role. In case of a cognate object such as *istam pugnam* 'this fight' in (104b) the complement of the verb receives accusative case. This makes cognate objects morphologically similar to the accusative-case marked direct objects of regular transitive verbs. It should, however, be noted that in Latin, as for instance in German, accusative case is also used to mark adverbial expressions of time and space. As such, the use of accusative case on cognate objects cannot be taken as conclusive evidence for their direct object status in these languages.

The use of accusative case on cognate objects forms a counterexample to the correlation between accusative case and affectedness often assumed (see, e.g., Tsunoda 1981). Under these approaches accusative case is reserved for entities that are totally affected by the action of the verb. As I have shown above, cognate objects do not represent affected entities but rather effected entities. It is puzzling for these approaches why in Latin a verb, which normally takes an affected argument as a PP-argument, assigns accusative case to a non-affected entity, cf. (104). This asks for a different approach to accusative case. Here, I will mention two such approaches without choosing between them. Smith (1996) proposes to treat accusative case on cognate objects as a default case, i.e., a case assigned to elements which need case but do not receive it through some other mechanism. Under such an approach a link between the semantics of an element and its case is absent. Such a link can be found in approaches which try to relate the use of accusative case to the aspectual contribution of the NP it occurs on (cf. Wechsler and Lee 1996; Kratzer 2004). From this perspective the use of accusative case on cognate objects could be explained by the fact that they turn an atelic event into a telic one. However, in order to pursue this explanation it first has to be established properly that the cognate object indeed makes this aspectual contribution, cf. the discussion in section 2.4.1 above.

In accordance with Massam, Macfarland (1994, 1995) argues that cognate objects are arguments of the verbs they occur with. In order to validate this claim she applies a number of tests for argumenthood. The first of these tests concerns *though*-movement and VP preposing. Following Reinhart (1983), *though*-movement preposes the VP including its arguments but excluding adjuncts as they are not part of the VP. Cognate objects allow for *though*-movement as shown in (105), and therefore are considered to be arguments by Macfarland.

- (105) a. Read that book though I did, (I didn't understand it).
 b. Smile a happy smile though Chris did, (everyone could see that her happiness was forced).
 c. *Read that day though I did, (I didn't understand anything).

Do-So copying (Jackendoff 1977) is another test that differentiates between adjuncts and arguments. *Do so* can be substituted for the verb and all its internal arguments as the following examples show.

- (106) a. I gave Chris a book, and John did so, too.
 b. *I gave Chris a book, and John did so a magazine.

Adjuncts on the other hand are not necessarily substituted by *do so* as the grammaticality of the examples in (107) shows.

- (107) a. I saw Chris that day, and John did so, too.
 b. I saw Chris that day, and John did so another day.

As Macfarland (1995) shows, cognate objects pattern with arguments on *do-so* copying as they also undergo necessary substitution, which is illustrated by the following examples.

- (108) a. Chris smiled a happy smile, and Mary did so, too.
 b. *Chris smiled a happy smile, and Mary did so a sarcastic smile.

A third test is provided by the formation of questions. In question formation arguments, but not adjuncts, can be moved to initial position, i.e., only arguments can undergo long *wh*-movement (Cinque 1990; Rizzi 1990). This contrast between arguments and adjuncts is shown in the following examples.

- (109) a. Chris wondered [whether Lee read that book].
 b. ?What book_{*i*} did Chris wonder [whether Lee read *t_i*]?
- (110) a. Chris wondered [whether Lee read that day].
 b. *What day_{*i*} did Chris wonder [whether Lee read *t_i*]?

As with the previous two tests, Macfarland (1995) shows that again cognate objects pattern with arguments:

- (111) a. Chris wondered [whether Lee smiled a happy smile].
 b. ?[What kind of smile]_{*i*} did Chris wonder [whether Lee smiled *t_i*]?

Khalaily (1997) judges an example similar to (111b) to be ungrammatical (marking it with *) taking this as an argument for adjunct status of cognate objects. Macfarland ascribes her ?-judgement to a violation of subjacency. I agree with her that although (111b) does not sound perfect it is much better than (110b). If we want to include long *wh*-movement as a test for the argumenthood of cognate objects it classifies them as direct arguments.

On the basis of the three diagnostics for argument/adjunct status presented above, Macfarland (1995) concludes that cognate objects should be considered direct arguments. She presents further evidence for this claim from adjectival passives (Macfarland 1994, 1995). Adjectival passives are adjectives derived from the passive form of the verb. According

Syntactic test	Cognate object patterns with:
VP-preposing	direct object
<i>Do so</i> -copying	direct object
Topicalization	direct object
Adjectival passive	direct object
WH-movement	direct object
Case	direct object/other
Passive	direct object/other
Dative shift	other

Table 2.2: Overview of the syntactic behaviour of cognate objects in English

to Levin and Rappaport (1986) adjectival passives externalize the verb's direct internal argument, regardless of thematic role. The following examples from Carrier and Randall (1992) show that only the direct internal argument (*books*) but not the indirect internal argument (*to the kids*) can be externalized by adjectival passive formation.

- (112) a. John read books to the kids.
 b. John read books.
 c. John read to the kids.
- (113) a. the recently read books
 b. *the recently read kids

This means that adjectival passive formation can be used to distinguish between direct internal arguments of the verb and adjuncts. If cognate objects are arguments of their verbs, Macfarland reasons, they should be able to occur in adjectival passives. Indeed, she presents naturally occurring examples of cognate objects which show that they can occur in such a configuration (Macfarland 1995:109).

- (114) a. She felt slightly superior, more his equal. With an unlived life of her own she felt reality breaking into the illusion with which her husband was content.
 b. In that pure face where woe grown bright/ Seems rapture chastened to the mild/ And equal light of smiles unsmiled.

Table 2.2 gives an overview of the relevant syntactic tests for object-hood of the cognate object in English discussed above. It shows that in English cognate objects display a mixed syntactic behaviour vis à vis direct objects. On the one hand cognate objects pattern with direct ob-

jects (VP-preposing, *do so* copying) and on the other hand they seem to exhibit some characteristics of non-objects as well.

This mixed behaviour of cognate objects with respect to direct object properties has been reported in the literature for languages other than English and poses a dilemma for a purely syntactic account. For instance, Lehmann notes that “the resulting cognate object bears some resemblance to a normal direct object ... the cognate object does not have the same degree of independence vis-à-vis the verb as a normal direct object” (Lehmann 1991:193). The observation that cognate objects have a different degree of independence is also voiced by other authors (e.g., Austin 1982; Lichtenberk 1982) who note that cognate objects show a lower degree of individuation.

This lower degree of individuation can be explained by the fact that cognate objects are always inanimate and typically, though not exclusively, indefinite. A lower degree of individuation, being one of the transitivity parameters formulated by Hopper and Thompson (1980), leads to a lower degree of transitivity of the overall clause. Moreover, the lower degree of transitivity of the cognate object construction can also be related to the fact that the cognate object is not affected by the action, affectedness of the object being a characteristic of high transitivity (Hopper and Thompson’s Parameter I). The claim that the cognate object construction shows a lower degree of transitivity is warranted by cross-linguistic evidence, discussed in the next section.

2.4.4 A Cross-Linguistic Perspective

In 2.4.1 I have discussed the restrictions on verbs which can enter the cognate object construction in English. I also noted that these restrictions do not necessarily carry over to other languages and that some cross-linguistic idiosyncrasy may occur (cf. Pereltsvaig 1999a). Nevertheless, we can identify a class of verbs which typically occur in the cognate object construction in different languages. This class consists of verbs of *bodily activity* which includes ‘cough’, ‘sneeze’, ‘smile’, and ‘laugh’. Lazard (1985) notes that cross-linguistically these verbs often behave differently from both transitive and intransitive verbs. Let me illustrate this with an example from the Australian language Bandjalang, data from Austin (1982). In this language there is a set of verbs (e.g. ‘urinate’, ‘yawn’, ‘smoke’) that occur with a transitive subject noun phrase but can never take a transitive object. Nevertheless, they enter a construction which is morphologically transitive as it shows ergative case on the subject (cf. (115)) and they can undergo an antipassive transformation which only applies to transitive verbs (cf. (116)).

Construction	Subject	Object
Transitive	ergative	absolutive
Intransitive	absolutive	—
Cognate object	absolutive	absolutive

Table 2.3: Cognate objects and case marking in Australian languages.

BANDJALANG (Australian; Austin 1982:38)

(115) *Mali-yu jaa-jam-bu jaluba-ni.*
 that-ERG child-ERG urinate-PST
 ‘That child urinated (some urine).’

(116) *Ngay gala juuma-le-ela.*
 I.NOM this.NOM smoke-ANTP-PRS
 ‘I here am smoking (a cigarette).’

Lazard (1985) shows that there exist many languages with what he labels *anti-impersonal verbs*: intransitive verbs which enter a (transitive) ergative construction without having an object (e.g., Pashto, Kurdish, Hindi, Georgian, Menominee). Verbs which are anti-impersonal verbs in one language correspond to cognate object verbs in another language (see, e.g., Austin 1982 for a comparison among Australian languages). Thus, these verbs, although thought to be intransitive, cross-linguistically show a higher degree of morphosyntactic transitivity either because of transitive subject marking, i.e., ergative case, or through the occurrence of an element which looks like a direct object, i.e., the cognate object. Following Austin (1982), Lazard puts forward the hypothesis that anti-impersonal verbs occupy an intermediate position between transitive and intransitive verbs. There indeed is some cross-linguistic evidence that the cognate object construction also occupies such an intermediate position.

Above we have seen examples from the Australian language Bandjalang in which some verbs entered into an anti-impersonal construction. As demonstrated by Austin (1982) these same verbs occur as cognate object verbs in other Australian languages like Diyari, Bayungu, and Djaru. In these languages the cognate object construction behaves differently from both transitive and intransitive constructions, as is illustrated in Table 2.3. Whereas transitive constructions have an ergative subject and an absolutive object, and intransitive constructions only an absolutive subject, the cognate object construction appears with both its subject and cognate object in the absolutive case. This shows that in these languages the cognate object construction indeed occupies an intermediate position on the transitivity continuum.

Lichtenberk (1982, 1983) discusses the object status of cognate objects in the Austronesian language Manam. Based on their behavior with respect to object agreement he concludes that cognate objects are direct objects to a lesser degree than non-cognate objects. The relevant examples are given in (117) through (119).

MANAM (Austronesian; Lichtenberk 1982:273)

(117) *Áine i-tamím.*

woman 3SG-urinate

‘The woman urinated.’

(118) *Áine tamím i-tamím.*

woman urine 3SG-urinate

‘The woman urinated/produced some urine.’

(119) *Áine bang i-tamími-rá?-i.*

woman taro 3SG-urinate-TR-3PL

‘The (mythical) woman urinated taros.’³²

In Manam direct objects are indexed on the verb by means of suffixes, as illustrated in (119). However, as can be seen from (118) this object marker is missing in case of a cognate object. Furthermore, in (119) the verb is suffixed with a transitive marker absent in (118). This shows that the cognate object construction in Manam is different from a transitive construction in this language.

A similar situation is found in the Papuan language Awtuw (Feldman 1986). As noted by Feldman there is a class of verbs, the class of intransitive bodily processes, which intersects the categories of transitivity. He labels them as “idiomatic composite constructions with an obligatory, lexically specified noun which may not accept object marking” (Feldman 1986:103). This is illustrated in (120).

AWTUW (Papuan; Feldman 1986:103)

(120) *Tey ewkit(*-re) də-k-owk-ey.*

3F.SG cough-OBJ FAC-IMP-cough-IMP

‘Is she coughing?/Does she have a cough?’

The absence of object marking on such cognate objects is expected when one takes into account that Awtuw only uses this marking for animate objects.

Finally, Rice (1987) shows how in Swedish the cognate object construction differs from transitive constructions in the way it behaves with

³²Taros are the edible vegetables from the taro plant. This may explain the addition of *mythical* in the translation of (119).

respect to passivization. Swedish has three types of passives. Two of these are periphrastic passives formed with either the auxiliary *vara* or the auxiliary *bli* and a passive participle. The third type is a morphological passive formed by means of the suffix *-s*. Highly transitive verbs of physical activity permit both types of periphrastic passive but are less felicitous with the *s*-passive. Outside the domain of physical activity verbs, transitive verbs such as *see* permit all three passives, whereas constructions showing a low degree of transitivity, such as reflexive and reciprocals, only allow the *s*-passive. In fact, the suffix *-s* also functions as a marker of reflexivity/reciprocity. Thus, in Swedish passive formation is sensitive to the degree of transitivity of a clause. The fact that cognate objects can only occur with the *s*-passive indicates the lower degree of transitivity of this construction.

SWEDISH (Germanic; Rice 1987:208)

- (121) *Asta levde ett gott liv.*
 Asta lived a good life
 ‘Asta lived a good life.’
- (122) **Ett gott liv blev/var levt av Asta.*
 a good life AUX/AUX lived by Asta
 ‘A good life was lived by Asta.’
- (123) *Ett gott liv levde-s av Asta.*
 a good life lived-PASS by Asta
 ‘A good life was lived by Asta.’

The above cross-linguistic overview shows that in several languages the cognate object construction displays a lower degree of formal transitivity. This makes one wonder why this is not observed in equal measure in English, where the cognate object construction behaves only marginally differently from a regular transitive construction.

As discussed in section 2.3, there seems to be a general asymmetry between the mapping from meaning to form on the one hand and the mapping from form to meaning on the other. As for the mapping from meaning to form, it is possible for a language to map verbs with different degrees of semantic transitivity to one and the same form. In other words, variation in semantic transitivity does not necessarily lead to variation in formal transitivity. If, on the other hand, we find variation in formal transitivity we also find variation in the semantic transitivity of the different forms. In other words, variation in formal transitivity does correspond to variation in semantic transitivity.

Not every language relates variation in meaning to form in the same way. If we take the formally transitive construction to be that construc-

Class	Role Scheme	German	Russian	English
effect	AG-PAT	NOM-ACC	NOM-ACC	NOM-ACC
contact	AG-PAT	NOM-ACC	NOM-ACC	NOM-ACC
experience	EXP-THM	NOM-ACC	NOM-ACC	NOM-ACC
pursuit	AG-GOAL	NOM-ACC/PP	NOM-GEN	NOM-ACC
attitude	AG-ADR	NOM-ACC	NOM-DAT	NOM-ACC
attitude	AG-INSTR	NOM-ACC	NOM-INSTR	NOM-ACC
control	AG-COM	NOM-ACC	NOM-PP/DAT	NOM-ACC
soc. interaction	AG-LOC	NOM-PP/ACC	NOM-PP	NOM-ACC
psych. effect	STI-EXP	NOM-ACC	NOM-DAT	NOM-ACC
similarity	n.a.	NOM-DAT	NOM-PP	NOM-ACC

Table 2.4: Extension of the NOM-ACC case frame across verb types (cf. Drossard 1991:412)

tion with a NOM-ACC or ERG-ABS case frame, we find that languages differ in the extension of the semantic domain for which they use this construction. Drossard (1991) compares a number of languages on their encoding of arguments for ten different verb classes. These different verb classes express different degrees of transitivity in terms of Hopper and Thompson (1980).³³ Table 2.4 shows the case frames associated with each verb type in German, Russian, and English. A comparison between German and Russian shows a significant difference between the two languages. German uses the transitive NOM-ACC case frame for seven of the ten verb types and treats it as a possibility for two more verb types. Russian, on the other hand, uses this case frame for only three verb classes, making use of other case frames for the remaining seven. On the basis of the distribution of the case frames in these two languages, Drossard concludes that German should be considered to be syntactically more transitive than Russian.

When we compare English to German we find that the former is even more transitive as it uses the NOM-ACC case frame for all ten verb classes, cf. Table 2.4. This conclusion is in line with the results of a study by Hawkins (1986) who compared the two languages on a great number of dimensions. Recasting his own findings in terms of a scale of fundamental transitivity (a notion based on work by Nichols; see, for instance, Nichols 1982, 1984), Drossard places English on the higher end of the scale with German a bit lower and Russian much lower. The fact that a language like English extends the use of the transitive construction to a wider do-

³³Or in their satisfaction of the effectiveness condition (Tsunoda 1981). See also footnote 12.

main of semantic structures than say a language like Russian, reflects a fundamental difference between these languages in the way they relate syntax to semantics. Whereas English shows a many-to-one mapping from meaning to form, Russian comes closer to a one-to-one correspondence.

Given this difference in the mapping from semantic transitivity to formal transitivity one may expect that in Russian the cognate object construction is formally realized differently from the canonical transitive construction in order to reflect its lower degree of semantic transitivity. This prediction is borne out, as in Russian cognate objects are realized not with accusative case but with instrumental case (cf. Pereltsvaig 1999a).

RUSSIAN (Slavic; Pereltsvaig 1999a:269)

(124) *On ulybnulsja ulybkoj angela.*
 he.NOM smiled smile.INSTR angel.GEN
 'He smiled an angelic smile.'

Pereltsvaig demonstrates that in Russian the instrumental cognate objects behave identically to manner adverbials on a number of linguistic properties and differently from accusative direct objects.^{34,35} Cognate objects share their instrumental case with manner adverbials, they are paraphrased by means of a manner adverbial, and they can be coordinated with a manner adverbial but not with an accusative direct object. Furthermore, cognate objects share with manner adverbials their incompatibility with strong determiners such as *this* and *every*, the impossibility of pronominalization, and the lack of passivization. On the basis of these tests, Pereltsvaig proposes that similarly to instrumental-marked adverbials, instrumental-marked cognate objects are predicated of the event argument of the verb (Pereltsvaig 1999a:278-283).

The conclusion that in Russian cognate objects are semantically very similar to manner adverbials is in accordance with the semantic character-

³⁴Russian also has a class of instrumental-theme objects. Although they share their case marking with adverbials and cognate objects, they pattern syntactically with accusative objects and not with cognate objects (cf. Pereltsvaig 1999a).

³⁵The verb 'smile' in Russian is inherently reflexive indicated by the suffix *-sja*. One might therefore think that the cognate object with this verb is forced to adverbial status as the object position is already taken by the reflexive suffix. That this is not a case can be shown with the verb *zhitj* 'live' in (i) (A. Malchukov, p.c.), which is not inherently reflexive but still takes its cognate object in instrumental case:

(i) *On zhivet zhiznju otsheljnika.*
 he.NOM lives life.INSTR hermit.GEN
 'He lives a secluded life.'

ization of English cognate objects I proposed in 2.4.2. The big difference between English and Russian then is that in Russian the morphosyntactic behaviour of cognate objects is in accordance with their semantic status, whereas in English the relation between the semantic and the morphosyntactic status of cognate objects is asymmetric.

It should be noted that Pereltsvaig makes a distinction between two types of cognate objects in Russian. She argues that, besides the already discussed instrumental cognate objects, there also exist accusative cognate objects. These accusative cognate objects behave identically to accusative direct objects on the tests discussed above. One can, however, question whether these accusative cognate objects are really cognate objects. Pereltsvaig only gives examples with two different verbs both of which are questionable cognate object verbs. The first is the Russian equivalent of *dance* which was shown in section 2.4.1 above to behave differently from standard cognate object verbs. The second one is the verb *delat'* which is a general verb with the meaning 'do, make'. Apart from a morphologically cognate object *delo* 'job' this verb can take a range of other accusative complements as demonstrated in (125). Pereltsvaig notes that (125a) and (125b) are paraphrases of one another.

RUSSIAN (Slavic; Pereltsvaig 1999a:270,273,277)

- (125) a. *On sdelal delo.*
 he.NOM did job.ACC
 'He did (his) work.'
- b. *On sdelal rabotu.*
 he.NOM did work.ACC
 'He did (his) work.'
- c. *On sdelal uroki.*
 he.NOM did homework.ACC
 'He did the homework.'
- d. *Sdelaj dve igrušku.*
 do.IMPER [two toys].ACC
 'Make two toys.'
- e. *Oni delali vyvody celyj den.*
 they.NOM did.IMP conclusions.ACC [all day].ACC
 'They were drawing conclusions all day.'

The occurrence of *delat'* with a wide range of complements is reminiscent of the behaviour of the English verb *produce* discussed in section 2.4.1 above and repeated in examples (126) and (127) for convenience.

- (126) Apple produces electronic products.

(127) *Apple produces iPods electronic products.

Although *produce* occurs with a morphologically cognate object in (126), I concluded that it cannot be considered a proper cognate object verb as the morphologically cognate object *products* cannot be used as an additional object but, being a super type of possible objects to the verb *produce*, only instead of any other object. This sets the transitive ‘cognate object verbs’ in English apart from transitive cognate verbs in other languages. Cross-linguistically we find that cognate objects occur with transitive verbs as additional objects (see, e.g., Pereltsvaig 1999b; Mittwoch 1998). Evidence for this can also be found in Russian, as is illustrated by the following example:

RUSSIAN (Slavic; Pereltsvaig 1999a:269)

(128) *Ja vas ljublju ljubovju brata.*
 I.NOM you.ACC love love.INSTR brother.GEN
 ‘I love you with a brotherly love.’

In (128) the transitive verb for ‘love’ occurs with a direct object *vas* ‘you’ in the accusative case and an additional cognate object *ljubovju brata* ‘brotherly love’ in the instrumental case. Thus, in Russian cognate objects of transitive verbs pattern on a par with cognate objects found with intransitive verbs.

The verb *delat’* behaves unlike other Russian transitive verbs, but like English transitive verbs, in that it cannot take a cognate object either in the accusative or in the instrumental case along with a regular object. This is illustrated in (129):

RUSSIAN (Slavic; A. Malchukov, p.c.)

(129) **On sdelal uroki prilezhnoe*
 he.NOM did homework.ACC careful.ACC
delo/prilezhnym delom.
 job.ACC/careful.INSTR job.INSTR
 ‘He did his homework carefully.’

Therefore, we can conclude that the Russian verb *delat’* patterns like English transitive verbs in that it occurs with objects which are morphologically cognate but which cannot be considered to be proper cognate objects. The special behaviour of this verb might be due to the fact that it is not a lexical verb but rather a light verb and in this respect is comparable to French *faire* and Italian *fare*. As a result, we must conclude, contra Pereltsvaig (1999a), that Russian only has one type of cognate object, the ones that are marked with instrumental case.

Thus, Russian provides us with evidence for the observation that cognate object constructions show a lower degree of transitivity. Furthermore, given that Russian comes close to a one-to-one relation between semantic and formal transitivity, the fact that Russian cognate objects behave exactly as manner adverbs supports a semantic analysis of these items in terms of manner modification. An adverbial analysis of cognate objects can be extended to English as well under the observation that the asymmetry between the semantic contribution of cognate objects and their morphosyntactic behaviour in this language is due to the fact that in this language the relation between semantic and formal transitivity is far from one-to-one.

There is additional cross-linguistic evidence for the analysis of cognate objects as adverbials. In Standard Arabic, for instance, the expression of manner is only possible through a cognate object (Khalaily 1997), cf. (130)-(132):

STANDARD ARABIC (Semitic; Khalaily 1997:9-10)

(130) *Ḍarab-a Zayd-un l-ḥimaar-a *(ḍarb-an)*
hit.PST.3M.SG Zayd-NOM the-donkey-ACC hit-ACC

qawīyy-an.

strong-ACC

‘Zayd hit the donkey strongly.’

(131) *ʔaḥabb-a Zayd-un Yasmiin-a ḥubb-an ʕuriyy-an.*
love.PST.3M.SG Zayd-NOM Jasmin-ACC love-ACC pure-ACC

‘Zayd loved Jasmin platonically.’

(132) *Karih-a Zayd-un Yasmiin-a kurh-an fadiid-an.*
hate.PST.3M.SG Zayd-NOM Jasmin-ACC hate-ACC strong-ACC

‘Zayd hated Jasmin strongly.’

Further cross-linguistic evidence for the semantic treatment of cognate objects as manner adverbials comes from Ancient Greek (cf. Bary and de Swart 2005, also for Latin). In this language we find two types of additional objects with both intransitive and transitive verbs. First, there are the familiar cognate objects, complements of verbs whose head noun is the event or state nominalization of the verb and which often share their morphological root with the verb. Secondly, there are neuter forms of pronouns and substantivized adjectives. The two types are illustrated in (133) and (134), respectively:

ANCIENT GREEK (Indo-European; Pl., *Ap.* 19c)

(133) *poll-ēn fluari-an fluar-ounta*
 much-ACC nonsense-ACC talk.nonsense-PTC.ACC
 ‘talking a lot of gibberish’

(134) *hedu gelān*
 sweet.NTR.ACC smile.INF
 ‘to smile sweetly’

Historically, the second class developed from the first class. Starting with a combination of adjective and cognate noun, the noun was dropped leaving the bare adjective. Compare (135) with (136):

ANCIENT GREEK (Indo-European; Antiph., *Tetr.* γ.1, Xen., *An.* 5.8.12)

(135) *ton andra tuptein tas oligas*
 the.ACC man.ACC strike the.F.PL.ACC few.F.PL.ACC
plēgas
 blow.F.PL.ACC
 ‘to strike the man few blows’

(136) *Touton men anekragon hoos oligas*
 he.ACC PRT scream.AOR.3PL that few.F.PL.ACC
paiseien.
 strike.AOR.OPT.3SG
 ‘They screamed that he stroke the man few (blows).’

At the final stage this bare adjective is put in its neuter accusative form, cf. (134), and has developed into a proper adverb (cf. Bornemann and Risch 1978; Kühner and Gerth 1963). Although one cannot take the fact that an element has developed into a given function at time *t* as direct evidence for the fact that this element had the same function at times earlier than *t*, the development described for Ancient Greek is at least very suggestive for an adverbial function of cognate objects.³⁶ At any rate, if one rejects this explanation, one would have to explain how and why neuter forms of adjectives could develop into elements with an

³⁶A similar analysis can be applied to Latin. Moreover, Rosén (1996) describes a change in case-marking patterns associated with cognate objects in this language. In earlier stages of this language, most cognate objects are marked with accusative case but some occur with ablative case. In some cases, the accusative case can even be substituted with ablative case. This is significant as the “two cases are otherwise quite marginally interchangeable, the first belonging essentially in the center of the predication, the second in the periphery” (Rosén 1996:143). According to Rosén (1996), the commutability of cognate accusatives and cognate ablatives becomes much higher at later stages and reaches an extreme in Biblical Latin. She takes this to indicate the affinity of cognate objects with adverbials.

adverbial function when the configurations they derived from did have nothing to do with this function.³⁷

The above discussion shows that there is good evidence to treat cognate objects semantically as manner adverbials. In particular, the use of cognate objects with transitive verbs supports the view that cognate objects semantically are adverbial elements. Indeed, Pereltsvaig (1999b) provides cross-linguistic evidence that such ‘transitive’ cognate objects, her Type A, also behave syntactically as adverbials. I hope to have shown that also in a language like English in which cognate objects syntactically seem to function as arguments they can still be treated semantically as adverbials. This asymmetry between form and meaning can be explained if one takes into account that English extends its transitive construction to cover a wide semantic domain.

2.5 Conclusions

I have argued that a strict division between intransitivity and transitivity cannot be maintained and that the relation between semantic and morphosyntactic transitivity is not necessarily one-to-one. That is, formally transitive constructions can correspond to semantically intransitive configurations and at the same time semantically transitive configurations can correspond to formally intransitive constructions.

I subscribed to a gradient approach to transitivity in which clauses can be assigned different degrees of transitivity depending on a variety of features. I have shown that languages differ in the way semantic transitivity is related to morphosyntactic transitivity. That is, in one language differences in semantic transitivity may all be related to one single transitive construction, whereas in another language we may observe a more transparent relation between semantic and morphosyntactic transitivity in that different degrees of semantic transitivity correspond to different degrees of morphosyntactic transitivity.

The cognate object construction is a case in point. Semantically, the cognate object behaves like a manner adverbial as it modifies the action

³⁷Grammars of Ancient Greek indeed ascribe the use of the accusative neuter form of adjectives to the historical development sketched above (e.g. Kühner and Gerth 1963). There might, however, be an alternative analysis for this use of the neuter form of adjectives (brought to my attention by Leon Stassen). These elements can also be taken as modifiers of the entire clause which is often considered to be neuter in many languages. Under such an analysis the adjective shows gender agreement with the sentence as a whole. I am not aware of a proposal along these lines for Ancient Greek. Moreover, I believe that these two explanations are not necessarily incompatible with one another.

described by the verb. Indeed, in Russian the cognate object also behaves syntactically like a manner adverbial. In English, by contrast, it behaves syntactically as a direct argument of the verb. I have argued that the observed mismatch in English between the semantic and syntactic status of cognate objects can be understood when one takes into account that English uses a single transitive construction to cover a wide semantic domain, while Russian shows a more transparent relation between semantic and morphosyntactic transitivity. The cognate object construction provides a nice example of how a phenomenon in a given language can be better understood from a cross-linguistic perspective.

Differential object marking was also argued to involve a shift in transitivity, since sentences with caseless objects are syntactically less transitive than those with case-marked ones. In the next chapter I will show that the need to avoid ambiguity is an important factor behind this increase in formal transitivity. That is, direct objects are often case marked in order to secure one interpretation over the other. Animacy, which was shown in this chapter to be a special transitivity feature as it relates both to the subject and the object argument, plays a central role here, as ambiguity may arise when the two arguments are equal in animacy.

Chapter 3

Recovering Grammatical Roles

In this chapter, I show that the need to distinguish the two arguments of a transitive relation from one another in order to avoid problems in interpretation has a profound effect on the grammar of languages. Animacy plays a central role in this process as it provides crucial information about the role an argument plays in the event described by the predicate. However, due to the fact that it is a shared feature of subjects and objects, animacy can cause severe problems in interpretation as well. Languages display various mechanisms in order to prevent such misunderstandings to occur and differential object marking is identified as one of them. I develop a model of bidirectional optimization in which the speaker takes the hearer's perspective into account and in which the recoverability of the intended meaning drives the occurrence of overt case marking. This bidirectional model is then shown to carry over to other recoverability phenomena, in particular one nominal interpretation and word order restrictions on exceptional case marking constructions. Finally, I show how a strategy to mark all and only animate objects irrespective of ambiguity can develop out of a strategy of pure ambiguity avoidance.

3.1 Introduction

In this chapter, I want to show that differences in morphosyntactic transitivity are not restricted to the parameters proposed by Hopper and Thompson (1980) but that another major factor can be identified. This is the need to distinguish the A-argument and the O-argument of a transitive relation from one another in order to avoid problems in the interpretation of sentences. In English the interpretation of a sentence such as *the man sees the woman* is uniquely determined by the syntactic rules of the language. The only possible interpretation is one in which *the man* is the subject and *the woman* the object. In languages without such strong

morphosyntactic cues the interpretation of this sentence becomes a much less trivial task. In those languages, hearers have to rely on other types of information such as the animacy of the participants involved. In the previous chapter, animacy was singled out as a special transitivity parameter given its relation to both arguments of a transitive relation and its influence on the encoding of both (cf. Figure 2.2). In this chapter, I show that because animacy is a feature pertaining to both arguments, severe problems in interpretation may arise due to potential ambiguity as to the grammatical roles of arguments involved. Languages can be shown to display various mechanisms in order to prevent such ambiguities from occurring.

In interpreting a sentence, one must determine which argument plays which role in the event described by the verb, i.e., who is doing what to whom. In order to indicate the role a noun phrase plays in a sentence, linguists traditionally use semantic role labels (cf. the discussion of the role associated with the cognate object in the previous chapter). Semantic roles, also referred to as thematic role, theta role, θ -role, thematic relation, or case role amongst others, are a widely used but heavily debated concept in linguistic theory (see Fillmore 1968; Dowty 1991; Palmer 1994; Williams 1994; Wechsler 1995; Van Valin and LaPolla 1997; Ackerman and Moore 2001; Levin and Rappaport Hovav 2005 amongst many others for discussion). A list of frequently mentioned roles is given in (1).

(1)	AGENT	instigator of an event
	EXPERIENCER	recipient of a cognitive stimulus
	RECIPIENT	entity receiving an object
	GOAL	end point of motion
	PATIENT	undergoer of an event
	THEME	object in motion
	INSTRUMENT	object used to perform an action
	LOCATION	point in space
	SOURCE	origin of motion

Generally, authors working with semantic roles try to keep the inventory as small as possible without consensus about the exact members. One reason for this may be the fact that it is not always easy to give a good definition of a semantic role.¹ Nevertheless, many earlier approaches making use of semantic roles treat them as primitive concepts, that is, they are considered semantically unanalyzable. Not everyone agrees on this

¹Cf. also “I never know how people are able to pick out thematic relations with such security, I can’t” (Chomsky 1982:89 via Schlesinger 1995:28). See also Dowty (1991:553-555) for discussion.

though and attempts have been made to decompose the semantic roles into features (cf. e.g., Rozwadowska 1988). A very influential approach is that of Dowty (1991; see also Primus 1999; Ackerman and Moore 2001) who treats semantic roles as cluster concepts. Dowty (1991:572) makes a distinction between Proto-Agent and Proto-Patient, each with its own proto-properties:

- (2) Proto-Agent properties:
- a. Volitional involvement in the event or state
 - b. Sentience (and/or perception)
 - c. Causing an event or change of state in another participant
 - d. Movement (relative to the position of another participant)
 - e. Exists independently of the event named by the verb
- (3) Proto-Patient properties:
- a. Undergoes change of state
 - b. Incremental theme
 - c. Causally affected by another participant
 - d. Stationary relative to movement of another participant
 - e. Does not exist independently of the event, or not at all

The semantic proto-roles are clusters of properties which themselves are lexical entailments imposed by groups of predicates on one of their arguments. These proto-properties can be used to determine argument selection with individual verbs. Generally, the argument with the highest number of Proto-Agent properties will become the subject and the argument with the highest number of Proto-Patient properties the direct object (see Ackerman and Moore 2001 for a detailed discussion).

In contrast to earlier semantic role approaches in which semantic roles are treated as discrete entities and an argument could only be associated with a single semantic role, Dowty's system allows a single argument to have mixed, i.e., both Proto-Agent and Proto-Patient, properties. In order to generalize this approach to ditransitive verbs, Primus (1999) enriches the set of proto-roles with that of Proto-Recipient.

Proto-roles can be viewed as general roles each subsuming a number of 'traditional' semantic roles. Primus (1999:3) gives the following correspondences:

(4)	Proto-Agent	Proto-Recipient	Proto-Patient
	AGENT	RECIPIENT	PATIENT
	CAUSER	ADDRESSEE	CAUSEE
	EXPERIENCER	BENEFACTIVE	STIMULUS
	POSSESSOR		POSSESSED

← ACTOR					UNDERGOER →			
Arg of	>	1st arg of	>	1st arg of	>	2nd arg of	>	Arg of state
DO		do' (x,...)		pred' (x,y)		pred' (x,y)		pred' (x)
AGENT		EFFECTOR		LOCATION		THEME		PATIENT
		MOVER		POSSESSOR		POSSESSED		ENTITY
		PERFORMER		EXPERIENCER		CREATION		
obligatorily animate		>	very likely animate		>	need not be animate		

Figure 3.1: Thematic relations and argument positions (adapted from Van Valin and LaPolla 1997:127,146,305)

Dowty's proto-role approach is very similar to the macrorole approach found within Role and Reference Grammar (Foley and Van Valin 1984; Van Valin and LaPolla 1997). Role and Reference Grammar makes use of the macroroles Actor and Undergoer which correspond closely to Dowty's Proto-Agent and Proto-Patient. The Actor is realized as the transitive subject and the Undergoer as the direct object (see Ackerman and Moore 2001:29 and Levin and Rappaport Hovav 2005:52ff for discussion of the relation between macroroles and proto-roles).

As Dowty's proto-roles, the macroroles can be viewed as generalized semantic roles functioning as an umbrella term. However, instead of using lexical entailments as Dowty does, Van Valin and LaPolla (1997) define semantic roles in terms of their position in a predicate decomposition structure, ordered hierarchically, as shown in Figure 3.1.² Positions at the higher end of the hierarchy are unmarked for the Actor macrorole and positions at the bottom end are unmarked for the Undergoer. The figure also shows which 'traditional' semantic roles can be associated with which position. The association between certain semantic roles and positions in the argument structure found in Van Valin and LaPolla's approach is also present in some approaches within generative grammar. For instance, the specifier position of the functional projection above the VP is often associated with agentivity (see 2.2; and also, e.g., Hale and Keyser 1993; Torrego 1998).

Certain associations exist between semantic roles, on the one hand, and grammatical functions, on the other. With two-place verbs in the active voice, the Proto-Agent/Actor is mapped onto the subject function,

²See chapter 3 of Van Valin and LaPolla (1997) for a discussion of predicate decomposition. A similar approach can be found in Lexical Decomposition Grammar (see Butt 2005, chapter 5 for discussion).

and the Proto-Patient/Undergoer onto that of direct object. Thus, from a production perspective the relation between grammatical functions and semantic roles is rather straightforward. From an interpretation perspective then, given the correlation between semantic roles and grammatical functions, the semantic role of an argument can be inferred when one can determine the grammatical function of that argument. However, the question is how one can determine semantic roles in a language in which the grammatical function of an argument cannot be determined on basis of the surface structure. In these languages, hearers have to make use of other cues in order to assign arguments a semantic role. One important cue is the animacy of an argument, as there are strong relations between animacy and certain semantic roles.

Animacy plays an important role in the proto-properties associated with the Proto-Agent, cf. (2). Two of them, volitionality and sentience, presuppose animacy, sometimes even humanness, of an argument. This means that in order to be a true Proto-Agent an argument has to be animate (see also Givón 1984 who takes animacy to be a defining property of agents). The opposite claim, that animates necessarily are true Proto-Agents, however, does not hold. That is, animacy is a necessary but not a sufficient feature of true Proto-Agents. Animacy, for instance, does not entail volitionality of an argument. Besides, animates also fulfill non-agentive semantic roles such as EXPERIENCER. Inanimates, on the other hand, cannot be true agents even though they may possess Proto-Agent properties other than volitionality and sentience.

Apart from the relation between semantic roles and grammatical functions, Figure 3.1 also represents the correlations between animacy and semantic roles and hence between animacy and grammatical functions in active clauses. The figure shows that animates and inanimates behave differently with respect to the fulfillment of semantic roles towards the Actor side of the hierarchy. Many of these higher roles require an animate argument. Semantic roles towards the Undergoer side of the hierarchy, by contrast, do not show such an animacy requirement. That is, they can, but need not, be animate. The figure shows general tendencies in the association between animacy and semantic roles, and there are individual ‘traditional’ roles which escape these general tendencies. Nevertheless, we find morphosyntactic phenomena which are sensitive to the general associations between animacy and semantic role presented in Figure 3.1.

Let me start with the more ‘peripheral’ roles. Aristar (1996, 1997) studies the distribution of what he labels “non-grammatical cases”, also called semantic or local cases, such as locative and instrumental case in comparison to the “grammatical” dative case. Semantic cases index or identify the semantic role of the argument they occur on. For instance,

the locative case is used on noun phrases with the semantic role of LOCATION and the instrumental case is used for those noun phrases with the semantic role of INSTRUMENT. The dative case, on the other hand, is most often used for arguments fulfilling the grammatical function of indirect object, which generally bear one of the semantic roles subsumed under Primus' (1999) concept of Proto-Recipient, i.e., RECIPIENT, ADDRESSEE, or BENEFACTIVE.³

Aristar reports that when we consider the relation between animacy and the cases mentioned above, we find that dative case is cross-linguistically oriented towards animacy whereas locative and instrumental cases are oriented towards inanimacy. In the light of the semantic roles associated with these cases, the observed pattern falls out naturally. The Proto-Recipient role associated with the dative is typically fulfilled by animate entities, whereas locations and instruments are typically inanimate. Cross-linguistically we can observe two general patterns with respect to the animacy of nouns and their occurrence with certain cases. The first pattern is when cases are in complementary distribution. For instance, as Aristar (1997:346) reports, in Old Hittite the dative case only appeared with animate nouns, while the locative case only appeared with inanimate nouns.

Alternatively, we find a pattern, in which dative case can be used on inanimates and semantic cases on animates but only when some additional morphology ("bridges" in Aristar's terminology) is used. That is, in order to use dative case on an inanimate noun first some additional marking has to be put onto the noun before the dative case ending can be attached and the same holds when a semantic case is used on animate nouns. This pattern is illustrated in (5) and (6) for the ablative case in the Australian language Yidiny:

YIDINY (Australian; Aristar 1997:317)

(5) *mandi-m*
hand-ABL
'from the hand'

(6) *buna:-ni-m*
woman-MARKING-ABL
'because of the woman'

³Not for every case in every language such a unique function can be determined. Often, a case represents a blend of functions, which in many situations can be related to historical developments. For instance, the Latin ablative is a merger of the Indo-European ablative, locative, and instrumental case. A similar thing can be observed for the dative case in Classical Greek which also shows an instrumental use. See Kulikov (2006) for a discussion of the historical development of case systems.

The inanimate noun *mandi* ‘hand’ in (5) takes the ablative case ending directly. The animate noun *bupa*: ‘woman’ in (6), by contrast, because it is a non-typical nominal for the ablative case, must first be marked with a special suffix before the ablative ending can be added. Moreover, a shift to a causal meaning can be observed in this example. Aristar takes this second pattern to be an instantiation of a general markedness pattern in which marked configurations, i.e., dative with inanimate/semantic case with animate, produce marked morphological expressions.

Thus, oblique grammatical functions marked by so-called semantic cases and corresponding to semantic roles such as LOCATION and INSTRUMENT correlate highly with inanimacy. The dative case, on the other hand, is used for the grammatical function of indirect object and correlates highly with semantic roles requiring an animate entity such as RECIPIENT and BENEFACTIVE. This association between dative case and animate nouns also emerges from the cross-linguistically recurrent pattern in which the dative case is used to encode the semantic role of EXPERIENCER. Being recipients of a cognitive stimulus, they are typically animate nouns.^{4,5}

Let me move away from the more peripheral grammatical functions and turn to a discussion of the semantic roles and animacy of the subject argument of active transitive verbs. Languages differ greatly in the range of entities they allow in the subject function.⁶ Some languages, like Jacalteco (Craig 1976, 1977), Japanese (Palmer 1994), and Lakhota (Van Valin and LaPolla 1997), do not allow inanimate subjects. In Lakhota, for instance, the transitive subject function is restricted to animates (7) and pseudo-animates (8), i.e., self-moving, effecting entities like storms, floods and tornados. Inanimate instruments like ‘a rock’ are ruled out (9):

LAKHOTA (Siouan; Van Valin and LaPolla 1997:385-386)

- (7) *Ixʔé wə ʔ ožəžəglepi ki ka-blécha-pi.*
 rock a with window the by.striking-break-PL
 ‘They broke the window with a rock.’

⁴The grammatical function of EXPERIENCER datives is the topic of much debate (see the contributions in Bhaskararao and Subbarao 2004 for discussion).

⁵The dative is also often used to indicate the degree of control an argument has over the action performed. More specifically, the dative signals the fact that an argument has less control over the action in comparison to a nominative or ergative marked argument. In causative constructions the dative marking of the causee argument often indicates that this argument, in contrast to an accusative marked causee, is not affected by the causation (see Ackerman and Moore 2001; Næss 2004a; Butt and King 2005 for discussion of such facts).

⁶Unless indicated otherwise the discussion focuses on active transitive verbs.

- (8) *Mníhiyaya-thąka ki thípi ki wožúžu.*
 flood-big the house the smash
 ‘The big flood smashed (destroyed) the house.’
- (9) **Ixʔé wą ožážąglepi ki ka-bléche.*
 rock a window the by.striking-break
 ‘A rock broke the window.’

The ungrammaticality of inanimate transitive subjects in Lakhota may be explained by the fact that these verbs select for a true agent argument. Japanese, which shows a similar ban on inanimate transitive subjects, has been reported as a language with relatively many verbs taking an obligatory agentive argument (Kuno 1973; Van Valin and LaPolla 1997:120). English, on the other hand, is much less restrictive as it allows virtually any kind of semantic role to become subject. Consider the following examples (see also Hawkins 1986; Minkoff 1997; Levin and Rappaport Hovav 2005):

- (10) a. Neil killed the duck. [*agent*]
 b. This tent sleeps five people. [*location*]
 c. Eight dollars won’t buy a decent meal at McDonald’s. [*instrument*]

The wide range of semantic roles open to the subject function in English makes that we can find both animate and inanimate nouns as the subject.⁷ Animacy, nevertheless, influences the semantic role associated with the argument in subject function (cf., e.g., Minkoff 1997). Compare the following two examples:

- (11) Neil opened the door.
 (12) The key opened the door.

In (11) the subject argument *Neil* due to its animacy is most likely interpreted as the agent of the action of opening the door. *The key* in (12), on the other hand, because of its inanimacy will be interpreted as the instrument with which the action of opening is performed.

The above discussion shows that there exists an overall correlation between grammatical function and semantic role. If we adopt a view on semantic roles in terms of generalized roles, i.e., proto-roles or macro-roles, we can state it in the following way: the Proto-Agent/Actor is encoded as the subject of an active transitive verb, whereas the Proto-

⁷This pattern fits in with the observation presented in 2.4.4 that English has extended its transitive construction to cover a wide semantic domain.

Patient/Undergoer is encoded as the direct object. It must be stressed that this correlation only holds (for active clauses) in languages with accusative alignment and that it does not carry over to ergative language for which application of the notions subject and object is notoriously difficult (cf. Dixon 1979, see also Manning 1996 for discussion).

A further correlation can be found between semantic role and animacy in that some traditional semantic roles such as AGENT in the strict sense and EXPERIENCER are always animate, whereas others such as LOCATION and INSTRUMENT tend to be inanimate. In terms of generalized roles we can state for Proto-Agents/Actors that they are typically animate. Proto-Patients/Undergoers, on the other hand, do not show such a preference for their arguments to be animate, cf. Figure 3.1 above.

Finally, there is a correlation between grammatical function and animacy, again only for accusative languages. Subjects are typically animate and direct objects inanimate, as is corroborated by several corpus counts of the animacy feature of subjects and objects (cf. Dahl and Fraurud 1996; Zeevat and Jäger 2002; Øvrelid 2004). For instance, Øvrelid (2004) reports a study of animacy features in a thousand simple transitive sentences in Norwegian. In her sample approximately 69% of the subjects is animate whereas 90% of the objects is inanimate. Moreover, in over 97% of the sentences she found the subject to be higher than or equal to the object in animacy. This shows that there exists a certain asymmetry in the animacy features associated with subjects and direct objects. These correlations between animacy and grammatical function can be interpreted as a by-product of the correlation between certain semantic roles and grammatical functions. That is, those semantic roles that require animate arguments are usually realized as subjects, whereas most semantic roles selecting inanimate arguments tend to occur in object position.

The observation that the distribution of animacy over grammatical functions interacts with the semantic roles associated with them is corroborated by the study of Øvrelid (2004). The slightly more than 2% of sentences in her corpus in which the object is higher in animacy than the subject are almost all instances of verbs taking an EXPERIENCER object and a THEME or STIMULUS subject. The former semantic role is exclusively reserved for animate entities and the latter are most likely to be fulfilled by inanimates, although not exclusively so. Consider the following sentence from Øvrelid's corpus:

NORWEGIAN (Germanic; Øvrelid 2004:6)

- (13) *Spørsmålet plager Espen.*
question bothers Espen
'The question bothers Espen.'

Using the correlations between animacy, semantic roles, and grammatical functions, a hearer would interpret *Espen* as the subject of (13). Only by taking into account the argument structure of the verb he would arrive at the right interpretation in which *Espen* is the object. Compare also the following two English sentences:

(14) Marianne liked the movie.

(15) The movie pleased Marianne.

In (14) *Marianne* is the subject and *the movie* the object, as predicted, but in (15) it is the other way around. The reason for this is the difference in argument structure of the two verbs. Although both *like* and *please* are experiencer predicates selecting for a STIMULUS argument and an EXPERIENCER argument, the first verb links the EXPERIENCER to the subject function whereas the second verb links it to the direct object function.⁸

The fact that verbs select semantic roles and link them to grammatical functions in a particular way, has its effect on the possible animacy feature of their grammatical functions. Given that a verb like *please* links the EXPERIENCER role to the direct object function, the direct object of this verb must be animate. The correlation between animacy and semantic roles together with the argument structure of a verb can be very helpful when we try to interpret a sentence. Take a verb like *cook* which selects for an animate (human) agent and typically an inanimate patient. In Dutch the verb *koken* ‘to cook’ is a so-called labile or ambitransitive verb as it has both a transitive use, demonstrated in (16), and intransitive uses, exemplified in (17) and (18):

DUTCH (Germanic)

(16) *Max kook-t de rijst.*

Max cook-3SG the rice

‘Max boils the rice.’

(17) *De rijst kook-t.*

the rice cook-3SG

‘The rice is boiling.’

⁸The existence of lexical doublets such as *like* and *please* can be explained under a Dowtyian analysis in terms of proto-properties. The EXPERIENCER argument and the STIMULUS argument both have one Proto-Agent property and no other proto-properties. Dowty’s argument selection principle (corollary 1) states that in such a case either argument can be realized as the subject. The existence of both *like* and *please* is in accordance with this principle as either lexical item represents one possible linking. See Dowty (1991:579-581) for further discussion.

- (18) *Max kook-t.*
 Max cook-3SG
 ‘Max is cooking.’

The intransitive construction can be formed by either omitting the direct object as in (18), or by promoting the direct object to subject and omitting the original transitive subject as in (17). There is no formal difference between the two intransitive uses as witnessed by the verbal agreement, and in both examples the single NP functions as the subject. Given this formal similarity, we have to rely on other information if we want to interpret these sentences. Animacy helps out in this case. The inanimacy of *de rijst* ‘the rice’ in (17) makes only the patient role available for it, and hence the patient intransitive reading is the only one possible. The humanness of *Max* in (18) strongly favours an agent reading for this sentence, although under a very marginal (cannibalistic) reading a patient interpretation is possible as well. This shows that in interpretation thematic information can be (partially) accessed through the animacy of arguments.⁹ In combination with a verb’s argument structure the hearer can arrive at the right interpretation of the sentence.

We have seen that, due to their argument structure, verbs select for animacy features of their arguments. For example, the verb *sneeze* selects an animate subject and the verb *surprise* selects an animate direct object. Such animacy requirements are often referred to as selectional restrictions. Chomsky (1965) included selectional restrictions in his theory of transformational grammar as constraints on possible combinations in ‘deep structure’. Selectional restrictions were abandoned from syntactic theory later on, as they were argued not to be absolute. For instance, McCawley (1971) argues that many selectional restrictions are actually not restrictions as they can be violated in certain environments such as dream reports, belief reports, and science-fiction contexts. Therefore, they should not be taken as grammatical constraints. McCawley argues that a person who utters *My toothbrush is alive and is trying to kill me* “should be referred to a psychiatric clinic, not to a remedial English course” (McCawley 1971:219).

McCawley is right that this sentence is well-formed. I am, however, not convinced that it violates any selectional restrictions. An alternative analysis is that *the toothbrush*, although lexically inanimate, is conceptualized as an animate entity. Under this analysis the sentence above does

⁹There is ample psycholinguistic evidence for the use of animacy information in the processing of sentences, in particular in the case of local ambiguities. See, for instance, Bates and MacWhinney (1989), Trueswell et al. (1994), Lamers (2001), Lamers and de Hoop (2004), and Mak et al. (2006) for discussion.

not violate any selectional restrictions. Indeed, one can think of many contexts in which inanimate entities are conceptualized or stand for an animate entity. A well-known example is *The ham sandwich is getting impatient* (Nunberg 1979). Out of context it may seem ill-formed, but in a restaurant setting it can be used without problems. In a conversation between a waiter and a chef, the inanimate *ham sandwich* can be used to refer to the animate customer who has ordered the ham sandwich. This means that the NP *ham sandwich* actually stands for, or in terms of Pustejovsky (1995) is coerced into, an animate entity. As a result, the *ham sandwich* does not violate any selectional restrictions. This kind of coercion occurs very often in particular in those contexts, i.e., belief reports and cartoons, which McCawley (1971) considers prime examples of contexts in which selectional restrictions are violated.

Moreover, there is robust psycholinguistic evidence that language users make use of selectional restrictions and animacy information, at least in interpretation. Nieuwland and van Berkum (2006) report two experiments in which they manipulated the selectional restrictions of verbs and the animacy of arguments. In the first experiment, they made subjects listen to sentences in which the animacy features of an argument matched, or did not match, the animacy value required by the selectional restrictions. They found an increase in brain activity for sentences in which there was a mismatch, e.g., *The girl comforted the clock*, in comparison to sentences without such a mismatch.¹⁰ These results indicate that hearers are sensitive to selectional restrictions and that it takes more effort to understand a sentence in which these selectional restrictions are violated.

In the second experiment, Nieuwland and van Berkum investigated the effect of cartoonlike contexts on interpretation. They embedded inanimate entities in a context in which they acquired animate characteristics, e.g., a peanut which was dancing, singing, and smiling. They tested whether hearers showed a processing difference when these inanimate words occurred with a predicate showing a ‘lexical fit’, e.g., *salted*, in comparison to a predicate showing a ‘contextual fit’, e.g., *in love*. The results show an increase in brain activity for predicates with a lexical fit in comparison to those with a contextual fit. This indicates that the lexical animacy of an NP can be overruled by context and that the contextual animacy of an NP is used by hearers to determine whether the selectional restrictions of a verb are violated.

The experiments by Nieuwland and van Berkum (2006) provide evi-

¹⁰In particular, they found an N400 effect which is often explained in terms of problems with semantic integration.

dence for the existence of selectional restrictions and the fact that hearers make use of them. Moreover, the satisfaction of selectional restrictions is subject to contextual conditions. In this way, they provide strong counterevidence to the claims made by McCawley (1971).

Especially in languages without morphosyntactic means to indicate grammatical functions, selectional restrictions are of crucial importance in the interpretation of sentences. Imagine a language *L* without any morphological marking on noun phrases signaling their grammatical function and with a free word order. In this language there are no morphosyntactic cues for the grammatical function of an NP and as a result the interpretation of a sentence has to be based on the selectional restrictions of the verb and the semantics of the noun phrases. If one now constructs a sentence with the verb *eat* and the noun phrases *Joe* and *the cake*, the only semantically possible interpretation is such that *Joe* eats *the cake*. This interpretation is due to the fact that *eat* requires as its subject an animate entity. Of the two noun phrases in the sentence only *Joe* qualifies for this role. Thus, even without morphosyntactic clues we can in this case arrive at the right interpretation by focusing on the selectional restrictions of the verb and the animacy of the noun phrases.

Now consider a sentence with the verb *hear* and the noun phrases *John* and *Joe*. In contrast to the previous situation, verbal restrictions and the animacy of the noun phrases cannot help us out in computing an interpretation for this sentence. As both noun phrases share their animacy feature they are equally likely to fulfill the function of either subject or object. Without any further information this sentence is ambiguous.

This discussion based on the imaginary language *L* was meant to show how animacy in concordance with selectional restrictions provided by the verb can play a role in the interpretation of transitive sentences. Even though it was based on an imaginary language, the discussion is not entirely outside of linguistic reality. Miyashita et al. (2003) report that in the language Tohono O'odham (also known as Papago) no overt means of marking grammatical relations are present in sentences with two third person arguments. Moreover, word order is rather free, with the constraint that an obligatory auxiliary has to appear in the second position in declarative clauses, cf. 'o in (19). Even prosodic features such as stress and intonation are argued not to influence assignment of grammatical functions. As a result, sentences such as (19) are completely ambiguous, and hearers have to rely on contextual information to disambiguate them:

TOHONO O'ODHAM (Uto-Aztecan; Miyashita et al. 2003:47)

- (19) *Huan 'o g Husi ka.*
 John 3.SUBJ-IMP DET Joe hear
 'John is hearing Joe.' or 'Joe is hearing John.'

The difference between English, in which the grammatical function of a noun phrase can be determined by means of its position in the sentence, and Tohono O'odham, in which a noun phrase does not provide any information about its grammatical function, is related to the distinction between dependent-marking and head-marking languages introduced by Nichols (1986). The examples in (20) and (21) illustrate the distinction. The same proposition is expressed first in Abkhaz, a head-marking language, and subsequently in the dependent-marking language Chechen.

ABKHAZ (Caucasian; Nichols 1986:108)

- (20) *A-xàc'a a-ph^oàs a-s^oq^o'è Ø-lè-y-te-yt'.*
 the-man the-woman the-book it-to.her-he-gave-FIN
 'The man gave the book to the woman.'

CHECHEN (Caucasian; Nichols 1986:108)

- (21) *Cu stag-a zudčun-na kni:ga-Ø jelira.*
 DEM.OBL person-ERG woman-DAT book-ABS gave
 'The man gave the book to the woman.'

The two sentences (20) and (21) are similar with respect to the grammatical relations assigned to the arguments. In both sentences 'man' is the subject, 'woman' the indirect object, and 'book' the direct object. They diverge in the way these relations are formally realized. In (20) the grammatical relations are marked on the predicate, the head of the construction, by means of affixes. If we were only to look at the nouns in the Abkhaz sentence we would not be able to figure out which noun is the subject, which one the direct object, and which one the indirect object. This is, on the other hand, very well possible in the Chechen construction in (21) in which these grammatical relations are marked on the nouns, i.e., the dependents, by means of case markers. By looking at the ergative marked noun *staga* we know that we have to assign it the function of subject independently of the functions of the other nouns or the type of verb present in the sentence.

The above discussion shows that in head-marking languages, due to the fact that noun phrases are not marked for grammatical function, ambiguities may occur. We may therefore expect them to develop strategies in order to avoid such potential ambiguities (cf. Nichols 1986:112-114). That is, not every language will tolerate ambiguities to the extent Tohono

O’odham, discussed above, does, as this may substantially slow down the interpretation of sentences. In the remainder of this chapter, I investigate some morphosyntactic phenomena which can be interpreted as strategies developed by languages to avoid potential ambiguity. In the next section (3.2), I consider languages in which case marking is employed in an economical way, i.e., in those situations where otherwise ambiguities may arise. I develop an analysis of this pattern within a model of bidirectional optimization in which the hearer also takes into account the speaker’s perspective. I then extend this analysis to strategies attested in head-marking languages (section 3.3), and to the role of word order in the identification of grammatical functions in dependent-marking languages (section 3.4). Finally, in section 3.5, I demonstrate how case systems based on the need to distinguish arguments over time can develop into grammaticalized case systems in which case marking is no longer primarily used for distinguishability.

Before I continue I would like to say a few things about the way I use the terms grammatical function, subject, and object in the discussion to follow. There are many ways these notions are used in the literature and they have acquired a range of different interpretations. I use them in a loose, descriptive way and not in their formal senses as triggers of grammatical processes. Most of the examples to follow are concerned with the recoverability of grammatical or semantic roles, which as stated above will only correlate with certain grammatical functions in accusative languages. Thus, whenever I describe a phenomenon in terms of the distinguishability of grammatical functions, the latter can be interpreted as grammatical or semantic roles.

3.2 Case Distinguishability

Case marking is an extremely effective mechanism to avoid any ambiguity of grammatical relations, as it marks the grammatical function on the noun itself.¹¹ Indeed, in the functional-typological literature one of the main functions ascribed to case marking is a distinguishing one (Comrie 1989, see Song 2001 for discussion). Under this view, case marking is used to distinguish the core arguments in transitive sentences. This function is often taken to explain the fact that the majority of languages with overt case marking leave one of the arguments in a transitive sentence unmarked. That is, most languages follow a nominative/accusative or an ergative/absolute system in which the subject receives unmarked nominative or the object unmarked absolute case respectively. This

¹¹This section is loosely based on de Swart (2003, 2006).

falls out from the distinguishing function in combination with economy considerations, as it suffices to mark one argument overtly to assess the grammatical functions of both arguments of a transitive sentence (cf. Dixon 1979).

The differential object marking system of Malayalam, introduced in chapter 1, fits nicely in with this pattern as it presents an even more economical system by only marking a subset of its direct objects. It was shown that as a general rule in Malayalam only animate, but not inanimate objects are marked with accusative case. This general rule, however, does not capture the entire range of overt case marking of objects, cf. (22) and (23):

MALAYALAM (Dravidian; Asher and Kumari 1997:204)

(22) *Kappal tiramaalakaḷ-e bheediccu.*
 ship.NOM waves-ACC split.PAST
 ‘The ship broke through the waves.’

(23) *Tiramaalakaḷ kappal-ine bheediccu.*
 waves.NOM ship-ACC split.PAST
 ‘The waves split the ship.’

These sentences go against the general rule described above as they contain inanimate direct objects with overt case marking. The occurrence of overt case marking in these examples can be explained as a mechanism to avoid ambiguity. A sentence with the verb ‘split’ and the arguments ‘ship’ and ‘waves’ in principle can have two different meanings, as the contrast in interpretation between (22) and (23) illustrates. Therefore, without overt case marking a sentence with these three elements would be ambiguous. The contrast between (22) and (23) shows that case marking can be used to secure one interpretation over the other. Thus, in Malayalam inanimate objects can be case marked in case of a potential ambiguity in the interpretation of the sentence. Such ambiguity is most likely to occur in sentences in which the subject is also inanimate.

The relation between overt case marking and ambiguity avoidance is further illustrated by the examples in (24) and (25). These sentences also contain two inanimate arguments but this time case marking on the direct object is absent. This can be ascribed to the fact that these sentences only allow one interpretation: a situation in which a hut destroys fire or in which fire extinguishes water is hard to imagine.¹²

¹²Apart perhaps from fairy tales or cartoon-like contexts, cf. section 3.1 above.

MALAYALAM (Dravidian; Asher and Kumari 1997:204)

- (24) *Tiiyyə kuṭil naṣippiccu.*
 fire.NOM hut destroy.PAST
 ‘Fire destroyed the hut.’
- (25) *Vellam tiiyyə keṭutti.*
 water.NOM fire extinguish.PAST
 ‘Water extinguished the fire.’

The connection between object case marking and ambiguity avoidance is acknowledged by Asher and Kumari (1997) in their Malayalam grammar: “[w]hen both subject and object are [-ANIM] and both are in the nominative, their function is determined by semantic features of the verb, since it cannot be determined by word order. However, in the presence of a [-ANIM] subject it is possible for a [-ANIM] object to be in the accusative case to resolve potential ambiguity” (Asher and Kumari 1997:204).

The Malayalam case-marking pattern in (22)–(25) shows how overt case marking can be used as a mechanism to avoid ambiguity in a very economical way. In this language, case marking on inanimate objects is confined to those situations in which ambiguity may arise. Malayalam does not stand alone in using case marking in situations where absence of case may result in interpretational problems. Illustrative of the latter situation are the following two examples from the Sino-Tibetan language Zaiwa in which direct objects are usually only marked when animate. In (27), nevertheless, an inanimate object is followed by the object marker r^{55} (the superscript numbers indicate tones).

ZAIWA (Sino-Tibetan; Lustig 2002:165)

- (26) *Nye¹¹ sing=³¹ lye³¹.*
 bamboo.thong split(bamboo) also+I
 ‘I am/we are splitting bamboo thongs.’
- (27) *Nui³¹ r⁵⁵ sing=³¹ gvan³¹-aq¹.*
 vine OBJ split(bamboo) put.into-SIM
 ‘Make thongs out of vines.’

The two examples involve the same verb, which in both cases occurs with an inanimate object of which only the one in (27) is unexpectedly case marked. Lustig (2002:165) provides the following explanation for the unexpected use of the object marker: “either it is for reasons of clarity, since otherwise the utterance is not readily understood, or the object in question is not the one which is normally expected ... the direct object is marked by an object marker because it is unusual for this entity to be used in this context, since mostly bamboo, not vines are used to make

thongs.” Thus, the use of case marking on the inanimate object in (27) facilitates the interpretation of the sentence.

The distinguishing function of case is closely intertwined with the animacy features of the subject and the object, cf. the Malayalam examples above. The Papuan language Awtuw presents an intricate interaction between animacy and case (Feldman 1986). The interpretation of sentences in this language is dependent on the relative ranking of the arguments in the animacy hierarchy and the use of overt object marking. In the absence of such object marking, the argument which ranks highest in the animacy hierarchy is interpreted as the subject, cf. (28). When the two arguments are equal in animacy they are interpreted as conjoined subjects, cf. (29).

AWTUW (Papuan; Feldman 1986:110)

(28) *Tey tale yaw d-æł-i.*

3.F.SG woman pig FAC-bite-PAST

‘The woman bit the pig.’ **not**: ‘The pig bit the woman.’

(29) *Piyren yaw di-k-æł-iy.*

dog pig FAC-IMP-bite-IMP

‘The dog and the pig bite.’ **not**: ‘The dog is biting the pig/The pig is biting the dog.’

These default interpretations can be overruled by the use of case marking, as illustrated (30) and (31):

AWTUW (Papuan; Feldman 1986:110)

(30) *Tey tale-re yaw d-æł-i.*

3.F.SG woman-OBJ pig FAC-bite-PAST

‘The pig bit the woman.’

(31) *Piyren-re yaw di-k-æł-iy.*

dog-OBJ pig FAC-IMP-bite-IMP

‘The pig is biting the dog.’

By marking ‘woman’ in (30) with the object suffix it has to be interpreted as the object of the sentence, which goes against the interpretive hierarchy at work in (28). In (31) use of the object marker makes that the two arguments which are equal in animacy are no longer interpreted as conjoined subjects. Instead, the argument ‘dog’ has to be interpreted as the subject. Awtuw only uses case marking in those cases in which absence of overt marking would result in a different interpretation than the one intended. Like Malayalam, this language uses case in a very economical way to ensure recoverability of grammatical functions.

A very similar situation is found in the Papuan language Fore (Scott 1978; Donohue 1999). This language, however, uses overt marking on the subject instead of on the object. Moreover, in this language case does not only interact with the animacy hierarchy, but also with word order. As such, Fore represents a nice mixture of ambiguity avoidance mechanisms. In the absence of case marking, the argument highest in the animacy hierarchy will be interpreted as the subject, cf. (32). This follows the Awtuw pattern above.

FORE (Papuan; Scott 1978:116)

- (32) *Yaga: wá aegúye.*
 pig man 3SG.OBJ.hit.3SG.SU.IND
 ‘The man kills the pig.’ **not**: ‘The pig attacks the man.’¹³

Moreover, it also extends to ditransitive constructions and is independent of word order, cf. (33):

FORE (Papuan; Scott 1978:115)

- (33) a. *Naebá yaga: naninta: amuwe.*
 I pig food 3SG.IO.give.1SG.SU.IND
 b. *Yaga: náebá naninta: amuwe.*
 c. *Naninta: náebá yaga: amuwe.*
 ‘I give the pig food.’

When the two arguments are equal in animacy, word order determines the interpretation, and the first noun phrase is interpreted as the subject (S<O<IO in ditransitives). Examples (34) and (35) illustrate that the reversal of the two noun phrases results in different interpretations:

FORE (Papuan; Scott 1978:115)

- (34) *Mási wá ágaye.*
 boy man 3SG.OBJ.see.3SG.SU.IND
 ‘The boy sees the man.’ **not**: ‘The man sees the boy.’
- (35) *Wa mási ágaye.*
 man boy 3SG.OBJ.see.3SG.SU.IND
 ‘The man sees the boy.’ **not**: ‘The boy sees the man.’

In order to overrule the effects of the animacy hierarchy and word order, the subject can be marked with the marker *-ma* (*-wama* in case of inanimates), called delineator by Scott (1978:100-103).¹⁴ This is illustrated in

¹³Following Donohue (1999:14) *aegúye* is a generic transitive verb of violence. The different English translations ‘kill’ vs. ‘attack’ are probably due to world knowledge.

¹⁴*-wama* is obligatory on inanimate subjects independently of the animacy features

(36) and (37), the counterparts of (32) and (34) respectively:

FORE (Papuan; Scott 1978:116,115)

(36) *Yaga:-wama wá aegúye.*
 pig-DLN man 3SG.OBJ.hit.3SG.SU.IND
 ‘The pig attacks the man.’

(37) *Mási wá-má agaye.*
 boy man-DLN 3SG.OBJ.see.3SG.SU.IND
 ‘The man sees the boy.’

The Fore language thus uses case marking in a way very similar to Awtuw, with the difference that the former language marks the subjects and the latter objects to ensure recoverability of grammatical functions. Malayalam, Awtuw and Fore all exhibit an economical case system in which case marking is only used in those situations where otherwise ambiguity may arise or where the intended meaning is overruled by other interpretive mechanisms. Below, I demonstrate that such case systems can be analyzed in terms of a bidirectional model in which both the hearer’s and the speaker’s perspective are taken into account.

3.2.1 Bidirectionality and Avoid Ambiguity

Restricting the use of overt case marking to those situations in which the intended meaning may not be recoverable implies that the speakers of the languages discussed above take into account the hearer’s perspective as well. That is, in order to determine whether or not to use overt case they have to consider whether the absence of case results in the intended interpretation. As such, the case systems discussed above are prime candidates for an analysis in terms of Bidirectional Optimality Theory, an extension of regular (unidirectional) Optimality Theory as developed by Prince and Smolensky (1993/2004).

Optimality Theory (OT) views grammar as an optimization procedure. For a given input the grammar generates a set of possible output candidates by means of the generation function GEN. These potential output candidates are evaluated with respect to a set of constraints, which are violable, potentially conflicting, and ranked with respect to one another.

of the object. According to Scott (1978), it turns nouns into potential agents, the only elements allowed as transitive subjects. *-wama* seems to be composed of the subject marker *ma* and the noun *wa* ‘man’. The latter can be interpreted as a bridge morpheme (cf. Aristar 1997 discussed in section 3.1), which makes agentive marking available for an atypical agent. Donohue (1999) reports that, although historically maybe an ergative case, in the synchronic language the delineator can be best viewed as a marked nominative case.

The output candidate with the best constraint violation profile comes out as the optimal candidate. It is standard practice in OT to visualize the evaluation of output candidates by means of tableaux in which ‘*’ indicates a violation of a constraint, ‘!’ a fatal violation of a constraint which deems the candidate suboptimal, and where ‘☞’ designates the optimal candidate which the grammar provides as the output.

In standard OT a distinction is made between OT syntax and OT semantics. The former concerns productive optimization from meaning to form, and the latter interpretive optimization from form to meaning. Both OT syntax and OT semantics are complete theories about the relation between form and meaning. However, it has been argued that the independent combination of the two theories does not yield a model that assigns a consistent relation between form and meaning (Zeevat 2000; Beaver and Lee 2004). That is, it is possible that one does not end up with the meaning one started with when OT syntax and semantics are applied successively. To overcome this problem different models of bidirectional optimization have been proposed in recent years in which OT syntax and semantics are dependent on one another, as the outcome of one direction of optimization constrains the outcome of the other direction (see Beaver and Lee 2004 for a comparison of these different approaches).

I introduce here an asymmetric version of bidirectional OT (similar in spirit to that of Zeevat 2000; Smolensky 1996; Donohue 1999) in which the outcome of the production component is constrained by the interpretational component, but not (necessarily) vice versa. In particular, I propose that a form f is bidirectionally optimal for a given meaning m iff the meaning m is uniquely recoverable from that form f and there is no bidirectionally optimal form f' which is less marked than f . This means, that a form which is optimal from the production perspective can be rejected as the output candidate when it results in the wrong interpretation. As a result, a candidate which is suboptimal from the production perspective can become bidirectionally optimal (given that it does express the intended meaning).

Before showing how this model applies to the data discussed above, let me first introduce the constraints involved. The first is a general economy constraint. As noted above, economy considerations are often invoked in order to explain why in a majority of languages with case marking only one of the arguments of a transitive sentence is overtly marked. I take the following constraint to hold:¹⁵

¹⁵An economy constraint can be found in one formulation or the other in many approaches of different theoretical persuasions. See Malchukov and de Swart (to appear) for discussion and references.

- (38) ECONOMY: avoid the use of overt case marking.

This production constraint reflects the idea that case is used economically in differential object marking languages (cf. Aissen 2003). It is violated by the use of overt case marking and as such favours unmarked objects over marked ones.

On the interpretation side there are two general constraints. I follow Zeevat (2000; see also Zeevat and Jäger 2002) in employing the general constraint FAITHINT which requires hearers to interpret all the speaker has said. In the presence of overt morphology this constraint guides the hearer to the right interpretation:

- (39) FAITHINT: make use of available morphosyntactic information.

This constraint is violated by any interpretation in conflict with the provided morphosyntactic information. An example of such a violation is assignment of the subject function to an argument marked with accusative case. This constraint is (potentially) in conflict with a constraint which interprets sentences purely on the basis of semantic information.

In recent years statistical tendencies made their way into formal modeling within the framework of OT. Zeevat and Jäger (2002) hypothesize that hearers make use of statistical regularities and that they interpret sentences accordingly. They propose a BIAS constraint which is violated by an interpretation which goes against such statistical regularities (see also Cable 2002; Aissen 2004; Jäger 2003; Mattausch 2004).¹⁶ I adopt a version of BIAS which incorporates the regularities shown in Table 3.1:

- (40) BIAS: interpret a sentence according to the regularities in Table 3.1.

In the languages under discussion the relevant semantic information is the animacy feature of an argument. As shown in section 3.1, subjects tend to be animate, whereas inanimates tend to go in object position. Thus, when confronted with a sentence with an animate and an inanimate argument, BIAS will interpret the former as the subject and the latter as the object. In case both arguments are (in)animate, the result is an ambiguous interpretation.

Animacy is not the only semantic information subsumed under BIAS. Table 3.1 gives an overview of the prototypical properties of subjects and

¹⁶Statistical approaches to language modeling are widespread outside the paradigm of generative grammar (see the contributions to Bod et al. 2004 for an overview). In line with such approaches, Zeevat (2002:174) takes BIAS to be “an abstract expression of the concept of Data Oriented Parsing” as developed by Bod and Scha (1997).

Transitive subject (A)	Direct object (O)
+ animate	± animate
+ definite	± definite
given	± new
pronominal	± nominal
topic	comment

Table 3.1: Properties of subjects (A) and objects (O)

objects cross-linguistically. It shows a clear asymmetry between transitive subjects and objects. The former have a clear profile, they are typically animate, definite, correspond to given information and are topical. Such a profile is missing for objects, which can be animate or inanimate, definite or indefinite, etc. This asymmetry is corroborated by the following quote from England (1991) concerning subject and object features in Mayan languages. In these languages, in particular animacy and definiteness play an important role in the marking of subjects and objects: “subject nouns are expected to be agents and therefore likely to be animate, and subject nouns are expected to be old information and therefore are likely to be definite. Hence basic word order sentences will have animate and definite subject nouns. No such expectations regarding objects exist. They are usually patients, which can be animate or inanimate, and they can be old or new information, so either definite or indefinite” (England 1991:479).

The prototypical properties in Table 3.1 stand in clear contrast to the analysis presented in Aissen (1999, 2003), who takes prototypical subjects and objects to be mirror images of each other: the former are animate, definite, and discourse prominent (topics); the latter, inanimate, indefinite, and non-discourse prominent. This contrast is taken to be an instance of markedness reversal which states that what is unmarked for subjects is marked for objects and vice versa (Comrie 1989). Næss (2004b) takes issue with this characterization of prototypical direct objects and shows that inanimate and indefinite direct objects, which are considered prototypical direct objects by Aissen, are often not realized morphosyntactically as objects at all. Instead, they surface in intransitive configurations such as object incorporation constructions. However, Aissen’s characterization of prototypical objects is meaningful from an interpretational perspective. As was discussed in section 3.1, corpus studies have shown inanimates to correlate highly with the object function. Therefore, when confronted with an inanimate argument, the constraint

BIAS will assign it the function of direct object.

The final constraint on interpretation used in the analysis is SELECTION (cf. de Hoop and Lamers 2006):

(41) SELECTION: obey the selectional restrictions of the verb.

As was shown in section 3.1 above, the argument structure of a given verb can have a profound effect on interpretation. This is reflected in this constraint which is violated by any interpretation that goes against such restrictions.

With the relevant constraints in place, let me show how my bidirectional model can account for the case-marking patterns discussed above. Tableaux 3.1 and 3.2 show the bidirectional evaluation of the Malayalam examples (22) and (24), respectively. They should be read in the following way. The top parts of the tableaux shows the productive optimization (PROD) of a given input, specified in the top left cell, and lists the relevant output candidate forms. These candidates are submitted to interpretive optimization (INT) in the lower part of the tableaux where again only the relevant interpretation candidates are shown. Candidates which are optimal from a unidirectional perspective are preceded by ‘ $\mathbb{1}$ ’ and those which are bidirectionally optimal by ‘ \mathbb{M} ’. Gray shading indicates the candidates which are suboptimal from the bidirectional perspective. The ranking of the constraint FAITHINT and SELECTION over BIAS reflects the observation that morphosyntactic information is a stronger cue than semantic information in determining grammatical functions of arguments. In other words, the statistic regularities in Table 3.1 can be seen as a last resort, only when no other morphosyntactic info is available will a hearer determine the interpretation on the basis of BIAS.

Tableau 3.1 gives the bidirectional optimization of the meaning that ‘the ship split the waves’. The two relevant output candidates are one with an unmarked object (candidate *a*) and one with an accusative-marked object (candidate *b*). The latter candidate is suboptimal from the production perspective due to a violation of the constraint ECONOMY incurred by the use of accusative case. As a result, the candidate with the caseless object, which does not violate this constraint, is optimal from the production perspective. However, in order to find out whether it is also bidirectionally optimal we have to submit the candidates to the interpretive component as well.

Consider first the interpretive optimization of candidate *a* (INT_{*a*}). Both interpretations violate the interpretation constraint BIAS due to the fact that they have an inanimate subject. Neither violates the other interpretation constraints FAITHINT and SELECTION, and as a result the

PROD: split(ship,waves)		ECON	FAITH	SEL	BIAS
	a. ship.NOM waves.NOM split				
	b. ship.NOM waves.ACC split	*!			
INT _a : ship.NOM waves.NOM split		ECON	FAITH	SEL	BIAS
	(i) split(ship,waves)				*
	(ii) split(waves,ship)				*
INT _b : ship.NOM waves.ACC split		ECON	FAITH	SEL	BIAS
	(i) split(ship,waves)				*
	(ii) split(waves,ship)		*!		*

Tableau 3.1: Evaluation of example (22)

two interpretations show exactly the same violation pattern. This means that both the interpretation that the ship split the waves (i) and the interpretation that the waves split the ship (ii) come out as optimal. As a result, the intended meaning is not uniquely recoverable from candidate *a* and hence this candidate is not bidirectionally optimal, as indicated by the gray shading. Candidate *b*, by contrast, does make the intended meaning uniquely recoverable, as shown by INT_{*b*}. Here the intended meaning (i) comes out as the optimal interpretation due to a violation of the constraint FAITH_{INT} by the reverse interpretation (ii). This violation results from the fact that ‘waves’ is interpreted as the subject even though it is overtly marked with accusative case. Because candidate *b* makes the intended meaning uniquely recoverable, and candidate *a* does not, it is bidirectionally optimal, indicated by ‘’ and produced as the output form for the intended meaning by the grammar. Thus, Tableau 3.1 shows how a candidate which is suboptimal from the production perspective can become bidirectionally optimal due to the fact that the other candidate is not uniquely recoverable.

Now consider Tableau 3.2 which shows a situation in which the candidate which is optimal from the production perspective is bidirectionally optimal as well. It visualizes the evaluation of the intended meaning that ‘fire destroyed the hut’. As in the previous tableau, candidate *a* with the unmarked object comes out as optimal from the production perspective due to a violation of ECONOMY by the accusative-marked object of the *b*-candidate. This time, however, this candidate is also bidirectionally optimal as it uniquely recovers the intended meaning. INT_{*a*} shows that the intended meaning (i) is the optimal interpretation for candidate *a* as it performs better on the interpretation constraints than does the reverse

PROD: destroy(fire,hut)		ECON	FAITH	SEL	BIAS
☞	a. fire.NOM hut.NOM destroy				
	b. fire.NOM hut.ACC destroy	*!			
INT _a : fire.NOM hut.NOM destroy		ECON	FAITH	SEL	BIAS
☞	(i) destroy(fire,hut)				*
	(ii) destroy(hut,fire)			*!	*
INT _b : fire.NOM hut.ACC destroy		ECON	FAITH	SEL	BIAS
☞	(i) destroy(fire,hut)				*
	(ii) destroy(hut,fire)		*!	*	*

Tableau 3.2: Evaluation of example (24)

interpretation (ii). Both interpretations violate BIAS as they assign an inanimate argument the subject function. They differ, however, in their behaviour with respect to SELECTION, which is only violated by (ii) as ‘hut’ does not satisfy the selectional restriction the verb ‘destroy’ puts on its subject argument. Both candidates perform equally well on the constraint FaithInt due to the absence of morphosyntactic cues which can be violated. Hence, the violation of SELECTION by interpretation (ii) makes this candidate suboptimal with respect to interpretation (i). The fact that only the intended meaning (i) comes out as optimal makes this meaning uniquely recoverable and as a result candidate *a* is bidirectionally optimal. The fact that also candidate *b* makes the intended meaning uniquely recoverable, as the possible interpretations for this candidate show a similar constraint violation profile as those of candidate *a*, does not withhold candidate *a* from becoming bidirectionally optimal. Given that it is optimal from the production perspective, this candidate is the preferred output candidate.

These tableaux show how my bidirectional approach can model the flexible use of case marking discussed above. By taking into account the interpretation perspective, a speaker can determine whether the sentence he wants to utter is likely to result in an interpretation different from the one he intended. If this is the case, as in (22)-(23), he will mark the object with accusative case, otherwise he will refrain from using overt case marking, cf. (24)-(25).

A clear advantage of this approach is that recoverability results from the optimization mechanism itself instead of having to be stipulated as a separate constraint. As a result, I can do without a constraint like DISTINGUISHABILITY proposed in earlier work (de Swart 2003, 2006), which

explicitly required the use of overt case marking in case of ambiguity. In the present model the effect of distinguishability falls out from the bidirectional optimization procedure. As such, I consider it more parsimonious than my previous account.

3.3 Recoverability: Alternative Strategies

In the introduction of this chapter I have shown that in the absence of other principles guiding interpretation, head-marking languages can be confronted with an indeterminacy with respect to grammatical function. In this section, I discuss strategies employed by head-marking languages in order to prevent such situations from occurring. In most languages, this indeterminacy only arises in sentences with two third-person arguments, as the verb agrees with the same person/number combination for both arguments (cf. Nichols 1986:112). Given that head-marking languages generally have different sets of subject and object markers, the assignment of grammatical function is unproblematic in sentences with asymmetric person and/or number features. This is illustrated with examples from Fore:

FORE (Papuan; Donohue 1999:12)
 (42) *Na-ka-a:N-e.*
 1SG.OBJ-see-2SG.SU-IND
 ‘You see me.’ **not** ‘I see you.’

In (42) the marker *na* uniquely identifies the first person as the object and the marker *a:N* uniquely identifies the second person as the subject. A reverse interpretation is impossible. Indeed, the use of case marking as discussed in the previous section only occurs in sentences with two third-person arguments. In other words, case is only needed in those situations where agreement cannot help to disambiguate the roles of arguments.

Of course, sentences with two full NPs are only ambiguous in languages without a fixed word order. Consider the following example from Malagasy:

MALAGASY (Austronesian; Maclachlan 2002:161)
 (43) *Mamono ny akoho amin'ny antsy ny mpamboly.*
 AT.kill DET chicken with'DET knife DET farmer
 ‘The farmer kills the chicken with a knife.’

In Malagasy, the functions of subject and object are expressed by the position of the arguments. The final position corresponds to the subject

function and medial position preceding prepositional phrases is reserved for direct objects. Due to this positional linking no ambiguity whatsoever arises. Thus, even though Malagasy does not mark grammatical relations with overt morphology on the head or the dependents, hearers can still figure out which NP is the subject and which one the object. This situation is different in languages which do not observe such a fixed word order.

In the Salish languages, spoken in British Columbia and adjacent areas of the US, sentences with two direct nominal arguments are almost entirely excluded from discourse.¹⁷ Even in elicited speech such constructions are dispreferred, according to Jelinek (1996a) because the order of the direct arguments is completely free. Instead, speakers prefer a passive construction to express a proposition containing two direct nominal arguments. Compare the Lummi example in (44) with the one in (45):

LUMMI (Coast Salish; Jelinek 1996a:288)

(44) ?*K^wəniŋ-t-s* sə *sʔeniŋ'* cə *swey'qə'*.

help-TR-3SG.SU DET woman DET man

'The woman helped the man.' **or** 'The man helped the woman.'

(45) *K^wəniŋ-t-ŋ* 'ə sə *sʔeniŋ'* cə *swey'qə'*.

help-TR-INTR OBL DET woman DET man

'The man was helped by the woman.' **not**: 'The woman was helped by the man.'

The interaction between word order and recoverability of grammatical roles is also nicely illustrated by Kuipers (1967:169, section 245) who argues for the Coast Salish language Squamish that the usual order is VSO, but that where the context leaves no room for doubt VOS is possible as well (see Davis 1994b for similar examples from other Salish languages). Moreover, the passive construction is always an alternative for the active construction.

Lushootseed, another Coast-Salish language, takes the restriction on active constructions with two direct nominal arguments even further, as such sentences are ungrammatical:¹⁸

¹⁷Kinkade (1983:32) argues that constructions with two direct nominal arguments are the result of English influence: "Probably no Salishan language allowed two direct complements aboriginally, but the restriction has been relaxed due to English language influence." See Davis (1994b) for a different view.

¹⁸The same restriction has been reported by Blake (1997) for the related Salish language Sliammon (Mainland Comox).

LUSHOOTSEED (Coast Salish; Beck 2000:278)

(46) *ʔu-g^wəč'-əd ti stubš ti sq^wəbayʔ.

CP-look.for-TR DET man DET dog

'The man looked for the dog.'

By excluding the active constructions with two overt NPs and 'replace' them with a passive construction in which the agent argument is unambiguously identified by an oblique marker, these languages find a way of getting round a possible ambiguity of grammatical relations. They, nevertheless, differ slightly in how much ambiguity remains. Lushootseed clearly does not tolerate any ambiguity, whereas Lummi has a preference for excluding it but not to the full extent.

Suttles (2004) reports another mechanism to avoid potential ambiguity for the Salish language Musqueam. In this language, VSO seems to be the normal order but VOS is possible as well. He shows that in order to secure one interpretation over the other, speakers can use demonstratives formed with *ʔá* 'be third person', which are subject to a 'subject anaphoric restriction'.¹⁹ As a result, any NP preceded by such a demonstrative has to be interpreted as the subject (see section 3.3.1 for additional examples). Consider the following examples:

MUSQUEAM (Coast Salish; Suttles 2004:49)

(47) a. *Niʔ q'áy-ət-əs tə swáy'qeʔ təwʔ'a smáy'əθ.*

AUX die-TR-3.SU DET man DEM deer

b. *Niʔ q'áy-ət-əs təwʔ'a smáy'əθ tə swáy'qeʔ.*

AUX die-TR-3.SU DEM deer DET man

'The deer killed the man.'

Independently of word order 'the deer' has to be interpreted as the subject due to the presence of the demonstrative.

The exclusion of transitive sentences with two full NP arguments, as found in Lushootseed, is an effective mechanism to avoid situations of ambiguity. It also has its drawbacks as it reduces the number of possibilities to express differences in information structure, for which the ordering of arguments is used. More generally, by restricting the number of possible output forms, it reduces expressivity. As such, it is not surprising that this strategy of ambiguity avoidance is not regularly attested in the languages of the world. A strategy which is commonly found is the use of argument hierarchies to constrain word order.

¹⁹Musqueam has simple and compound demonstratives (see Suttles 2004:351-353 for discussion). The latter ones are formed on the basis of *ʔá* 'be third person' and are probably relative clauses in origin with the meaning 'the one who is third person'.

The latter situation is attested in Haida, a critically endangered language spoken in Alaska and northern British Columbia (Enrico 2003). Like Tohono O'odham, Haida has no agreement or case to mark the grammatical function of an argument, but in contrast word order plays a role. Word order in this language is influenced by the animacy of arguments.²⁰ The relative animacy of the two arguments in a transitive sentence determines which ordering of arguments is possible. In case the two arguments are equal in animacy, the sentence has to be interpreted in such a way that the subject precedes the object, i.e., SO order obtains. This is illustrated in (48):

HAIDA (Na-Dene; Enrico 2003:74)

- (48) *ʔadàahl-.uu Mary Bill qing-gan.*
 yesterday-FOC Mary Bill see-PA
 'Mary saw Bill yesterday/*Bill saw Mary yesterday.'

In this example *Mary* and *Bill* are of equal animacy and the only possible interpretation is for *Mary* to be the subject. In case of unequal animacy, the situation is slightly different. When the argument higher in animacy precedes the argument lower in animacy, again subject before object is the only possible interpretation. This is demonstrated in (49) where *Bill* is higher in animacy than 'the dog'. However, in case the argument with lower animacy precedes the argument with higher animacy both an SO and an OS interpretation are possible. The example in (50) shows that such an ordering results in ambiguity.

HAIDA (Na-Dene; Enrico 2003:75)

- (49) *Yaank'ii.an-.uu Bill x-aay gu'laa-gang.*
 truly-FOC Bill dog-DEF like-PR
 'Truly Bill likes the dog/*Truly the dog likes Bill.'
- (50) *Yaank'ii.an-.uu x-aay Bill gu'laa-gang.*
 truly-FOC dog-DEF Bill like-PR
 'Truly Bill likes the dog/Truly the dog likes Bill.'

These Haida examples show that by ranking arguments on the basis of their animacy and by connecting this ranking to certain interpretational principles, the amount of potential ambiguity can be reduced to a certain extent. Nevertheless, as the example in (50) shows, some ambiguity remains in this system. However, Enrico notes that such ambiguity is commonly resolved by context (Enrico 2003:77). Furthermore, he shows

²⁰Enrico (2003) uses the notion potency, which can be seen as an elaboration of animacy, incorporating other factors such as social rank and acquaintance.

that the ordering principles above can be overruled by other semantic information as is illustrated in the following example:

HAIDA (Na-Dene; Enrico 2003:77)

- (51) *ʔadàahl-wu x-aay sqaw-ee skayj-an.*
 yesterday-FOC dog-DEF chicken-DEF peck-PA
 ‘The chicken pecked the dog yesterday.’

The arguments in (51) are of equal animacy and according to the interpretational rules the only possible interpretation should be SO, i.e., ‘the dog’ should be the subject and the chicken the object. However, this is overruled by the selectional restrictions of the verb ‘to peck’, which provides additional evidence for the constraint SELECTION introduced in the previous section. Given that a chicken and not a dog is typically involved in the act of pecking, the interpretation of (51) shifts from SO to OS. Thus, again we see that apart from animacy, other semantic information provided by the verb can assist in arriving at the right interpretation of a sentence in the absence of morphosyntactic clues.²¹ The likelihood of a noun phrase to fulfill a certain role based on the lexical information of the noun phrase and the verb is sometimes referred to as the thematic fit of an argument. Enrico shows that this thematic fit takes priority over the ordering principles. Only when thematic fit fails to determine an unambiguous interpretation, the relative animacy of arguments comes into play. In the account developed in the previous section this can be modelled by ranking SELECTION over BIAS.

Haida only makes limited use of argument hierarchies to guide the interpretation of transitive sentences. Extensive use of hierarchies can be found in languages with an obviation and/or inverse system (see Klaiman 1992; Givón 1994b; Aissen 1997; Zúñiga 2006). In an obviation system the nominals in a sentence with two (or more) third person arguments are ranked according to their (discourse) prominence. The most prominent NP is coined the proximate argument and outranks the other argument(s) which are given obviative status. The obviation status interacts with the linking of arguments to grammatical functions and with the verbal morphology. In languages with an inverse system, verbs come in two forms: the direct and the inverse. The obviation status of an argument and the verbal form used determine the interpretation of a sentence. If the direct form is used, the higher-ranked, i.e., proximate, argument is linked to the subject function and the lower-ranked, i.e., obviative, argument to the object function. Use of the inverse form indicates the reverse

²¹Other sources of information which can overrule the ordering principles listed by Enrico (2003:77) are quantification, reflexivity, and the clitic *k’udaan* ‘of own will’.

situation, the proximate argument is the object, and the obviative is the subject.

Let me illustrate this with Kutenai, a language isolate of British Columbia and adjacent areas of Montana and Idaho, which combines an obviation system with an inverse system. Consider the following examples:

KUTENAI (isolate; Dryer 1994:65)

(52) *Wu.kat-i pałkiy-s titqat'.*

see-IND woman-OBV man

'The man sees the woman.'

(53) *Wu.kat-aps-i titqat'-s pałkiy.*

see-INV-IND man-OBV woman

'The man sees the woman.' (or 'The woman was seen by the man.')

When we compare (52) and (53) we observe two differences. First, in (52) 'woman' is marked with the obviative marker *-s*, whereas in (53) it is 'man' which carries this marking. Secondly, the verb in (53) is augmented with the inverse marker (*-aps*), whereas in (52) this marker is absent and the verb is in its direct form. The direct verb form makes the noun marked with the obviative marker the object of the clause (cf. (52)). However, when the inverse form of the verb is used, the obviative noun is interpreted as the subject (cf. (53)). Due to these markings a hearer of a Kutenai sentence with two overt NPs can figure out which one is to be interpreted as the subject, and which one as the object.

The combination of inverse and obviation marking can be, and has been seen as a mechanism to reduce potential ambiguity (see, e.g., Nichols 1986; Klaiman 1992; Aissen 1997 for discussion). Indicative of such an analysis is the fact that obviation only occurs in sentences with two (or more) third-person arguments, just like overt case marking in Fore. It should be noted, however, that inverse marking in many languages also occurs outside such sentences. Historically though it seems to originate in sentences with two third person arguments (see Zúñiga 2006:248-249 for discussion of the evolution of inverse systems). Furthermore, it should be acknowledged that inverse and obviation systems no longer fulfill (solely) a disambiguation function in present-day languages, but have acquired other functions primarily related to discourse structuring. Disambiguation can be seen as a welcome side effect of this main function.

Navajo is very similar to languages with obviation, even though it

lacks obviation morphology.²² Transitive verb forms with a third person argument can be prefixed either with *yi* or with *bi* (see also the discussion in the next section). The use of these prefixes is partially dependent on the animacy of the arguments involved (cf. Hale 1973 and Frishberg 1972). Again the description to follow only holds for sentences with two third person arguments, showing its relation to disambiguation.

In case the agent and the patient are equal in animacy either *yi* or *bi* can be used, with a concomitant change in word order:

NAVAJO (Athapaskan; Hale 1973:300)

(54) *łíí dzaanééz yi-ztał.*
 horse mule YI-kicked
 ‘The horse kicked the mule.’

(55) *Dzaanééz łíí bi-ztał.*
 mule horse BI-kicked
 ‘The horse kicked the mule.’

These two sentences differ in word order and in the verbal prefix used, but have the same interpretation. In case the *yi* prefix is used, the agent precedes the patient. The opposite holds when the *bi* prefix is used, in which case the patient precedes the agent. When the agent and the patient differ in animacy the use of the two prefixes is constrained. A sentence in which the agent is higher in animacy than the patient can only occur with the *yi* prefix, as illustrated in (56). In the reverse situation, *bi* is obligatory, cf. (57):

NAVAJO (Athapaskan; Hale 1973:302)

(56) *Diné dził yooí/*boo’í.*
 man mountain YI.sees/BI.sees
 ‘The man sees the mountain.’

(57) *Dibé tó ‘abíł/*‘ayíł ‘éél.*
 sheep water BI.swept/YI.swept off
 ‘The water swept the sheep off.’

Navajo provides a prime example of a language in which the relative animacy of arguments interacts with verbal morphology to reduce ambiguity. Moreover, in this system ambiguity is eliminated while a maximum in freedom of word order is obtained, which can be used to express differences in information structure.

²²See Aissen (2000) for an analysis of Navajo in terms of obviation.

3.3.1 One Nominal Interpretation and Bias

In this section I discuss a constraint on the interpretation of transitive constructions with two third person arguments, of which only one is a full noun phrase. This constraint is, for instance, found in the Salish languages, discussed in the previous section. It is often referred to as the *One Nominal Interpretation* constraint (ONI) and was formulated by Gerdts (1988) in the following way:

(58) *One Nominal Interpretation:*

In the absence of marking for other persons, a single 3rd person nominal is interpreted as the absolutive.²³ (Gerdts 1988:59)

The example from Lushootseed - a Coast Salish language - in (59) illustrates this constraint nicely:

LUSHOOTSEED (Coast Salish; Hess 1995:22)

(59) $\text{ʔu-ʔəy'-dx}^w \quad ti \quad sq^wəbayʔ.$

CP-find-LC.TR DET dog

'He found the dog.' **not**: 'The dog found him.'

In (59) we see a transitive predicate with two third person arguments, which are both not marked on the verb, and one full noun phrase. The only feasible interpretation is one in which the nominal is assigned the role of the undergoer of the event, i.e., $ti \quad sq^wəbayʔ$ is the direct object. An interpretation in which the nominal is assigned the grammatical function of subject is ruled out. In order to express a one nominal sentence in which the single noun phrase is the agent, a passive construction has to be used.²⁴

²³Gerdts (1988) analyzes Halkomelem as a split ergative language in which third person transitive subjects (A) are marked with ergative $-əʂ$ and transitive object (P) and intransitive subject (S) are unmarked (=absolutive). We can reformulate the constraint as stating that the single NP has to be interpreted as the direct object (P).

²⁴No general agreement exists in the literature to characterize this construction as passive (see, e.g., Gerdts 1988; Thompson and Thompson 1992; Thomason and Everett 1993 for discussion). Formally it resembles a passive to a large extent, i.e., the verb is detransitivized and the agent is marked as an oblique phrase. The patient is however not always cross-referenced with subject agreement but in many languages with transitive object agreement (see Wiltschko 2001). Functionally, these constructions do not always behave as a passive would be expected to (see Jacobs 1994). Bearing these considerations in mind I will nevertheless use the term passive descriptively to refer to constructions as the one in (60). See section 4.3 for discussion of active-to-passive alternations in Salish.

LUSHOOTSEED (Coast Salish; Hess 1995:19)

(60) *ʔu-ʔəy'-du-b ʔə ti sq^wəbaɣʔ.*

CP-find-LC.TR-PASS OBL DET dog

'He was found by the dog.'

The Salish languages are not the only languages that have an ONI restriction that assigns the object function to the single NP. It has also been reported for Navajo (Athapaskan; Platero 1982; Woolford 1986), Kutenai (Isolate; Zúñiga 2006:133-134) Chamorro (Austronesian; Chung 1984), and Mam (Mayan; England 1983), all head-marking languages to a certain extent. An example from Navajo is given in (61):

NAVAJO (Athapaskan; Platero 1982:287)

(61) *Ashkii yi-yiitsá.*

boy 3-saw

'He saw the boy.' **not:** 'The boy saw him.'

Again we find that the single noun phrase has to be interpreted as the patient argument of the verb. As in Salish, it is possible to make a single noun phrase the agent of a sentence but a different construction has to be used. In this case the *bi* prefix has to be attached to the verb instead of the *yi* prefix:

NAVAJO (Athapaskan; Platero 1982:287)

(62) *Ashkii bi-iitsá.*

boy 3-saw

'He was seen by the boy.'

The existence of the same interpretation constraint in different (unrelated) languages raises two immediate questions: (i) why does this constraint exist (in these languages)?; and (ii) why should this constraint assign the full NP the object function and not that of subject? Let me start with the first question.

In my view ONI serves as a device to ensure recoverability of grammatical relations. In head-marked constructions like the one in (59) the verb tells that there are two third person arguments involved in the event denoted by the verb. It does not tell to which third person argument the full noun phrase has to be linked. In principle it is possible to link it either to the subject or to the object function. Without a rule like ONI, such constructions would be ambiguous with respect to the grammatical function of the nominal, and every time a hearer encounters such a construction he would have to figure out what function has to be assigned to the nominal. It is much easier for the hearer to assign the same func-

tion to a nominal whenever he encounters one. That is, to know that when he encounters a sentence with two third-person arguments of which only one is a nominal, he has to interpret it as the object. A rule that determines the interpretation of single NP constructions in a (standard) straightforward way speeds up the processing of such sentences (see Hale et al. 1977; Platero 1982; Chung 1984, for a similar explanation).

Evidence for the analysis that ONI is related to recoverability comes from the fact that this constraint is only active in sentences with two third-person arguments (3-3 sentences). In sentences in which the noun phrase occurs with a local person it can be bound to either the subject or object function depending on the agreement morphology present. As discussed above, the agreement morphology of first and second persons uniquely determines the grammatical function. Consider the following example:

LUSHOOTSEED (Coast Salish; Hess 1973:90)

(63) *ʔu-č'áx^wa-t-s* *tí* *č'ač'as*.

CP-club-TR-1SG.OBJ DET boy

'The boy clubbed me.'

The suffix *-s* is the first-person object marker and due to its presence the single nominal of the sentence has to be interpreted as the subject. If we were to replace this object marker with the first-person subject marker *čəd*, the nominal would have to be interpreted as the object. Thus, in these cases agreement morphology makes available only a single interpretation. This should be interpreted as the result of the constraint FAITHINT introduced in the previous section.

The remaining question is: if we want to have a fixed interpretation for 3-3 sentences containing a single nominal, how are we going to decide which interpretation we standardly assign? Put differently, what reason do we have to link this single noun phrase to the function of direct object? The constraint BIAS, introduced in section 3.2.1 (see also Table 3.1), provides the answer. Topical arguments tend to go in subject position and tend to have reduced morphological realization (cf. Chafe 1976; Du Bois 1987; Givón 1990). This means that the full noun phrase is not likely to be associated with the function of subject, and therefore gets interpreted as the object (see Gerdts and Hukari 2003; Davis 1994a for the same conclusions on the relation between topics and ONI in Salish).²⁵ In other

²⁵Matthewson (1996:109-110) relates the inability of full NPs to occur in subject position to the fact that they cannot be presuppositional. Given that the subject position is reserved for topics, which carry a presupposition, it follows that full NPs are not allowed as in this position. It is not clear to me how this analysis can account

words, ONI forms a reflection of what is found most in discourse.

Evidence for an analysis of ONI as a violable constraint BIAS comes from specific cases in which it is overruled. Citing Willie (1991), Aissen (2000) presents the following examples from Navajo:

NAVAJO (Athapaskan; Aissen 2000:14)

(64) *'Ashkii yiyíbiłł.*

boy YI.picked.round.objects

'The boy picked them (round objects).'

(65) *'Ashkii yóldon.*

boy YI.shoot.at

'The boy is shooting at it.'

As discussed above, the single nominal in Navajo *yi*-clauses normally has to be interpreted as the direct object (patient). In the *yi*-sentences in (64) and (65) it nevertheless has to be interpreted as the subject (agent). Following Willie (1991), Aissen (2000) argues that these violations of ONI are due to the inanimacy of the patient. According to her the ONI effect in Navajo is due to a violable constraint which prohibits lexical subjects.²⁶ Examples like (64) and (65) are the result of a higher ranked constraint prohibiting inanimate subjects. When we recast this analysis in terms of BIAS constraints, the Navajo data provide us with evidence for a complex notion of BIAS in which the component features are ranked with respect to one another (see Aissen 2003, 2004 for a decomposition of BIAS). In Navajo, the bias to have animate subjects is stronger than the bias to have lexical objects. This means that in Navajo the constraint BIAS_{animacy} is ranked higher than BIAS_{NPtype}.²⁷

Interestingly, Salish shows the opposite pattern, as the following example from Halkomelem demonstrates ('#' indicates pragmatic oddness):

HALKOMELEM (Coast Salish; Gerdts 1988:58)

(66) #*Ni? q^wəl-ət-əs tə słeni?*

AUX bake-TR-3SG.SU DET woman

'He baked the woman.' **not**: 'The woman baked it.'

Here, the single noun phrase still has to be interpreted as the object even though this results in an unlikely interpretation. Apparently, the

for the fact that full NPs can become the subject of sentences with a first or second person patient, cf. (63) above.

²⁶In fact, Aissen (2000) develops an analysis of Navajo *yi* and *bi*-clauses in terms of abstract obviation (cf. Aissen 1997), and therefore uses the term proximate for subjects in *yi*-clauses.

²⁷Chamorro, discussed in Chung (1984), observes the same ranking.

ONI-constraint is so strong that even in pragmatically-odd situations it cannot be overruled. This indicates that in Salish ONI, originally a recoverability mechanism, shows a high degree of grammaticalization. One way of capturing this in terms of BIAS is by having $\text{BIAS}_{NP\text{type}}$ as the highest-ranking component feature, i.e., the reverse order from Navajo.

Further cross-linguistic evidence for a treatment of ONI in terms of BIAS comes from Takelma, a language which was spoken in southern Oregon, and is discussed in Aissen (2004, who based herself on Culy 2000, who in turn based himself on Sapir 1922). Takelma has two third person object markers. One marker is morphologically zero and unrestricted in its reference and use. The second marker $-k^hwa$ is restricted in its use, and is of interest to the present discussion. This marker can only be used in sentences with two third person arguments, but obeys certain restrictions. First, it is always used when the object is higher in animacy than the subject. Second, when the subject and object are equal in animacy, it is used when the object is topic, i.e., outranks the subject in topicality. Thus, $-k^hwa$ is limited to situations which go against the statistical tendencies of the constraint BIAS. In other words, this marker signals a violation of this constraint.

Moreover, its use lends strong support for an analysis in terms of recoverability of grammatical functions and for a model which takes into account both the hearer's and the speaker's perspective. This becomes clear from the following two examples:

TAKELMA (possibly Oregon Penutian; Aissen 2004:6)

(67) *T'ipisi: t'ayák^h.*
 ants found
 'He found the ants.'

(68) *T'ipisi: t'ayá:-k^hwa.*
 ants found-OBJ
 'The ants found him.'

Sapir (1922) analyzed the occurrence of $-k^hwa$ in terms of recoverability. The example in (67) without the object marker can only be interpreted in such a way that the full NP functions as the object, i.e., in accordance with BIAS. When the reverse interpretation is intended $-k^hwa$ has to be used, cf. the *yi/bi*-alternation discussed above.

So far, I have established that ONI functions as a recoverability mechanism which determines the interpretation of a single noun phrase by means of the violable constraint BIAS. As such, it fits in perfectly with

INT: (63)	<i>ʔuč'áx^wat-s ti č'ač'as</i> clubbed-1SG.OBJ the boy	FAITHINT	BIAS
a.	I clubbed the boy	*!	
 b.	The boy clubbed me		*

Tableau 3.3: Interpretive optimization of example (63)

INT: (59)	<i>ʔuʔəy'dx^w ti sq^wəbayʔ</i> found the dog	FAITHINT	BIAS
 a.	He found the dog		
b.	The dog found him		*!

Tableau 3.4: Interpretive optimization of example (59)

the bidirectional model I proposed in 3.2.1 (see also Aissen 2004).²⁸ Above I have shown that ONI only applies in sentences with two third-person arguments. In sentences with a first or second person argument the obligatory assignment of the full NP to the object function can be overruled by agreement morphology. The fact that morphosyntactic information is a stronger cue than semantic information follows from the ranking of FAITHINT over BIAS. Tableaux 3.3 and 3.4 illustrates how this analysis works by only focusing on interpretive optimization.

Tableau 3.3, corresponding to example (63), illustrates that in the presence of unambiguous agreement morphology the higher-ranked constraint FAITHINT correctly rules out an interpretation in which the single nominal is taken as the object. Due to the fact that only candidate *a* violates FAITHINT candidate *b* is the optimal interpretation even though it violates BIAS. In the absence of unambiguous agreement morphology both candidates satisfy the highest-ranked constraint, cf. Tableau 3.4. Candidate *b* violates BIAS because it interprets the nominal as the subject. As a result candidate *a* comes out as the winner. This is in accordance with example (59) above.

Tableaux 3.3 and 3.4 demonstrate that the interpretation of single full NPs can be analyzed as an interaction between two violable constraints on interpretation. Let me now show how the bidirectional analysis can model which construction a speaker will use in order to express a given meaning. For instance, the obligatory use of a passive construction in

²⁸Aissen (2004) develops an analysis for Takelma within Blutner's 2000 Weak Bidirectional OT using BIAS.

PROD: find(dog,him)	FAITHINT	BIAS
 a. Active (59)		
  b. Passive (60)		
INT _a : Active (59)	FAITHINT	BIAS
(i) find(dog,him)		*!
 (ii) find(he,dog)		
INT _b : Passive (60)	FAITHINT	BIAS
 (i) find(dog,him)		*
(ii) find(he,dog)	*!	

Tableau 3.5: Bidirectional optimization of a nominal agent

case the speaker wants to express the agent as a full NP.

Suppose a Salish speaker wants to utter a sentence with a nominal agent and a pronominal patient, as illustrated in Tableau 3.5.²⁹ From a production perspective both the active and the passive construction come out as optimal, indicated by ‘’. However, when the speaker takes into account the hearer’s perspective, i.e., the constraints FAITHINT and BIAS, he will opt for the latter construction. For, if he were to use an active construction, it would be interpreted in a wrong way. Tableau 3.5 (INT_a) shows that the optimal interpretation for this construction is such that ‘the dog’ is the patient, cf. also Tableau 3.4. The intended interpretation (i) is suboptimal due to a violation of BIAS. For the passive construction, by contrast, the intended meaning (i) comes out as optimal. The tableau shows that the reverse interpretation (ii) in which ‘the dog’ is interpreted as the patient violates the constraint FAITHINT and hence is suboptimal. This is due to the fact that this interpretation can only result from the misinterpretation of the overt oblique marking of the NP, signalling that it is the agent, cf. (60) above. Thus, although both the active and the passive are optimal from a production perspective, only the latter is bidirectionally optimal as it recovers the intended meaning. Its bidirectional optimality is indicated with the symbol ‘’ and the bidirectionally suboptimal status of the active is indicated by the shading.

²⁹Here and in the tableaux to come I focus mainly on interpretational constraints. This does not mean that there are no production constraints involved. Rather, unless crucial for the analysis, they are left out in order to simplify the tableaux. When no production constraints are mentioned, I take the grammar to be able to generate the candidates evaluated.

PROD: find(he,dog)	FAITHINT	BIAS
a. Active		
b. Passive		
INT _a : Active	FAITHINT	BIAS
(i) find(he,dog)		
(ii) find(dog,him)		*!
INT _b : Passive	FAITHINT	BIAS
(i) find(he,dog)		
(ii) find(dog,him)	*!	*

Tableau 3.6: Bidirectional optimization of a nominal patient

By taking into account both the hearer’s and the speaker’s perspective the analysis developed here can straightforwardly explain the obligatoriness of a passive construction in case of an agent nominal. Moreover, it rightly predicts that both an active and a passive construction are possible in case a Salish speaker wants to produce a sentence with two third person arguments of which only the patient is a nominal. This is illustrated in Tableau 3.6. As in the previous example, both the active and the passive are optimal from a production perspective. This time, however, both are bidirectionally optimal because both recover the intended meaning. For the active construction (INT_a) the intended meaning (i) is optimal due to a violation of BIAS by the reverse interpretation (ii). For the passive construction (INT_b) the reverse interpretation (ii) not only violates BIAS but also FAITHINT, as it misinterprets the overt oblique marking of the pronoun, signalling its agenthood. Given that both constructions are bidirectionally optimal, they are both possible expressions of the intended meaning. Following, for instance, Aissen (1999) we can assume that active in these cases is preferred because it is generally less-marked than passive. Passive then is used only in those cases where it is preferred for other reasons. For instance, when the patient is more (discourse) prominent than the agent.

The above discussion shows how the bidirectional model I have proposed in 3.2.1 to account for the flexible use of case marking can be extended to account for ONI as well. As stated above, evidence for this bidirectional analysis of ONI in terms of violable constraints comes from specific cases in which ONI is overruled, cf. the Navajo examples in (64)

and (64). Suttles (2004) shows for Musqueam, a variant of Downriver Halkomelem Salish, that there is one condition under which single full NPs in clauses with two third person participants have to be interpreted as the subject, contra ONI. This is the case when the full NP occurs with a demonstrative formed with $\lambda'á$ ‘be third person’. As was shown in the previous section, NPs occurring with such demonstratives have to be interpreted as the subject, cf. (69):

MUSQUEAM (Coast Salish; Suttles 2004:49)
 (69) $K^wá\acute{n}-\acute{e}t-\acute{e}s$ $t\acute{e}w\lambda'a$ $s\acute{w}i\acute{w}'l\acute{e}s$.
 get.taken-TR-3.SU DEM young.man
 ‘The young man took it.’

Gerdt and Hukari (2003) report similar violations of ONI for Island Halkomelem:

HALKOMELEM (Coast Salish; Gerdt and Hukari 2003:105)
 (70) $s-\acute{e}w'-\acute{x}l\acute{a}s-t-s$ $t^{\theta}\acute{e}w'ni\acute{l}$ $s\acute{p}a:l'$
 NMZ-CON-dine-TR-3SG.SU DEM raven
 ‘And the raven fed them.’

Following Hukari (1979), and on a par with Suttles (2004), they claim that ONI is systematically violated when the single NP contains a third person demonstrative. They provide textual examples of such violations and argue that these are due to a pressure to refresh or re-establish the topic. In their view, this need is strong enough to override the ONI constraint. Let me follow their analysis and implement this pressure to refresh or re-establish the topic as a production constraint:

(71) TOPIC: re-establish the topic by means of a full NP.

It should be added that in Salish the topic is associated with the subject function. As such, this constraint is satisfied when the topic is realized as the subject and violated otherwise (for the marked association between topic and object see Kinkade 1990; Davis 1994a). If we again take into account both the hearer’s and the speaker’s perspective, a violation of ONI indeed comes out as the optimal expression in case a Musqueam speaker wants to refresh the topic. This is shown in Tableau 3.7.

From a production perspective both a regular active and an active construction in which the agent is preceded by a demonstrative with $\lambda'á$ are optimal candidates. The passive construction is ruled out because it links the patient and not the agent argument to the topical subject position and hence violates the constraint TOPIC. If we now submit the

PROD: take(man _i ,it), <i>i</i> =topic, refresh topic	TOPIC	FAITHINT	BIAS
☞ a. Active			
☞☞ b. Active with λ' á			
c. Passive	*!		
INT _a : Active	TOPIC	FAITHINT	BIAS
(i) take(man,it)			*!
☞ (ii) take(it,man)			
INT _b : Active with λ' á	TOPIC	FAITHINT	BIAS
☞ (i) take(man,it)			*
(ii) take(it,man)		*!	
INT _c : Passive	TOPIC	FAITHINT	BIAS
☞ (i) take(man,it)			
(ii) take(it,man)		*!	

Tableau 3.7: Production of a sentence with topic refreshment

two active constructions to the interpretation component, only the active with λ' á comes out bidirectionally optimal. This is due to the fact that the regular active construction results in the wrong interpretation, cf. also Tableau 3.4 above. INT_a shows that the intended meaning (i) violates BIAS and therefore becomes suboptimal. As a result, candidate *a* does not make the intended meaning recoverable and is not bidirectionally optimal. The intended meaning (i) is the optimal interpretation for candidate *b* even though it violates BIAS. This results from the fact that the alternative interpretation (ii) violates FAITHINT, as it assigns the λ' á-marked NP the function of direct object. Candidate *b* therefore makes the intended meaning recoverable and hence is bidirectionally optimal. The fact that the passive candidate *c* also results in the intended interpretation does not affect the outcome of the bidirectional optimization, as it is suboptimal from the production perspective with respect to candidate *b*. Tableau 3.7 shows that by taking into account both the hearer's and the speaker's perspective, the speaker has no other choice but to use an active construction with a full NP preceded by a demonstrative in case he wants to refresh an agent topic.

In this section I have shown that the one nominal interpretation (ONI) constraint found in several languages can be analyzed as a strategy to ensure recoverability of grammatical relations. I have shown that ONI can be interpreted as a violable constraint which incorporates the statistical

tendencies associated with grammatical functions. Moreover, the analysis of ONI requires a model in which the speaker takes into account the hearer's perspective. This lends further support to the bidirectional model I introduced in 3.2.1.

3.4 Word Order and Exceptional Case Marking

Up to now we have seen that languages develop strategies to avoid ambiguity of grammatical relations. One may expect that such ambiguities do not appear in languages which have overt case marking, as here the grammatical function can be directly read off a noun phrase. This is, however, not necessarily the case. Compare the following examples from German:

GERMAN (Germanic; adapted from de Hoop and Lamers 2006:272,273,276)

(72) *Der Junge hat den Zaun zerbrochen.*

[the boy].NOM has [the fence].ACC broken

'The boy broke the fence.'

(73) *Den Zaun hat der Junge zerbrochen.*

[the fence].ACC has [the boy].NOM broken

'The boy broke the fence.'

(74) *Die Professorin hat die Studentin*

[the professor].NOM/ACC has [the student].NOM/ACC

geschlagen.

hit

'The professor hit the student.'

In examples (72) and (73) the two noun phrases surface with different overt case marking. Due to this difference in case marking the grammatical function of each noun phrase can be easily identified, and as a result their order can be reversed, shown by the contrast between (72) and (73). The situation is different for the example in (74) where the two arguments are not unambiguously case marked. It is a general property of German singular nouns with feminine (and neuter) gender to show case syncretism, i.e., the same case form, in the nominative and the accusative. Given that German allows subject-object reversal as shown by (72) and (73), and that case in (74) cannot be used as a cue in interpretation, this sentence should be ambiguous. Nevertheless, provided that no additional contextual or intonational information intervenes, in practice this sentence can only be interpreted in such a way that the first argument is the agent and the second one the patient. That is, when case

information can no longer be used as a cue, word order takes over and secures one interpretation over the other. The phenomenon that word order determines the linking of arguments in situations in which case or other morphological information cannot help out, is observed in many languages with overt case marking, and is known as word order freezing.

Korean is another language that exhibits word order freezing (Lee 2001a). In informal colloquial speech nominative and accusative case markers are often dropped. Such sentences are always interpreted as SOV, whereas different word orders are permitted when the case markers are present. Thus, (75) can only have an interpretation in which *Mary* is chased by *a dog*, and not the other way round:

KOREAN (isolate; Lee 2001a)

(75) *Ku kay Mary ccoch-nun-ta.*

that dog Mary chase-PRES-DECL

‘That dog is chasing Mary.’, **not**: ‘Mary is chasing that dog.’

The same freezing effects are found with psychological predicates which are lexically specified in taking both their arguments in the nominative case. By fixing word order, only one interpretation is possible for otherwise (potentially) ambiguous sentences.

The above discussion shows that even in languages with overt case marking situations can arise in which the grammatical functions of arguments are not uniquely recoverable. In such situations many languages use fixed word order as a mechanism to avoid potential ambiguity. Indeed, this connection between recoverability and word order freezing is well-established in the linguistic literature (cf. Jakobson 1984; but see also Lee 2001a,b; Flack 2005 for discussion). In the remainder of this section I investigate how recoverability can explain restrictions found on word order in Dutch exceptional case marking (ECM) constructions, also called *Accusativus cum Infinitivo* (AcI) constructions.

In an ECM construction the subject of the embedded clause receives its semantic role from the verb in the embedded clause but is marked with accusative case by the verb in the matrix clause. Thus, in the sentence *the FBI believed [him to have murdered his neighbour]* the pronoun *him* receives accusative case from the verb *believe*, but is assigned a semantic role by the embedded predicate *murder*. In contrast to English, in which the ECM subject and the ECM object occur on different sides of the embedded transitive verb, in Dutch they both occur to the left of the verb, i.e. embedded clauses are verb final. Under certain conditions the ECM object can even precede the ECM subject.

Full object NPs cannot precede the exceptionally case marked subject

in Dutch ECM constructions (cf. Zwart 1993, 1997). Relevant examples are given in (76) and (77), again ‘#’ indicates pragmatic oddness:

DUTCH (Germanic)

(76) *Piet heeft de vrouw Jan zien kussen.*

Piet has the woman Jan see kiss

‘Piet saw the woman kiss Jan.’ **not**: ‘Piet saw Jan kiss the woman.’

(77) #*Piet heeft de taart Jan zien opeten.*

Piet has the cake Jan see up.eat

‘Piet saw the cake eat Jan.’ **not**: ‘Piet saw Jan eat the cake.’

The example in (76) can only have an interpretation in which the first argument of the ECM construction is interpreted as the subject of the embedded clause. The reverse interpretation in which *de vrouw* ‘the woman’ is interpreted as the ECM object preceding the ECM subject is not possible. The same holds for the example in (77) even though the result is pragmatically strange.³⁰

Shifting attention from full object NPs to embedded object (clitic) pronouns, the same situation obtains when both the embedded subject and object are animate. In all examples below the first element has to be interpreted as the subject (contra Zwart 1993, 1997 who argues that the clitics are interpreted as the object).

DUTCH (Germanic)

(78) *Piet heeft haar Jan zien kussen.*

Piet has her Jan see kiss

‘Piet saw her kiss Jan.’ **not**: ‘Piet saw Jan kiss her.’

(79) *Piet heeft=^r Jan zien kussen.*

Piet has=her.OCL Jan see kiss

‘Piet saw her kiss Jan.’ **not**: ‘Piet saw Jan kiss her.’

(80) *Piet heeft=^r=^m zien kussen.*

Piet has=her.OCL=him.OCL see kiss

‘Piet saw her kiss him.’ **not**: ‘Piet saw him kiss her.’

(81) *Piet heeft haar hem zien kussen.*

Piet has her hem see kiss

‘Piet saw her kiss him.’ **not**: ‘Piet saw him kiss her.’

³⁰Contrastive stress on *de taart* ‘the cake’ seems to improve the object-initial reading of (77).

- (82) *Piet heeft haar hem zien kussen.*
 Piet has her him see kiss
 ‘Piet saw her kiss him.’ **not:** ‘Piet saw him kiss her.’

However, as also observed by Toebosch (2001), the pattern changes when the object is inanimate and the subject animate. The following examples demonstrate that the ECM object can precede the ECM subject when the former is realized as the inanimate pronoun *het* or the inanimate clitic *'t*:³¹

- DUTCH (Germanic)
 (83) *Piet heeft='t Jan zien opeten.*
 Piet has=it.OCL Jan see up.eat
 ‘Piet saw Jan eat it.’
 (84) *Piet heeft het Jan zien opeten.*
 Piet has it Jan see up.eat
 ‘Piet saw Jan eat it.’

The reverse order in which the object follows the ECM subject is also possible:

- DUTCH (Germanic)
 (85) *Piet heeft Jan='t zien opeten.*
 Piet has Jan=it.OCL see up.eat
 ‘Piet saw Jan eat it.’
 (86) *Piet heeft Jan het zien opeten.*
 Piet has Jan it see up.eat
 ‘Piet saw Jan eat it.’

In line with the discussion throughout this chapter I want to put forward an analysis of the animacy-related restrictions on word order in Dutch ECM constructions in terms of recoverability. In short, the analysis captures the observation that reversal of word order is only possible in case the grammatical functions remain recoverable. The observed restrictions on word order can be compared to the freezing phenomena discussed for German and Korean above (see Morimoto 2000; Morimoto to appear for

³¹It should be noted that the feminine clitic can also be used to refer to inanimate entities such as, for instance, boats and mountains in which case the clitic can precede the ECM subject (see Toebosch 2001:589 for further discussion). Such uses of the feminine clitic are, however, rather infrequent. Nevertheless, they show that it is not the lexical animacy of a pronoun which determines its ability to move over the ECM subject but rather its referential animacy, i.e., the animacy feature of the referent picked out by the pronoun.

very similar facts in Bantu). The subject and the object of the ECM construction cannot be distinguished from one another on morphological grounds as both are marked with accusative case, which is visible on the surface only for pronouns. Moreover, unlike matrix clauses in which the verb separates the subject from the object, in embedded clauses, which are verb final, they both precede the verb. This means that in ECM constructions there are no morphosyntactic cues as to which argument is the subject and which the object other than word order. Allowing the two arguments to rearrange freely would result in many cases of ambiguity, in particular in sentences where they are equal in animacy.

An analysis in terms of recoverability readily explains the contrast between animate pronouns, which cannot precede the ECM subject, and inanimate pronouns, which can precede the subject. In example (79) above, for instance, the feminine pronoun *'r* and the proper name *Jan* are equally likely to perform the act of kissing. The reversability of the relation expressed by the predicate results in a fixed word order. In example (83), by contrast, the only available interpretation is one in which *Jan* is the agent of the eating event and *'t* refers to what is eaten.³² The availability of only one interpretation means that both possible word orders are grammatical.

The present analysis argues that reversal of the ECM subject and object is possible in those cases in which ambiguity is unlikely to occur. Therefore, this analysis predicts that reversal is not necessarily excluded for full NPs. This is indeed borne out when we consider verbs other than the agentive ones discussed up to now. Compare the following two examples:

DUTCH (Germanic)

(87) *De toeschouwers hebben de autocoureur het ongeluk zien*
 the spectators have.PL the racecar.driver the accident see
overkomen.

happen.to

'The spectators saw the accident happen to the racecar driver.'

(88) *De toeschouwers hebben het ongeluk de autocoureur zien*
 the spectators have.PL the accident the racecar.driver see
overkomen.

happen.to

'The spectators saw the accident happen to the racecar driver.'

³²In a cartoonlike context, one could think of the situation in which *'t* refers to a monster which has eaten *Jan*.

The embedded verb *overkomen* ‘happen to’ in these examples is a psych verb which selects an inanimate subject and an animate object. Given these selectional restrictions, no ambiguity of grammatical relations can occur, and as expected both word orders are possible. Word order restrictions are found with psych verbs which select an animate object and either an animate or an inanimate subject. In sentences with two animate arguments we again find the by now familiar restriction that the first argument has to be interpreted as the subject:

DUTCH (Germanic)

- (89) *De journalist zag het fotomodel de fotograaf bevalen.*
 the journalist saw the model the photographer please
 ‘The journalist saw that the photographer liked the model.’ **not**:
 ‘The journalist saw that the model liked the photographer.’
- (90) *De journalist zag de fotograaf het fotomodel bevalen.*
 the journalist saw the photographer the model please
 ‘The journalist saw that the model liked the photographer.’ **not**:
 ‘The journalist saw that the photographer liked the model.’

The contrasts between (87)-(88), on the one hand, and (89)-(90), on the other, fit in nicely with an analysis in terms of recoverability.

The account sketched above can be straightforwardly implemented in the bidirectional model introduced in section 3.3.1. This is illustrated in Tableaux 3.8-3.10 in which two relevant constraints are shown. One is SELECTION, which was introduced in section 3.2 and which is violated by interpretations that go against the selectional restrictions of the verb. The second constraint is $CANON_{GF}$, an interpretation constraint on word order, which can be seen as specific instance (subconstraint) of FAITHINT:

- (91) $CANON_{GF}$: the subject precedes the object.

This constraint is violated by interpretations that go against the default word order subject before object.³³ The interaction of these constraints in a bidirectional model results in the situation that both orders come out as optimal when one of the arguments is an inanimate pronoun. Tableau 3.8 shows that both the order in which the object follows the ECM subject and the one in which it precedes the subject make the intended interpretation recoverable. With both output forms the reverse interpretation (ii) violates the constraint SELECTION as it assigns the inanimate argument

³³Choi (1996) uses $CANON_{GF}$ as a production constraint, which is violated by object-before-subject ordering. As such, it can be seen as a specific version of the general economy constraint on movement STAY.

PROD: saw(Piet,eat.up(Jan,it))	SEL	CANON _{GF}
✎✎ a. <i>Piet heeft Jan 't zien opeten</i> Piet has Jan it.OCL see eat.up		
✎✎ b. <i>Piet heeft 't Jan zien opeten</i> Piet has it.OCL Jan see eat.up		
INT _a : Candidate a	SEL	CANON _{GF}
✎ (i) saw(Piet,eat.up(Jan,it))		
(ii) saw(Piet,eat.up(it,Jan))	*!	*
INT _b : Candidate b	SEL	CANON _{GF}
✎ (i) saw(Piet,eat.up(Jan,it))		*
(ii) saw(Piet,eat.up(it,Jan))	*!	

Tableau 3.8: Evaluation of example (85)

the subject function, which goes against the selection restrictions of the verb *opeten* ‘eat up’. Moreover, in case of candidate *a* the reverse interpretation also violates the word order constraint as it assigns the second argument the subject function. In case of candidate *b* this constraint is violated by the intended interpretation (i), but because it is lower ranked than SELECTION the intended interpretation still comes out as optimal. Due to the fact that both candidates make the intended meaning recoverable, they are both considered bidirectionally optimal by the grammar, and can both be used as forms for the intended meaning. Exactly the same situation applies with experiencer object verbs when the arguments are unequal in animacy, cf. Tableau 3.9.

SO order comes out as bidirectionally optimal with psych verbs when both arguments are equal in animacy, cf. Tableau 3.10. Due to the equal animacy of the two arguments, the constraint SELECTION does not favour one interpretation over the other. As a result, the optimal status in the interpretational component is determined by the word order constraint. Given that this constraint favours the interpretation in which the first argument is the subject, the intended meaning (i) become suboptimal for candidate *b*. As a result, only candidate *a* makes the intended interpretation recoverable and hence becomes bidirectionally optimal. The model thus rightly predicts a freezing effect in case of equal animacy of the arguments.

The tableaux have shown that the need to ensure recoverability of

PROD: saw(John,happen.to(accident,driver))		SEL	CANON _{GF}
☞ ☞	a. <i>Jan heeft het ongeluk de coureur zien overkomen</i> John has the accident the driver see happen.to		
☞ ☞	b. <i>Jan heeft de coureur het ongeluk zien overkomen</i> John has the driver the accident see happen.to		
INT _a : SO order		SEL	CANON _{GF}
☞	(i) saw(John,happen.to(accident,driver))		
	(ii) saw(John,happen.to(driver,accident))	*!	*
INT _b : OS order		SEL	CANON _{GF}
☞	(i) saw(John,happen.to(accident,driver))		*
	(ii) saw(John,happen.to(driver,accident))	*!	

Tableau 3.9: Evaluation of examples (87) and (88)

grammatical functions rightly predicts restrictions on word order in ECM to occur. My analysis predicts that subject-object reversal should be possible when it does not result in ambiguity. But let us return to the initial examples discussed above. We have seen above in example (77) that reversal is sometimes blocked with an agentive verb such as *opeten* ‘eat’. A similar example is presented in (92) with the agentive verb *opruimen* ‘clean’:

DUTCH (Germanic)

(92) #*De moeder heeft de rommel haar zoon zien opruimen.*

the mother has the mess her son see clean.up

‘The mother saw the mess clean up her son.’, *?‘The mother saw her son clean up the mess.’

Even though the combination of arguments and the verb in this example only allows for one interpretation in which *haar zoon* ‘her son’ is the agent and *de rommel* ‘the mess’ the patient, the reversal of object and subject results in a very marked sentence. This is unexpected under my recoverability analysis which would predict object reversal in this situation to result in a well-formed sentence. There is independent evidence, however, which shows that subject-object reversal of two full NPs is generally bad with agentive verbs.

PROD: saw(manager,please(model,photographer))	SEL	CANON _{GF}
  a. <i>De manager heeft het model de fotograaf zien bevallen</i> the manager has the model the photographer see please		
 b. <i>De manager heeft de fotograaf het model zien bevallen</i> the manager has the photographer the model see please		
INT _a : SO order	SEL	CANON _{GF}
 (i) saw(manager,please(model,photographer))		
(ii) saw(manager,please(photographer,model))		*!
INT _b : OS order	SEL	CANON _{GF}
(i) saw(manager,please(model,photographer))		*!
 (ii) saw(manager,please(photographer,model))		

Tableau 3.10: Evaluation of example (89)

Verb type	S<O	O<S
agentive	6.9	1.4
causative	6.3	3.1
unaccusative	6.0	4.8

Table 3.2: Mean ratings of subject-initial and object-initial embedded clauses in Dutch (1=very difficult to comprehend, 7=very easy to comprehend; Lamers 2001:154)

Independent of clause type, subject-object reversal with agentive transitive verbs results in very marked, close to ungrammatical, configurations (see Broekhuis 1992, 2003 for discussion). Lamers (2001) performed an off-line rating study in which subjects had to rate embedded transitive sentences in Dutch with and without reversal for ease of understanding on a seven-point scale. Lamers included three types of verbs in her study: agentive verbs, causative psych verbs (e.g., *deprimeren* ‘depress’), and unaccusative psych verbs (e.g., *bevallen* ‘please’). All test sentences contained an animate subject and an inanimate object. Table 3.2 provides the results of her rating study. They show that in general subject-before-object order is better to comprehend than object-before-subject structures, the former order being the easiest to understand with agen-

tive verbs. Object-before-subject order, by contrast, is most difficult to understand with agentive verbs and much easier with psych verbs. The latter order is the easiest to understand for unaccusative psych verbs in comparison to the other two types. From these results we can conclude that agentive verbs show a general dispreference for object-before-subject order. The strong preference of these verbs to occur in a subject-initial sentence overrules the possibility of forming an object-initial construction even when there is no ambiguity. Moreover, it indicates that the constraint $CANON_{GF}$ is sensitive to verb class. This can be modeled in the present account by having it reranked in the interpretational component with respect to SELECTION in the context of agentive verbs. As a result, pragmatically strange interpretations, as observed in (77) and (92), will become optimal for these verbs. Note that this is similar to the ONI restriction discussed in the previous section. Here, we also find that application of this constraint can result in pragmatically strange interpretations, cf. example (66).

It should, however, be noted that the restriction on subject-object reversal with agentive verbs only holds for sentences with two full NPs. In case one or both of the arguments are pronouns such reversal is possible. This was already illustrated above with example (83) and can be shown with the following example which is a counterpart of (92) in which the inanimate direct object is replaced by the inanimate pronoun *het*:

DUTCH (Germanic)

- (93) *De moeder heeft het haar zoon zien opruimen.*
 the mother has it her son see clean.up
 ‘The mother saw her son clean it up.’

Together with (83) above, this example shows that pronouns behave differently from full NPs with respect to the possibility to precede the ECM subject. This is in line with a general difference between full NPs and pronouns. In contrast to full NPs, pronouns are preferred early in the surface linear order. This can be nicely illustrated with scrambling facts in Dutch. (Definite) full NPs can occur either to the right of a sentential adverb, i.e., in the unscrambled position, or to the left of such an adverb, i.e., the scrambled position:

DUTCH (Germanic)

- (94) a. *Hij moest eerst zijn vader bellen.*
 he had.to first his father call
 b. *Hij moest zijn vader eerst bellen.*
 he had.to his father first call
 ‘He first had to call his father.’

This example shows that scrambling is optional with definite full NPs (see de Hoop 2003 for discussion). Pronouns, on the other hand, scramble almost obligatorily, and can only stay in the unscrambled position when they receive contrastive stress (but see Bouma and de Hoop 2006). This is illustrated in (95):

DUTCH (Germanic)

- (95) a. *Hij moest eerst *'m/*hem/HEM bellen.*
 he had.to first him.OCL/him/him call
 b. *Hij moest 'm/hem/HEM eerst bellen.*
 he had.to him.OCL/him/him first call.
 ‘He first had to call him.’

Given this difference in scrambling behaviour between pronouns and full NPs, the fact that only pronouns can precede ECM subjects is not unexpected. It should be noted that, in contrast to the scrambling data, pronouns do not obligatorily move across the subject in ECM constructions, cf. (84)-(86).

The above discussion has shown that the animacy-related restrictions on word order in Dutch ECM constructions can be straightforwardly analyzed as a mechanism to ensure recoverability of grammatical roles. As such, it fits in with the other mechanisms discussed throughout this chapter.

3.5 Recoverability vs. Prominence

In section 3.2, I have shown how in Malayalam case marking can be used on inanimate objects to avoid potential ambiguity.³⁴ This analysis, however, does not carry over to animate objects which are case marked independently of ambiguity:

³⁴This section is partially based on joint work with Yukiko Morimoto (Morimoto and de Swart 2006).

MALAYALAM (Dravidian; Asher and Kumari 1997:203)

- (96) *Avan kuttīy-e aticcu.*
 he child-ACC beat.PST
 He beat the child.
- (97) *Avan oru pafuvin-e vappi.*
 he a cow-ACC buy.PST
 ‘He bought a cow.’

Whereas one can claim for (96) that use of accusative case is due to a potential ambiguity, this is highly unlikely for (97) in which a reverse interpretation is (virtually) impossible. It should be noted, however, that due to the fact that Malayalam is a verb-final language, there may be a temporal ambiguity with respect to which of the two preverbal NPs is the subject and which one the object. Accusative case helps to overcome this temporal ambiguity.

A similar situation is found in Hindi, which has a differential object marking system, but case marks human objects obligatorily, as (98) shows:

HINDI (Indo-Aryan; Mohanan 1990:103)

- (98) *ilaa-ne bacce-*(ko) uthayaa*
 Ila-ERG child-OBJ lift.PF
 ‘Ila lifted the/a child.’

The obligatory use of case marking irrespective of potential ambiguity does not fit in with the bidirectional model defended throughout this chapter. This becomes even more apparent when one considers languages with differential object marking in which the occurrence of overt case is determined by features other than animacy. As discussed in chapter 1, in Turkish the occurrence of overt case marking correlates with the specificity of the object: only specific objects are marked with accusative case. Unlike animacy, specificity cannot be related to recoverability, as it does not provide information about an argument’s role in the event described by the predicate (see 4.4 for further discussion). Instead, the obligatory marking of specific and animate direct objects is independently required by the grammar of these languages. In particular, it follows from a constraint which requires the marking of prominent objects, i.e., animate, definite, specific ones (cf. Aissen 2003).

By incorporating this constraint into my bidirectional model, I can explain the obligatory use of case on animates irrespective of ambiguity, as in example (97) above. In Tableau 3.11 the production constraint ANIM→ACC requires accusative marking of animate objects. It

PROD: buy(he,cow)		ANIM→ACC	ECON	FAITH	BIAS
a.	he.NOM cow buy	*!			
 	b. he.NOM cow.ACC buy		*		
INT _a : he.NOM cow buy		ANIM→ACC	ECON	FAITH	BIAS
	(i) buy(he,cow)				
	(ii) buy(cow,him)				*!
INT _b : he.NOM cow.ACC buy		ANIM→ACC	ECON	FAITH	BIAS
	(i) buy(he,cow)				
	(ii) buy(cow,him)			*!	*

Tableau 3.11: Evaluation of example (97)

shows that candidate *b*, even though it violates ECONOMY, is optimal from the production perspective because candidate *a* violates the higher-ranked ANIM→ACC. INT_b shows that it also makes the intended meaning (i) uniquely recoverable, which violates none of the interpretation constraints, whereas the reverse interpretation (ii) violates both FAITHINT by assigning the accusative-marked NP the function of subject, and BIAS by assigning the argument lower in animacy the subject function. Moreover, it could be said to violate the constraint SELECTION, which is not shown in the tableau due to reasons of space, as it is unlikely that a cow functions as a proper buyer. Because candidate *b* is optimal from the production perspective and makes the intended interpretation recoverable, it comes out as bidirectionally optimal. The importance of ANIM→ACC in this analysis can be seen from the fact that candidate *a*, even though it makes the intended meaning recoverable, is not bidirectionally optimal, due to a violation of this constraint, which makes it suboptimal from the production perspective.

Tableau 3.11 shows how the requirement to mark prominent objects can be integrated in the bidirectional model based on recoverability. In the next chapter, I provide a further discussion of prominence-based marking of arguments. Now, I want to show how a strategy of marking all and only prominent objects can develop out of a strategy of recoverability. I illustrate this with the historical development of differential object marking in Spanish.

The use of the preposition *a* to mark some, but not other, objects is a widely discussed feature of Spanish, and is sometimes also referred to as the prepositional or personal accusative (cf. Torrego 1999; Leonetti 2004; and the papers in Pensado 1995 for an overview). The use of *a* depends

on the animacy and definiteness/specificity of the object. It is obligatory with personal pronouns and proper names. With other noun phrases its occurrence is restricted to animates:³⁵

SPANISH (Romance; Bleam 2005:3-4)

(99) *Mari vió a la mujer.*

Mari saw A the woman
'Mari saw the woman.'

(100) *Mari vió al gato.*

Mari saw A.the cat
'Mari saw the cat.'

(101) *Mari vió (*a) la mesa.*

Mari saw A the table
'Mari saw the table.'

The human and animate direct objects in (99) and (100) are marked with the prepositional object marker. This in contrast to the inanimate direct object in (101), for which this marker is prohibited. But also in the class of animate direct objects some objects can occur without it, as shown by (102):

SPANISH (Romance; Bleam 2005 :5)

(102) *Mari vió (a) una mujer.*

Mari saw A a woman
'Mari saw a woman.'

The presence or absence of the object marker with an indefinite animate direct object depends on the specificity of the object. Only in case of a specific object *a* is used (see section 4.4 for further discussion).

From the above examples it would seem that the distribution of the object marker is regular and clearly defined, i.e., only objects that are both animate and specific are marked with *a*. This regular behaviour fits in with the prominence strategy introduced above (see Aissen 2003 for such an analysis). However, DOM in Spanish also exhibits a certain amount of variation. For instance, inanimate objects can be marked with *a* under certain circumstances (cf. Company 2002; García García 2007), in particular when there is potential ambiguity. This is supported by the

³⁵Spanish differs in this respect from other Romance languages with differential object marking, such as Sardinian and Neapolitan, which restrict *a*-marking mainly to human, i.e., personal, objects (cf. Jones 1993, 1995; Fiorentino 2003; Mensching 2005). Note that also in Spanish there may exist dialectal variation with respect to the distribution of *a*.

reference grammar of Spanish compiled by the Real Academia (1973), which states that “inanimate nouns can sometimes carry the preposition *a*, whenever ambiguity with the subject of the sentence could possibly arise” (translation from de Jong 1996:73). Such a use of *a* is illustrated in (103):

- SPANISH (Romance; de Jong 1996:70)
 (103) *El entusiasmo vence (a) la dificultad.*
 the enthusiasm conquers (A) the difficulty
 ‘Enthusiasm conquers difficulties.’

Given the existence of OVS (topicalization) structures, the above example is potentially ambiguous. The use of the object marker eliminates any such ambiguity. Thus, the distribution of *a* in modern Spanish is partially conditioned by recoverability (see also Torrego 1999:1748, for discussion). Further evidence for this claim comes from the observation that its use is suspended in ditransitive constructions, where the indirect object is also marked with *a* (Company 2003):

- SPANISH (Romance; Company 2003:234)
 (104) *El maestro presentó su mujer a sus alumnos.*
 the teacher introduced his wife to his pupils
 ‘The teacher introduced his wife to his pupils.’

In a regular transitive sentence the object *su mujer* ‘his wife’ would be obligatorily marked with *a*, cf. (99) above. In a ditransitive sentence this use would result in ambiguity between the direct and the indirect object, as both are preceded by *a*. By omitting the marker on the direct object this ambiguity is resolved. In fact, this strategy is frequently attested in ditransitive constructions cross-linguistically (see Kittilä 2006 and Malchukov 2007 for various examples).

The above discussion has established that both prominence-based marking and recoverability play a role in differential object marking in modern Spanish. I will now argue that the historical development of differential object marking in Spanish shows the recoverability strategy to be prior to the prominence-based one.

A is historically related to the Latin preposition *ad* and made its way into Spanish as an object marker through the pronominal system (cf. Müller 1971; García and Van Putte 1987; Pensado 1995). Müller (1971) argues that the old dative tonic pronouns occurred with this prepositional marker from very early on (already in the 8th century) and at some point replaced the original accusative forms *me*, *te*, and *se*. This replacement explains the fact that the prepositional accusative is obligatory with (tonic

forms of) object pronouns in Spanish. Moreover, it caused the preposition to become associated with the domain of object marking and opened the possibility to extend its use throughout this domain. The next step involves the marking of proper nouns.

As shown in the previous chapter, in Classical Latin grammatical functions were indicated by case marking. Subjects were generally marked with nominative case and objects with accusative:

LATIN

(105) *Paulu-s vide-t Petru-m.*
 Paul-NOM see-3SG Peter-ACC
 ‘Paul sees Peter.’

In the above example it is Paul who does the seeing and Peter who is seen. Given this case-marking pattern no other interpretation of the sentence is possible. However, at some point in time in the development from Latin to Romance, the case marking on noun phrases was lost in the daughter languages (see Bossong 2003; Kulikov 2006 for discussion). Furthermore, according to De Dardel (1994), word order in Proto-Romance was predominantly, but not exclusively, VSO. As a result a sentence like (106) was truly ambiguous with respect to grammatical function assignment (cf. De Dardel 1994; de Jong 1996).

VULGAR LATIN (Indo-European; de Jong 1996:77)

(106) *Videt Paulu Petru.*
 sees Paul Peter
 ‘Paul sees Peter.’ or ‘Peter sees Paul.’

However, as De Dardel (1994) notes, only for proper nouns did such ambiguity exist; other nouns were preceded by articles and other determiners still showing a nominative-accusative contrast, cf. *ille* ‘the.NOM’ vs. *illu* ‘the.ACC’ (see also Müller 1971). This is demonstrated in (107):

VULGAR LATIN (Indo-European; de Jong 1996:77)

(107) *Videt Paulu illu libru.*
 sees Paul the.ACC book
 ‘Paul sees the book.’

In contrast to example (106) with proper names, this example with an object containing a determiner is unambiguous. This means that only with proper names an additional device was needed to guide the interpretation of a sentence into one direction or the other. In order to achieve this, the marking domain of *a* was extended from personal pronouns to

proper nouns. This extension is a natural one as “after personal pronouns, proper names are the clearest indicators of person-ness” (García and Van Putte 1987:375). This means that after its introduction in the object domain *a* first acquired a function of recoverability.³⁶

The marker *a* started to spread to common nouns as soon as the morphological distinction within the determiner system disappeared and hence took over the distinguishing function previously fulfilled by the determiners. De Dardel (1994) states that at this point, the system in which the prepositional marking was regulated along the distinction proper noun-common noun was restructured into a system which marked objects based on the distinction animate-inanimate. From this moment onwards, the marker spread through the object system. It seems that in this period a reinterpretation of *a* took place from a disambiguation mechanism to an animacy (humanness) marker which resulted from the high frequency of marked objects referring to humans, i.e., pronouns, proper names. Together with the fact that human objects are more often in need of disambiguation in comparison to inanimates, the marker *a* became more and more associated with human direct objects. From here the marker could also extend to other objects. In the words of García and Van Putte (1987:375): “the model that more and more could and did inspire recourse to *a* was other *a*-introduced Accusative objects.” From a distinguishability marker the preposition became grammaticalized as a marker of animate direct objects. Moreover, the marker not only extended along the animacy dimension to include humans and animates, but also along the definiteness dimension. For instance, as García and Van Putte (1987) show, the marking of definites increased from 46% in the 13th-century poem *el Cantar de Mio Cid* to 73% in the 17th-century novel *Quijote*. For indefinites they observed a shift from 22% (*Cid*) to 38% (*Quijote*).

There exist several text studies like the one from García and Van Putte (1987) which support a gradual extension of object marking as outlined above. Such quantitative data, however, should be taken with caution, as different authors examine different features in different texts and the overall numbers are often very low. Table 3.3, from a corpus study by Company (2002), gives an overview of the general trends in the spread of *a* along the animacy dimension in the history of the Spanish language. This table shows that pronouns and proper nouns were marked (close to) 100%

³⁶A similar process has been reported for Khamti, a Tai language spoken in Myanmar (formerly Burma). When this language changed its word order from SVO to SOV (probably due to language contact), its definite marking particles were reanalyzed as object markers (cf. Sinnemäki 2006). By moving the verb to the end of the sentence, it lost its disambiguation function which subsequently was taken over by the particles.

	XIII	XIV	XV	XVI	XX
Pronouns	100%	100%	99%	99%	100%
Proper nouns	99%	99%	96%	88%	100%
Humans	42%	35%	35%	50%	57%
Animates	3%	3%	6%	7%	—
Inanimates	1%	0%	3%	8%	17%

Table 3.3: The historical development of ‘a’-marking on direct objects in Spanish (Company 2002:207)

of the time already in the earliest written data. Human nouns started at a more modest rate, but they clearly show increase in marking, as do the inanimates, though at a later stage. Unfortunately, comprehensive data for animate NPs are missing from this source. The observation that DOM spreads through the language starting with objects high in prominence and extending to lower-prominent ones has been confirmed by several historical studies both on Romance and languages from other families (see Aissen 2003 for references). Moreover, it is quite common that the marker of indirect objects is extended to cover animate direct objects as well. This may be attributed to the fact that indirect objects are typically animate (see also section 3.1 above). The use of the indirect object marker on animate direct objects can be interpreted as an analogical extension into this domain, which at the same time serves a distinguishing function.

The above discussion shows that there is some evidence for the claim that the prominence-based strategy developed from the recoverability strategy in the history of Spanish. Although further historical research is needed, I believe that the proposed historical connection is a promising one. Further evidence for such a general historical connection comes from the languages with direction marking discussed in 3.3. As was stated there, direction marking seems always to originate in sentences with two third person arguments which are, as demonstrated throughout this chapter, most in need of disambiguation, and only later extends to sentences with first and second persons.³⁷

³⁷In a similar vein, Stiebels (2006:550) discusses the use of agent focus in Mayan languages as a disambiguation mechanism and she hypothesizes that it became grammaticalized, leading to an extension of agent focus to contexts in which it was not needed.

3.6 Conclusions

I have shown that the need to ensure the recoverability of grammatical roles is a strong factor in grammar. Recoverability closely interacts with animacy, as the latter provides important information about the grammatical role of an argument. Hence, when the two arguments of a transitive construction are equal in animacy, ambiguity may arise. This holds in particular for languages without morphosyntactic mechanisms to determine the grammatical function of an argument. Where some languages leave it to the hearer to resolve such ambiguities by means of contextual information, others develop mechanisms to eliminate them.

The force to keep the grammatical function of arguments recoverable can be naturally modelled in a bidirectional grammar which takes into account both the speaker's and hearer's perspective. I have proposed a model in which a speaker will only use a certain form if it makes the intended meaning uniquely recoverable. In this model, recoverability falls out from the way the grammar is organized and does not have to be stipulated as a separate constraint.

I have identified a number of recoverability mechanisms, which receive a straightforward analysis in the proposed model. Differential object marking is one of them. It is a particularly economical mechanism, as it restricts case marking to those situations in which recoverability would otherwise not be guaranteed. Other mechanisms are the one nominal interpretation constraint found in head-marking languages, which requires single full NPs to be interpreted as the direct object, and word order restrictions on exceptional case marking constructions found in Dutch. These phenomena also showed that strict application of mechanisms which ensure recoverability can sometimes result in pragmatically strange interpretations.

Though a strong factor, I also showed that recoverability cannot account for all the morphosyntactic marking which depends on the animacy of an argument. In particular, the obligatory case marking of animate objects in the absence of ambiguity attested in differential object marking languages is left unexplained, even though there is evidence which shows that this marking has historically developed from recoverability. In the next chapter I will provide a discussion of this kind of prominence-based marking.

Chapter 4

The Prominence Factor

The prominence of an argument can have a significant effect on its morphosyntactic realization. Prominence itself is determined by a range of different factors. I argue that an argument can be prominent due to its inherent properties or because of its status in the discourse. Animacy is an inherent property of noun phrases, whereas definiteness/specificity is a function of their status in the discourse. While prominence categories are often conceptualized in terms of prominence hierarchies, I show that they cannot be properly grounded in independently motivated theoretical constructs or as general cognitive patterns. Therefore, they cannot be considered universal primitives. I will show how some apparent prominence effects can in fact be reduced to general grammatical principles. Moreover, I argue that prominence can be the cause but also the effect of morphosyntactic phenomena such as case marking. This will be illustrated with the difference between the prominence features animacy and definiteness/specificity. In the case of differential object marking, I show that animacy clearly can be the cause of overt case marking, whereas a definite or specific reading is often the effect of it. My claim is that in differential object marking animacy as an inherent property of noun phrases takes priority over a contextual property like definiteness/specificity.

4.1 Introduction

Apart from the need to ensure recoverability of grammatical functions, I have shown in the previous chapter that differential case marking can also be influenced by the prominence of an argument. Moreover, it was shown that within a single language the occurrence of overt case marking can be determined by both factors. Animacy was singled out as a category related to both recoverability-based and prominence-based case marking. In this chapter, I further investigate the influence of prominence of arguments on their morphosyntactic realization. I will show that apart from animacy many other features can determine the prominence status of an argument. Among them we can identify semantic features such as

definiteness, specificity, and person, but also lexical features such as NP type. Furthermore, I will show that prominence does not only affect case marking, but can also influence word order and voice alternations. In the second part of this chapter, I conduct two case studies on the (apparent) influence of prominence on morphosyntactic alternations. They provide us with two conditions which have to be met before prominence can be entertained as an explanation for a given phenomenon. First, it has to be assured that the prominence effects under discussion are real and not mere surface phenomena. That is, they should not be reducible to independently motivated principles of grammar. Second, the direction of causation between prominence and the phenomenon under discussion should be established. That is, in order to label something as a prominence-based phenomenon it should be the case that prominence features influence the occurrence of the phenomenon and not vice versa.

The chapter is organized in the following way: in the next section I provide an overview of the features which contribute to the prominence of an argument and in what ways prominence can affect the morphosyntactic realization of an argument. The second part of the section is devoted to the representation of prominence features in terms of hierarchies and the primitive status of such hierarchies. I will show that they cannot be straightforwardly reduced to independently motivated theoretical constructs such as constituent hierarchies. Moreover, I will show that it is problematic to treat them as general universal patterns. As a result, I conclude that they cannot be considered universal primitives. Section 4.3 illustrates that even though prominence may seem to play a role on the surface, it may not be responsible for a given phenomenon. This is demonstrated with the obligatory voice alternations attested in Coast Salish languages which on the surface seem to be determined by the person features of arguments. That is, certain person combinations cannot be expressed by means of an active construction and have to be rendered as a passive. Under closer scrutiny these obligatory alternations nevertheless can be shown to fall out from general formal requirements which are needed independently in the grammar of these languages. More specifically, I argue that these voice alternations should be analyzed as a cross modular constraint conflict. In section 4.4 I investigate how the prominence features animacy and definiteness/specificity influence the occurrence of overt object marking. I will argue that, although they may seem to do so in a similar way at first sight, they are in fact radically different. Whereas animacy cannot be influenced by overt case-marking, definiteness/specificity can. Animacy itself can influence overt case-marking, while this is not always true for definiteness/specificity. Hence, the same phenomenon (namely, overt case-marking) can be caused by one prominence feature

(animacy), while it influences another (definiteness/specificity). I will show that animacy takes priority over definiteness/specificity in the domain of differential object marking. This will be argued to be an instantiation of a general principle that lexically inherent features take priority over contextually derived features.

4.2 Prominence Categories

Prominence is probably best known from the functional-typological literature on voice alternations (see, e.g., Givón 1994a for an overview). An active/passive alternation, for instance, is often characterized in terms of a demotion in prominence of the agent argument. In passive constructions, the patient argument is high in prominence, whereas the agent argument is low in prominence. Similar observations can be made for other voice constructions. Legendre et al. (1993) exploit these prominence distinctions to arrive at a formal typology of case and grammatical voice systems. Their account is couched in the framework of Optimality Theory, and in fact is the first study in OT syntax. Their aim is to regulate the mapping from a semantic input to a syntactic output by means of violable constraints. The exact nature of the constraints proposed is not important for the present study, and will therefore not be discussed. What is of importance is which input is argued to correspond to what output. The correspondences put forward by Legendre et al. (1993) are given in (1).

(1)	INPUT	OUTPUT
	A/P	intransitive
	AP	transitive
	aP	passive
	Ap	antipassive

In the left column the input is indicated by means of the symbols A for agent and P for patient. The different sizes of the symbols reflect “an abstract ‘prominence’ level” (Legendre et al. 1993:2) using {a,p} to denote low-prominent agents and patients, respectively, and {A,P} to denote high-prominent ones. As such, their account is limited to sentences containing an agent and a patient. When we consider intransitive sentences, we see that they are the output corresponding to an input containing either a high-prominent agent A or a high-prominent patient P. This means that a semantically intransitive input corresponds to a formally intransitive construction. Moving on to inputs containing two arguments, that is, semantically transitive inputs, we find that they can be realized for-

mally in a number of different ways, depending on the prominence of the arguments involved. In case both are high-prominent the input is realized as a simple transitive construction. That is, we find a NOM-ACC or ERG-ABS case frame. A change in prominence of one of them leads to a voice alternation resulting in a formally detransitivized passive construction in the case of a low-prominent agent, and a formally detransitivized antipassive construction in the case of a low-prominent patient. Thus, in this approach a semantically transitive input can result either in a formally transitive or a formally intransitive construction.

The account by Legendre et al. (1993) provides us with an initial formalization of the relation between the prominence of arguments and their encoding, but leaves open certain questions. Two of them will be presented here, but see de Hoop (1999) and Sells (2001) for further discussion. The first concerns the definition of the notion of prominence. Legendre et al. (1993) speak of an “abstract ‘prominence’ level”, which seems to be equated with discourse prominence. Indeed, prominence is a widely used albeit vague notion and in some way similar to that of topicality. Prominence is concerned with the centrality of an entity in the discourse or with the readiness with which an entity presents itself to the speaker as a topic of conversation. I will use prominence here as an umbrella term for properties of arguments, such as animacy, definiteness, and person, which can have an effect on their encoding such that they stand out morphosyntactically, e.g., because they are realized as subjects or appear with overt case marking. In this section I want to identify some of the features which contribute to the prominence of arguments cross-linguistically.

The second question concerns the output and its relation to the input. Prominence distinctions are not only reflected by means of voice alternations, but can also surface in a variety of other morphosyntactic phenomena such as case marking and word order. Furthermore, languages may differ in the morphosyntactic means they have available to overtly show prominence differences of the input in the output. Let me continue with a discussion of this second problem. In chapter 2 I have shown how languages can differ in the semantic domain they associate with their transitive construction, i.e., the NOM-ACC or ERG-ABS case frame. Following Drossard (1991) languages can be ordered on a scale of fundamental transitivity, with those languages extending their transitive construction to a wide semantic domain ranking high (see section 2.4.4). In this way, English can be classified as being higher in fundamental transitivity than German, which in turn scores higher than Russian. Relating this distinction between languages to the framework of Legendre et al., we may find cases in which distinctions in input prominence are conflated

in the output, as more than one distinct input configuration is mapped to the same output. Let me illustrate this with two examples from English (see also de Hoop 1999):

- (2) Robert is hitting John.
 (3) Robert is drinking wine.

The examples in (2) and (3) both represent transitive constructions in English. Nevertheless, they correspond to different inputs in terms of prominence of the arguments involved. In (2) we are dealing with a prominent agent A and a prominent patient P, giving the input [AP]. Example (3), on the other hand, seems to correspond to an input [Ap] with a high-prominent agent and a low-prominent patient. This difference in prominence can be related to a difference in specificity or countability between the two nouns. In other words, in English both the input [AP] and the input [Ap] can be mapped onto the same output, i.e., a transitive construction. Now consider the following examples from West-Greenlandic:

WEST-GREENLANDIC (Inuit; Van Geenhoven 1998a:232)

- (4) *Nuka-p ipili neri-v-a-a.*
 N.-ERG apple.ABS eat-IND-3SG-3SG
 ‘Nuka ate the/a particular apple.’
- (5) *Nuka ipili-mik neri-v-u-q.*
 N.ABS apple-INSTR eat-IND-INTR-3SG
 ‘Nuka ate an apple.’

The two examples in (4) and (5) can again be argued to correspond to two different input configurations, where (4) is the realization of an input [AP] and (5) of an input [Ap]. This time however the different inputs correspond to distinct output forms. The input [AP] is realized as a regular transitive ERG-ABS construction (4), whereas the input [Ap] is realized as an antipassive construction (5). In the latter construction the subject shows up with absolutive case, the verb stops agreeing with the patient argument in contrast to the transitive construction, and the patient is formally demoted from absolutive to instrumental case. In this way West-Greenlandic is a perfect illustration of the input-output relations defended by Legendre et al. (1993). Nevertheless, also in this language we can find examples which complicate matters. Take the example in (6) (familiar from chapter 2):

WEST-GREENLANDIC (Inuit; Van Geenhoven 1998a:232)

- (6) *Nuka ipili-tur-p-u-q.*
 N.ABS apple-eat-IND-INTR-3SG
 'Nuka ate an apple/apples.'

Here we find another construction which can be said to correspond to the input configuration [Ap] (see section 2.1.3 and Van Geenhoven 1998b for discussion of the meaning of either construction; see also Fortescue 1984; Bittner 1988). This time the input is however not realized as an antipassive construction but as a noun-incorporation construction. The object is not expressed as an independent noun phrase but rather as a part of the predicate. The existence of both the antipassive and the noun-incorporation construction in West-Greenlandic as the realization of an [Ap] input presents a problem to the approach of Legendre et al. (1993), which advocates a one-to-one correspondence between input and output. In sum, the English and West-Greenlandic data show a reduction in the mapping from meaning to form in two directions. This is illustrated in (7):

(7)

Legendre et al. (1993) one-to-one	English many-to-one	West-Greenlandic one-to-many
input _x → output _a	input _x > output _a	input _x < output _a
input _y → output _b	input _y	input _x < output _b

Whereas in the system developed by Legendre et al. (1993) the mapping from meaning to form is treated as one-to-one, English shows how different inputs can be realized by the same output, and Inuit shows how one and the same input can be realized by different output forms. These deviations from the one-to-one relationship between meaning and form cannot be accounted for in the present model. In order to account for the existence of one-to-many mappings between meaning and form, the level of the input should be enriched with features which differentiate between the two output forms. Subsequently, the constraints which regulate the mapping from meaning to form have to be adjusted in such a way that they make reference to these features.

The observation that in West-Greenlandic not all verbs can participate in the noun-incorporation construction (cf. the different verbal stems in the examples above; see Sadock 1980; Van Geenhoven 1998a; see Mithun 1984:859-863 for a more general discussion) indicates that apart from prominence features of arguments also verbal features have to be taken into account. The nature of the input is discussed further below. The existence of many-to-one mappings requires that constraints regulating the

input-output mapping are made sensitive to the morphosyntactic makeup of a given language. The fact that English lacks antipassive and noun incorporation and therefore cannot faithfully map an input [Ap] to such constructions should be taken into account (cf. Sells 2001:357). Subsequently this may also require modifications of the features in the input.

It should be noted that in English not all three distinctions in input prominence distinguished by Legendre et al. (1993) are neutralized to one single output expression, i.e., not every input is realized as the same transitive construction. For instance, an input [aP] can perfectly well be realized both as a transitive construction and as a passive one (cf. de Hoop 1999). Therefore, English cannot simply be characterized as a language with only many-to-one mappings, it also shows one-to-many mappings.

The fact that there exist patterns in languages in which different inputs are mapped to the same output and in which the same input is mapped to different outputs raises the question of typological variation in this input-output mapping. A consistent one-to-one mapping language would use a different (voice) construction for each input: an active transitive construction for [AP], a passive construction for [aP], and an antipassive construction for [Ap]. West-Greenlandic seems to be of this type. Legendre et al. (1993) provide examples of other languages which belong to this type, as well as of languages conflating two inputs because of the lack of either an antipassive or passive construction. A language which would express all three different inputs by means of the same voice construction would exemplify extreme neutralization of the input-output mapping. Sells (2001) provides Sinhala as an example and furthermore mentions that the same holds for many Australian languages and polysynthetic languages. Languages lacking voice morphology must express prominence distinctions by other means, such as word order and case marking (Sells 2001:388, fn1). This brings us to the general observation that voice oppositions are not the only means languages have to express prominence distinctions. Indeed, as Sells points out, word order, case marking, and agreement are often influenced by the prominence of arguments as well, cf. also the previous chapter. The fact that prominence distinctions in the input not only influence voice oppositions but other morphosyntactic phenomena as well falls outside the scope of Legendre et al.'s model.

Let me now turn to the first question posed above concerning the notion of prominence. Legendre et al. (1993) are not very explicit about this notion. It seems equated with discourse prominence, which in itself is a rather vague notion as well. Givón (1994a) provides a discussion of how the discourse prominence of an argument can be assessed in terms of scalar topicality. The latter is determined by the referential distance

of an argument, i.e., how far back in previous discourse is the last mention of the referent, and its topic persistence, i.e., how many times the referent is mentioned in the following discourse. Mithun (1984) shows that, apart from the voice alternations, noun incorporation also represents a device which can be used to background arguments, that is, to make them less prominent in the discourse. Above we have already seen how West-Greenlandic makes use of this construction in order to express an input with a low-prominent patient. Although noun incorporation in this language is not necessarily related to backgrounding, incorporated objects clearly have a different semantic profile from non-incorporated ones. Whereas the latter can be shown to be specific, the former can be shown to have non-specific referents (cf. Van Geenhoven 1998b). In other words, in this language low-prominence of an object can be equated with non-specificity or, in more general terms, specificity is a feature which contributes to the prominence of an argument.

Specificity has been shown to play a role in several morphosyntactic phenomena. One such phenomenon is the use of object case marking in Turkish, as was demonstrated in chapter 1. Compare again the following two examples:

TURKISH (Turkic; Kornfilt 2003:127)

- (8) *Ahmet dün akşam pasta-yıye-di.*
 Ahmet yesterday evening cake-ACC eat-PST
 ‘Yesterday evening, Ahmet ate the cake.’
- (9) *Ahmet dün akşam pasta ye-di.*
 Ahmet yesterday evening cake eat-PST
 ‘Yesterday evening, Ahmet ate cake.’

The object *pasta* ‘cake’ occurs with the accusative case marker in example (8) and without it in (9). Apart from showing a difference in form the two examples also show a difference in meaning. The case-marked object receives a specific interpretation whereas the one without case has to be interpreted as non-specific. As such, they mirror the noun-incorporation examples from Inuit.

Specificity can be shown to influence the ordering of arguments. Consider the following scrambling examples from Dutch:

DUTCH (Germanic; de Hoop and Krämer 2006)

- (10) *Je mag twee keer een potje omdraaien.*
 you may two times a pot around.turn
 ‘You may turn a pot twice.’

- (11) *Je mag een potje twee keer omdraaien.*
 you may a pot two times around.turn
 ‘You may turn a pot twice.’

Like the use of case marking in Turkish, the positioning of the direct object before or after an adverb in Dutch results in a difference in interpretation. In the unscrambled order in (10), the direct object *een potje* ‘a pot’ receives a non-referential or non-specific reading. In the scrambled order in (11), by contrast, it gets interpreted as referential or specific.

These case marking and word order facts tell us two things about the relation between the prominence of arguments and surface output forms. On the one hand, they make clear that apart from voice oppositions prominence distinctions can also surface as case marking or word order alternations (cf. Sells 2001; see also Kiss 1995 on discourse configurational languages). On the other hand, they provide us with a more tangible feature contributing to the prominence of an argument, namely its specificity. When we concentrate on case-marking patterns, we find that cross-linguistically these are also influenced by semantic features of arguments other than specificity.

As discussed extensively in the previous chapter, animacy is one of these recurrent features. In Malayalam, animate, but not inanimate, objects are obligatory marked with accusative case. If we take case marking to be a device which can mark differences in prominence, these examples indicate that animacy is yet another feature which can influence the prominence of arguments. Given that the presence of case marking correlates with high prominence of an argument and the absence of case with low prominence, animate arguments can be considered high-prominent arguments and inanimate ones low-prominent. This raises whether there is evidence for this distinction in terms of prominence.

It should be noted that animacy is fundamentally different from specificity. Whereas specificity is a feature which gets ascribed to an argument in a given context, animacy is an inherent feature of arguments which is independent of discourse. This, however, does not mean that animacy has no effect on the discourse status of arguments. There is good linguistic evidence to associate animacy with high discourse prominence and inanimacy with low discourse prominence.

Mithun (1984) provides a discussion of the relation between noun incorporation and discourse structure showing that incorporation can be used for the backgrounding of arguments that are less salient in the discourse. Mithun notes that animate nouns are often not incorporated at all in contrast to inanimate ones (the same observation is voiced by Baker 1996:316). She attributes this observation to the fact that “speakers are

usually more interested in human beings (and perhaps animals) than in inanimate objects” (Mithun 1984:863) and given that the primary purpose of noun incorporation is to background an argument, speakers will generally not incorporate animate nouns.

The observation that speakers tend to speak about other human beings has influenced many psycholinguistic studies investigating the role of animacy in language production. In a typical experiment subjects describing pictures produce significantly more passive constructions in case the picture shows an inanimate entity acting on an animate one compared to the reverse situation. Such experiments show that speakers have a preference to produce constructions in which the animate argument surfaces as the first argument. This effect has been dubbed the animate first effect, and is often attributed to the fact that animate entities exhibit higher conceptual accessibility, i.e., they are activated prior to inanimate entities (see van Nice and Dietrich 2003; Branigan et al. 2007 for discussion). In the terminology employed here we could say that animates are more prominent than inanimates. The preference for animate arguments to come first in a sentence has been grammaticalized in some languages, as shown by Tomlin (1986).

Another linguistic phenomenon which shows the interaction between animacy and discourse prominence is described by Broadwell (2006). Broadwell provides an in-depth discussion of the use of the so-called *ki*-passive in the Mayan language Kaqchikel. This passive construction puts a number of restrictions on its subject argument explicitly related to the discourse status of arguments. In particular, the subject has to express given information and has to be discourse prominent. Non-specific arguments are excluded from the subject position, as are inanimate ones. In other words, only animate subjects are allowed in the *ki*-passive. Following Legendre et al.’s characterization of the passive as a realization of an input with a low-prominent agent and a high-prominent patient, for which independent evidence exists in the case of the Kaqchikel *ki*-passive, these data show that there is a connection between animate arguments and discourse prominent arguments.

A final linguistic phenomenon which links animacy to high discourse prominence and inanimacy to low discourse prominence is provided by the obviation systems found in Algonquian languages. In these languages in sentences with two third-person arguments one argument is assigned the status of proximate, whereas the other one is assigned the status of obviative (see also 3.3 above). In case both arguments are animate the assignment of proximate and obviative status is dependent on discourse prominence of the arguments, where the proximate argument corresponds to a discourse prominent argument and the obviative argument to a back-

grounded argument. In case one of the arguments is inanimate, it is automatically assigned obviative status. In other words, inanimate arguments do not qualify as discourse prominent proximate arguments. It has been reported for the Algonquin language Passamaquoddy (Bruening 2001, cited in Alexiadou and Anagnostopoulou 2006) that it is impossible for two inanimate arguments to co-occur as the subject and object of a transitive verb. This restriction is due to the fact that every transitive sentence containing two third person arguments requires one argument to be the proximate argument, a function unavailable for inanimates. Such obviation systems clearly indicate that animacy is related to discourse prominence.

The above examples illustrate how prominence distinctions in the input can affect voice but also word order and case marking. I have shown how two features, specificity and animacy, contribute to the prominence of an argument and how they can be linked to the broader notion of discourse prominence. Thus, two levels of prominence should be distinguished (cf. Givón 1994a): (i) semantic prominence, which depends on semantic features of an argument, such as its animacy; (ii) discourse prominence, which reflects the status of an argument in discourse, such as its specificity. These two levels resemble the distinction between inherent accessibility and derived accessibility, proposed by Prat-Sala and Branigan (2000) as measures for the (neural) activation of lexical concepts.

Dalrymple and Nikolaeva (2006) show that differential object marking (DOM) can be sensitive to either or both levels of prominence. They argue that DOM languages can be divided into three types with respect to what kind of factor the object case alternation is sensitive to:

(12) Three types of DOM languages (Dalrymple and Nikolaeva 2006):

Type 1 Languages where DOM is regulated solely by information structure; correlations with semantic features are only tendencies.

Type 2 Languages where DOM is regulated solely by semantic features; correlations with information structure are only tendencies.

Type 3 Languages where DOM is regulated both by information structure and semantic features.

Here, information structure can be equated with the discourse prominence of an argument, and the semantic features with semantic prominence. It should be noted that both kinds of prominence can be determined by similar semantic features (see also de Hoop 2005). An argument which is both animate and specific may be considered semantically prominent, in-

dependent of its discourse status, and due to this high prominence it may receive overt case marking. At the same time, the fact that an argument is both animate and specific may influence its discourse status, making it highly discourse prominent, which in turn results in overt marking of the argument. In the remainder of this chapter I will focus on the influence the semantic prominence of an argument has on its morphosyntactic realization, but incidentally a link to discourse prominence will be made as well.

Above I have illustrated that the prominence of an argument can be influenced by its animacy and specificity and that this may have consequences for its case marking. Animacy and specificity are, however, not the only (semantic) features influencing overt case marking on arguments. Several other features can be identified, such as definiteness.¹ In chapter 2 I have shown that in Hebrew only definite objects are preceded by the object marker.² The two features influence case marking in many other languages, such as Persian (Karimi 1996), Gujarati (Mistry 1998), and Amharic (Amberber 2005). The recurrent pattern in these languages is that only definite/specific objects are overtly case marked. Indefinite/-non-specific objects, on the other hand, are left unmarked.

Another semantic feature known to influence case marking is that of person. This feature is especially well-studied in relation to the split-ergativity patterns found in many indigenous languages of Australia (cf. Silverstein 1976). The classic example is that of Dyirbal (Dixon 1972) illustrated in (13).

(13) *The split-ergative pattern of Dyirbal:*

Grammatical Function	Person	
	1,2	3
Transitive subject	NOM	ERG
Transitive object	ACC	ABS

In Dyirbal, first and second person arguments follow an alignment pattern different from that of third person arguments. The former show a nominative-accusative case pattern, whereas the latter are ordered on an ergative-absolutive basis. This clearly shows the influence of person on case-marking patterns.

¹The notion of definiteness is closely related to, but cannot be equated with, specificity. See von Heusinger (2002) for a discussion of the relation between the two features.

²See section 4.4.2 below for further discussion.

Yet another semantic feature influencing case marking (discussed in chapter 2) is volitionality of the agent:

BATS (Caucasian; Holisky 1987:105)

- (14) a. *As wože.*
 I.ERG fell
 ‘I fell.’ (It was my own fault that I fell down)
- b. *So wože.*
 I.ABS fell
 ‘I fell.’ (No implication that it was my fault)

The above examples show how in the Caucasian language Bats the case marking of subject arguments of intransitive verbs depends on the volitionality of the subject in performing the action described by the predicate. In case the subject is volitional, it is marked with ergative case. Non-volitionality of the subject is marked with absolutive case. Moreover, these examples show that the approach by Legendre et al. (1993) in which intransitive constructions are the realization of an input with either a prominent agent or a prominent patient cannot be right. Also for intransitive constructions a distinction has to be made between inputs with a high-prominent argument ([A/P]) and ones with a low-prominent argument ([a/p]).

In the above discussion, I have identified several features which can be taken to influence the prominence of an argument and (indirectly) case-marking patterns, including animacy, specificity, definiteness, person, and volitionality. There are also argument features which are not directly semantic in nature, but which do influence case marking and hence can be considered to be related to the prominence of an argument. One feature that comes to mind immediately is the type of NP an argument represents. Particularly relevant is the distinction between pronouns and full NPs, which can be shown to influence not only case marking but also other morphosyntactic phenomena, such as word order, in different languages (as was also demonstrated in section 3.4).

Returning to the split-ergative case-marking patterns found in many Australian languages we do not only find languages in which the split is determined by person but also languages in which it depends on NP type. For instance, in Pitjantjatjara (Bowe 1990) pronouns and proper nouns follow a nominative-accusative pattern, and common nouns an ergative-absolutive one. Although NP type does not seem to directly represent a semantic feature of NPs, it can be related to the semantic/discourse status of noun phrases. As shown in 3.3.1 the distinction between pronouns and full NPs can be related to the discourse status of arguments. Arguments

that represent given or old information are often realized as pronouns, whereas new arguments are often realized as full NPs. Alternatively, one can also interpret the link between the prominence of an argument and its NP type in terms of definiteness. Where pronouns and proper names typically represent definite arguments, no such correlation holds for common nouns. Either way NP type can be seen as a reflection of the prominence of an argument

Apart from semantic features related to an argument itself, there are also certain verbal features which may influence case marking, such as tense and aspect (see, for instance, Dixon 1994). In Finnish the alternation between accusative and partitive case on direct objects is influenced not only by certain semantic characteristics of the object argument, but also by the aspectual features of the predicate (see Kiparsky 1998; Ackerman and Moore 2001; see also Verkuyl 1972; Krifka 1989, 1998 a.o. for the correlation between telicity and the referential status of the object in general). The alternation between accusative and partitive results in a telic versus an atelic interpretation of the predicate:

FINNISH (Finno-Ugric; Hopper and Thompson 1980:262)

(15) *Liikemies kirjoitti kirjeen valiokunnalle.*
 businessman wrote letter.ACC committee.to
 ‘The businessman wrote a letter to the committee.’

(16) *Liikemies kirjoitti kirjettä valiokunnalle.*
 businessman wrote letter.PART committee.to
 ‘The businessman was writing a letter to the committee.’

A relation between tense/aspect and subject case-marking is found in Hindi. In this language, the subject of a large class of transitive verbs has to be marked with ergative case when the verb is in the perfective tense and with nominative when it is in non-perfective tense (cf. Mohanan 1990; de Hoop and Narasimhan 2005, among many others). In other words, Hindi shows a split-ergative system on the basis of tense, cf. (17) and (18).

HINDI (Indo-Aryan; Mohanan 1990:91)

(17) *Raam-ne Ravi-ko piitaa.*
 Ram-ERG Ravi-KO beat.PST
 ‘Ram beat Ravi.’

(18) *Raam Ravi-ko piitega.*
 Ram.NOM Ravi-KO beat.FUT
 ‘Ram will beat Ravi.’

I started this section with a discussion of the approach to voice alternations developed by Legendre et al. (1993). Their approach is crucially based on the notion of prominence, although this notion is not clearly defined. I have identified a number of features which can influence the prominence of an argument and consequently its morphosyntactic realization. Moreover, I have argued that the two levels of semantic and discourse prominence should be distinguished. There are nevertheless many additional semantic factors which have their bearings on (variation in) the morphosyntactic realization of arguments. In fact, most of the transitivity parameters proposed by Hopper and Thompson (1980) and discussed in chapter 2 have a certain effect on case-marking patterns (cf. also Tsunoda 1981; see Malchukov 2006; Malchukov and de Swart, to appear for discussion). Furthermore, the thematic role of an argument can also influence the case-marking patterns it can participate in (see chapter 3; see also Primus 1999; Ackerman and Moore 2001).

Acknowledgment of the influence of Hopper and Thompson's transitivity parameters on case alternations and related morphosyntactic phenomena has severe repercussions for a model in the spirit of Legendre et al. (1993), which tries to explain such alternations in terms of prominence distinctions in the input. Recall the discussion of Malchukov's (2006) proposal to group Hopper and Thompson's transitivity parameters into A-related, O-related, and V-related parameters (see section 2.3). This distinction fits the general approach of Legendre et al. (1993) and actually provides an explication of the contrast between high-prominent ([A,P]) and low-prominent ([a,p]) arguments in the input. The V-related parameters, however, do not have a place in the model as it is. Therefore, in order to analyze case alternations induced by verbal parameters one has to incorporate them into the model, and let them determine the prominence of the input together with the argument-related features.

4.2.1 Prominence Hierarchies

Above I have identified a number of prominence categories. Throughout the discussion, I have assumed that within each category a distinction can be made between high-prominent and low-prominent elements. For instance, within the category of animacy, animates were considered high-prominent and inanimates low-prominent. These differences are often based on prominence scales or hierarchies, as the ones in (19)-(21) (cf. Aissen 1999, 2003, among many others):

- (19) *Animacy*: Human > Animate > Inanimate
 (20) *Definiteness*: Pronoun > Proper Noun > Definite NP > Indefinite Specific NP > Indefinite Non-specific NP
 (21) *Person*: 1,2 (local) > 3

These hierarchies are taken to visualize the internal structure of a prominence category. Thus, within the category of animacy, humans are the most prominent elements, followed by animates, which in turn are followed by inanimates. Moreover, these hierarchies can be used to assess the markedness of subjects and object. This is made explicit in the approach by Aissen (1999, 2003), who relies crucially on the notion of markedness reversal ‘what is marked for a subject is unmarked for an object and vice versa’ (cf. Comrie 1989). Translated to the hierarchies in (19)-(21), the features high in the hierarchies are taken to be unmarked for subjects and marked for objects and the reverse holds for features low in the hierarchies. Thus, unmarked subjects are human, pronoun, and first or second person, whereas unmarked objects are inanimate, indefinite, and third person (see also section 3.2.1 for discussion).

Aissen (1999, 2003) argues that deviations from these unmarked prototypes result in a marked form, i.e., the use of overt case morphology or a voice alternation. The different cut-off points in the hierarchies can be shown to correlate with the extensions of certain morphosyntactic phenomena in different languages. Thus, for instance, overt case marking of objects (DOM) in one language may apply only to humans, whereas in another language it may apply to both humans and animates. The first language can be said to expand the phenomenon to the first cut-off point in the hierarchy and the second language to the second cut-off point. The observation that deviations from an unmarked prototype results in a marked form is in accordance with the iconicity principle, which states that markedness of form goes hand in hand with markedness of meaning. An illustration of this is provided by obligatory voice alternations attested in Southern Tiwa. In this language the use of active and passive constructions is dependent on the person features of the subjects involved. This pattern is summarized in the table in (22):

- (22) The use of passive in Southern Tiwa:

Agent	Patient	Passivization
1st/2nd person	1st, 2nd, 3rd person	prohibited
3rd person	1st/2nd person	obligatory
3rd person	3rd person	optional

Constructions with a first or second person agent can only be expressed by means of an active construction. Passive constructions in which the agent is expressed as an oblique phrase are ungrammatical, cf. the contrast in grammaticality between (23) and (24).

SOUTHERN TIWA (Tanoan; Allen and Frantz 1983:304-5)

(23) *bey-mu-ban.*

2SG:1SG-see-PST

‘You saw me.’

(24) **Te-mu-che-ban* *ĩ-ba.*

1SG-see-PASS-PST 2-INSTR

‘I was seen by you.’

In contrast, passive constructions are possible when the agent is third person. More precisely, the passive is obligatory for third person agents when the patient is first or second person (25)-(26), and optional when the patient is third person as well, cf. (27)-(28).

SOUTHERN TIWA (Tanoan; Allen and Frantz 1983:305)

(25) *Seuanide-ba te-mu-che-ban.*

man-INSTR 1SG-see-PASS-PST

‘The man saw me.’ (litt. ‘I was seen by the man’)

(26) *Seuanide-ba a-mu-che-ban.*

man-INSTR 2SG-see-PASS-PST

‘The man saw you.’ (litt. ‘You were seen by the man’)

(27) *Seuanide* \emptyset -*liora-mu-ban.*

man 3:3SG-lady-see-PST

‘The man saw the lady.’

(28) *Liorade* \emptyset -*mu-che-ban seuanide-ba.*

lady 3-see-PASS-PST man-INSTR

‘The lady was seen by the man.’

Under Aissen’s approach first and second person are unmarked features and third person a marked feature for transitive subjects. Furthermore, the passive is a marked construction in comparison to the active. The Southern Tiwa data nicely illustrate Aissen’s observation that marked subjects tend to occur in marked constructions: the unmarked first and second person agents occur only in the unmarked active construction and the marked third person agent shows preference for the marked passive construction.

The idea to use a hierarchy to determine the markedness of grammatical functions and the variation in a given morphosyntactic phenomenon

in different languages can be traced back to Silverstein (1976; see also Filimonova 2005:78-81) who used the hierarchy in (29) to explain the variation in split-ergativity in Australian languages.

- (29) *Silverstein's Hierarchy* (Silverstein 1976):
 1,2 pron. > 3 pron. > 3 PN > 3 hum. CN > anim CN > inan
 CN
 ACCUSATIVE → ← ERGATIVE

The hierarchy in (29) can be seen as a conflation of person, animacy, and NP type hierarchies (cf. Croft 1990). Again we can argue that the semantic features on the higher end of the hierarchy are unmarked subject features and marked object features and the reverse holds for the lower end of the hierarchy. Silverstein shows how many Australian languages restrict the use of accusative case to arguments with features high in the hierarchy and the use of ergative case to arguments with features low in the hierarchy. In other words, accusative case is used to mark atypical objects and ergative case is used to mark atypical subjects. Furthermore, Silverstein shows that languages differ in how far they extend the use of case marking from the edge of the hierarchy.

Although it was already acknowledged in the literature that prominence hierarchies can be taken to express the marked and unmarked features of subjects and objects, the account of Aissen (1999, 2003) is the first to formally incorporate them into a theoretical framework. Aissen derives Optimality-Theoretic constraints from these hierarchies by means of Harmonic Alignment (Prince and Smolensky 1993/2004). With her analysis she overcomes the long-standing problem of the formal integration of hierarchies into generative syntax.³

However, not everyone working within generative syntax agrees with Aissen that an account of phenomena, such as DOM and the voice alternations discussed above, should make reference to prominence hierarchies. Carnie (2006), in a critique, rejects such hierarchies as primitives. Apart from empirical problems, he has conceptual problems with an approach like Aissen's which relies crucially on prominence hierarchies. In particular he doubts their grammatical status as "they are merely descriptive statements. I'm not at all convinced that grammatical con-

³This problem is echoed in the following quote from Carnie (2006): "[f]rom the standpoint of a generative grammar, it isn't at all clear what the grammatical status of the hierarchies is. They aren't constraints, procedures or rules. How the restrictions are imposed on the grammar isn't at all clear. These hierarchies tend to be merely post-factum descriptive statements of grammatical tendencies . . . the lack of formalizability is a problem for linguists who would like to accommodate such robust descriptive generalizations in their generative grammar." (Carnie 2006:4).

structs “derived from” non-grammatical descriptions provide solid basis for grammatical theory” (Carnie 2006:8). As a result, he rejects the use of such hierarchies as primitives “unless properly grounded either in the real world or in theoretical constructs that themselves have some grammatical status” (Carnie 2006:9).

Indeed, there has been much interest in recent years to reduce the prominence hierarchies and their effects to other grammatical factors (see, e.g., Jelinek 1993a; Halle and Marantz 1993; Nichols 2001; Jelinek and Carnie 2003; Alexiadou and Anagnostopoulou 2006; Carnie 2006; Merchant 2006; Trommer 2006 for proposals and discussion). In the present discussion I will focus mainly on what one may call ‘tree-geometric’ approaches (Jelinek 1993a; Jelinek and Carnie 2003; Carnie 2006; Carnie and Cash Cash 2006), which try to derive relational hierarchies from constituent hierarchies by means of the mapping principle proposed in Diesing (1992; cf. also Diesing and Jelinek 1995). These approaches start from the observation that not only case and agreement patterns, but also word order is sometimes influenced by prominence hierarchies. Given that such word order patterns can be described in terms of phrase structure geometry by means of the mapping principle, it is reasoned that the case and agreement patterns can be treated in those terms as well.

The similarity between case marking and word order patterns has been often observed in the domain of differential object marking based on the definiteness of the object. Apart from languages in which definite and indefinite objects behave differently with respect to object case marking, there are also languages in which such objects behave differently with respect to word order. In particular, this is argued for scrambling or object shift in the Germanic languages (already shortly discussed above). Consider the following examples from German (representing the grammaticality judgments of Diesing and Jelinek 1995):

GERMAN (Germanic; Diesing and Jelinek 1995)

(30) ... *weil ich nicht eine einzige Katze gestreichelt habe.*
 since I not a single cat petted have
 ‘... since I have not petted a single cat.’

(31) *?... *weil ich nicht die Katze streichle.*
 since I not the cat pet
 ‘... since I do not pet the cat.’

(32) ... *weil ich die Katze nicht streichle.*
 since I the cat not pet
 ‘... since I do not pet the cat.’

These data show that indefinite objects are allowed to the right of the adverb *nicht*, which is taken to mark the left edge of the VP. Definite objects, on the other hand, must shift to the left of the adverb, a position outside of the VP. Thus, where in some languages definite objects receive case marking, but indefinites do not, in German definite objects have to move out of the VP, whereas indefinites do not.

The word order pattern in German can be explained by means of the mapping principle in the following way. Following Diesing (1992) a sentence can be divided into three parts: (i) an operator, often a quantifier, which asserts the number of participants of the event described in the sentence; (ii) a restrictor, which asserts the presupposed information about the participants and restricts the scope of the operator; (iii) a nuclear scope, which asserts what is true of the participants and provides the new information to the sentence. This is illustrated graphically in (33):

(33) [Operator [restrictor][nuclear scope]]

These three parts of the sentence are taken to correspond to three portions of the tree structure underlying the sentence. The partition in (33) can be derived directly from the syntax by means of the mapping principle given in (34):

(34) The Mapping Principle (Diesing 1992):

1. The material from IP/TP and above maps into the restrictor.
2. The material from VP maps into the nuclear scope.

Moreover, the mapping principle has certain semantic correlates. Diesing (1992) argues that the VP forms the domain for default existential closure, an assumption which puts clear semantic restrictions on the types of NPs allowed inside the VP. Due to existential closure, only variables are allowed in the nuclear scope which can be either (i) traces of NPs that have moved out of the VP; (ii) non-quantificational/non-presuppositional NPs (of type $\langle e, t \rangle$). In other words, quantificational/presuppositional NPs have to move out of the VP to create a trace variable, whereas predicative/non-presuppositional NPs can remain within the VP. The association between positions within the VP and non-presuppositional NPs, on the one hand, and between positions outside of the VP and presuppositional NPs can explain the German scrambling facts discussed in (30)-(32) above. The definite object is ungrammatical inside the VP because it represents presuppositional information. The indefinite object, by contrast, is grammatical inside the VP as it can receive a non-quantificational read-

ing. In fact, it also explains why indefinites which move outside of the VP get a quantificational reading.

The above discussion shows how DOM based on definiteness and realized as word order variation can be explained in terms of a phrase structure hierarchy. This raises the question whether differential argument marking patterns based on prominence hierarchies which do not surface as word order variation can also be explained in tree-geometric terms. Jelinek (1993a) uses an analysis in terms of the mapping principle to account for person-based split-ergativity found in the Salish language Lummi, a phenomenon discussed in depth in the next section. In this language, first and second person subjects receive nominative case and third person subjects ergative case, which Jelinek assumes to be a VP-internal case. Jelinek analyzes this pattern on the basis of the presuppositionality of person. She argues that first and second person are inherently presuppositional and therefore have to move out of the VP, where they are assigned nominative case. The third person subjects which can take ergative case remain inside the VP.

As correctly pointed out by Carnie and Cash (2006), the correlation between third person and a position inside the VP assumed by Jelinek is problematic as it predicts third persons to be always non-presuppositional. This prediction clearly is not borne out as there are many contexts in which they are in fact presuppositional. The falsity of this prediction can also be deduced from the following two generalizations, taken to be universal by Jelinek (1993a): (i) all local arguments are definite; (ii) all indefinite arguments are non-local. From the statements one can conclude two things about the presuppositionality of person: (i) local persons are inherently presuppositional; (ii) third persons can either be indefinite or definite and thus can be either presuppositional or non-presuppositional. The fact that third persons can be presuppositional is in direct conflict with Jelinek's claim that they must occupy a VP-internal position. By Diesing's mapping hypothesis presuppositional NPs are excluded from the VP. In conclusion, one can state that a reduction of the person hierarchy to the mapping principle and hence to a phrase-structure hierarchy is problematic.

Moreover, this points to a wider problem for any account that tries to reduce prominence hierarchies to constituent hierarchies by means of the mapping principle. Many semantic prominence features, in fact apart from definiteness and specificity probably all, are not easily reduced to presuppositionality. Take animacy as an example. Although it shows clear correlations with discourse prominence and in this way perhaps also with presuppositionality, it is certainly not the case that animate noun phrases are inherently presuppositional and inanimate ones inherently

non-presuppositional. In fact, both animate and inanimate noun phrases can receive both a presuppositional and a non-presuppositional reading. Furthermore, the animacy hierarchy presents an additional problem as, in contrast to the definiteness and person hierarchy discussed above in relation to the mapping principle, it presents a three-way contrast between human, and animate, and inanimate nouns. This three-way contrast is hard to reconcile with the two-way distinction between restrictor and nuclear scope.⁴ Overall, I think we can safely conclude that any attempt to reduce prominence hierarchies to constituent hierarchies by means of the mapping principle is faced with severe conceptual problems (independently of any problems one could raise against Diesing's mapping principle; cf. Van Geenhoven 1998b, de Hoop 2003).

Consider the other option raised by Carnie (2006) in order to use the hierarchies as primitives: grounding them in the real world. This option should be seen against the light of a discussion concerning the grounding of Optimality-Theoretic constraints. Whereas in phonology constraints can generally be motivated on laboratory phonological grounds, in syntax the grounding of constraints is still a matter of debate as not everyone accepts functional motivations (see, for instance, the discussion between Newmeyer 2002 and Bresnan and Aissen 2002). The grounding of prominence hierarchies in the real world is not a trivial task but attempts have been undertaken. In particular, Dahl (2007) has argued for a psychological basis of the animacy (and to some extent the person) hierarchy (see also Haspelmath 1999).

Cognitive grounding is especially problematic for the person hierarchy due to the fact that there is not one universal person hierarchy to which every language makes reference. In particular, the ranking of first person with respect to second person is not stable cross-linguistically. That is, some languages assign first and second person an equal rank, others rank first person above second person, and yet other languages use the reverse ordering with second person ranked above first person. Moreover, as Zúñiga (2006) points out for Algonquian languages, there may even be more than one person hierarchy active in a single language to regulate different phenomena. On the basis of a typological investigation Filimonova (2005) comes to the conclusion that "the relative ranking of 1st and 2nd person is not uniquely determined by universal grammar" (Filimonova

⁴In fact, if we were able to reduce the notion of animacy to a notion of presuppositionality, which can be related to restrictor and nuclear scope, one would expect to find interesting cross-linguistic differences. On the one hand, there would be languages in which humans are inherently presuppositional, but animates and inanimates are not. On the other hand, there would be languages in which both humans and animates are inherently presuppositional, but inanimates are not.

2005:99). This conclusion posits a challenge to every account which tries to incorporate a person hierarchy into a formal universal grammar or directly root it in universal cognitive patterns.

Carnie (2006) requires prominence hierarchies to be properly grounded in the real world or in theoretical constructs that themselves have some grammatical status in order to use them as primitives. The above discussion has shown that grounding prominence hierarchies in the real world or in theoretical constructs such as constituent hierarchies and the mapping principle is not easily achieved. Does this mean that we should abandon them as primitives? I believe this to be true if we want to treat them as universal entities. This holds in particular for the person hierarchy, but less so for the animacy hierarchy, which does not show a universal ranking-indeterminacy.⁵ However, it may be possible to ground the hierarchies on a language-individual basis. There is clear evidence that the members of the categories in the animacy hierarchy may differ from one language to the next. This seems to be based on empathy considerations on behalf of the speaker or general cultural significance of certain entities (cf. Yamamoto 1999). Perhaps, a similar effect can be observed for the person categories. Alternatively, the person hierarchy may be grounded in the grammatical principles of an individual language. In the next section, I provide an example of the latter scenario.

4.3 Cross-Modularity in Active to Passive Alternations

In this section I discuss a pattern of obligatory voice alternations found in the Coast Salish languages spoken on the Northwest coast of North America.⁶ The data involved look very similar to the pattern discussed above for Southern Tiwa. As in that language, the voice alternations seem to be driven by the semantic feature of person and as such can be taken as the reflexes of a person hierarchy which is active in these languages. However, I will argue that these data form a prime example of person hierarchy effects which can be reduced to other factors.

Alternations from active to passive are often characterized as an optional process driven by discourse considerations such as agent demotion

⁵I am not aware of a language in which the animacy hierarchy as presented in (19) is reversed, either partially or totally (resulting for instance in a hierarchy *inan* > *anim*). It may, nevertheless, be the case that a language collapses two of the categories in the hierarchy with respect to a given phenomenon. As was discussed above, a language may oppose humans against non-humans by only overtly case marking the former.

⁶The analysis presented in this section is loosely based on de Swart (2005).

or agent focus. In the Coast Salish languages we sometimes find an obligatory alternation to passive however. In Lummi, for instance, active constructions with a third person subject and a first person object are ungrammatical, irrespective of the order in which the agreement suffixes occur, cf. (35a) vs. (35b). Instead, a passive construction as in (36) has to be used.

LUMMI (Coast Salish; Jelinek 1993a:27)

- (35) a. **Leŋ-t-oŋəs-əs*.
 see-TR-1/2.OBJ-3.SU
 ‘He saw you/me.’
 b. **Leŋ-t-əs-oŋəs*.
 see-TR-1/2.OBJ-3.SU
 ‘He saw you/me.’

LUMMI (Coast Salish; Jelinek 1993a:27)

- (36) a. *Leŋ-t-ŋ=sən*.
 see-TR-PASS-1SG.SU
 ‘I was seen (by someone).’
 b. *Leŋ-t-ŋ=sx^w*.
 see-TR-PASS-2SG.SU
 ‘You were seen (by someone).’

At the same time, certain person combinations also result in ungrammaticalities in passive constructions. In particular, passive constructions with a first or second person agent realized as an oblique are ungrammatical. This is illustrated in (37).

LUMMI (Coast Salish; Jelinek 1993b:167-168)

- (37) **Leŋ-t-ŋ=sx^w* ’ə-oŋəs/’ə=sən.
 see-TR-PASS-2SG.SU OBL-1SG.OBJ/OBL=1SG.SU
 ‘You were seen by me.’

Different authors (Jelinek and Demers 1983; Jelinek 1993a, 1994) have argued in favour of a so-called person hierarchy in order to account for the restrictions described above. In their view, the ungrammaticalities result from a violation of a constraint which states that “the element highest in rank in the agent hierarchy in a sentence should be the subject of that sentence” (Jelinek and Demers 1983:169). In case of an active sentence with a third person agent this constraint is only satisfied when the patient is also a third person, but violated when it is a first or second person. In case of a passive construction, this constraint is violated when a first or second person agent is realized as an oblique (under the assumption that

Person	Subject	Object
1	clitic	suffix
2	clitic	suffix
3	suffix	zero

Table 4.1: Agreement markers in Coast-Salish

first and second person are equally ranked in the person hierarchy; see below for discussion). In contrast to such an analysis, I argue in favour of a morphological account of the data (in a similar vein to Wiltschko and Burton 2004). Using Optimality Theory, I propose that the obligatory alternation can best be viewed as the result of a conflict between constraints coming from different modules of the grammar. But let me first discuss the data. In the discussion I will focus on the ungrammaticality of active constructions –the so-called *paradigm gaps*– and the obligatory voice alternation resulting from them.

The Coast Salish languages are so-called radical head-marking languages (Davis 1995). This means that all grammatical functions are marked on the predicate by means of affixes and clitics. The agreement pattern generally found in the languages under discussion is shown in Table 4.1. As we can see, first and second person subjects are represented by clitics and the other agreement markers are suffixes with third person object agreement being zero.⁷ The object suffixes attach to the verb immediately after the transitive suffix, whereas agreement clitics come in second position right after the first predicate of the clause following agreement suffixes and tense, aspect, mood markers, if present (Jelinek 1996b).

Three types of languages can be distinguished with respect to paradigm gaps. When examining the three types, the reader should bear in mind that the main point of the analysis outlined later on in this section is the observation that the ungrammaticality of these constructions is the result of the existence of only one position for agreement suffixes on the verb. Consequently, we will see that (most) constructions with two suffixes are ruled out.

*Type 1: Excluding both 3-1 and 3-2 sentences*⁸

Lummi falls within the first type under discussion. Its agreement mark-

⁷In intransitive sentences third person subject is also zero.

⁸In the remainder of this section I refer to person combinations by means of the number features of the subject followed by the number feature of the object. Thus, 3-1 indicates a combination of a third person subject and a first person object, etc.

Person	Subject	Object
1sg	=sən	-oŋəs
2sg	=sx ^w	-oŋəs
3sg	-əs	-∅
1pl	=ɬ	-oŋəɬ
2pl	=sx ^w helə	-oŋəs
3pl	-əs	-∅

Table 4.2: Agreement markers in Lummi (Jelinek 1993a)

Person	Subject	Object
1sg	=chen	-s
2sg	=chexw	-umi
3sg	-as	-∅
1pl	=chet	-umulh
2pl	=chap	umiyap
3pl	-as-wit	-∅-wit

Table 4.3: Agreement markers in Squamish (Jacobs 1994)

ers are given in Table 4.2, which shows that Lummi follows the general pattern of agreement markers given in Table 4.1. As we have seen in (35) above, the combinations 3-1 and 3-2 are the paradigm gaps found in Type 1. Well-formed expressions are any combination of clitic and suffix (1-2, 2-3, etc.) or of suffix and zero agreement (3-3). In subordinate clauses all combinations are grammatical. Interestingly, third person subject agreement is zero in subordinate clauses, and under these circumstances the restrictions on direct objects found in main clauses are lifted. This means that even 3-1 and 3-2 sentences are well-formed, as can be seen from (38).

LUMMI (Coast Salish: Jelinek and Demers 1994:720)

- (38) Ye'=∅ [cə [leŋ-t-oŋəs-∅]]
 go=3SG.SU DET see-TR-1/2.SG.OBJ-3SG.SU
 'He left, the (one that) saw you/me.'

Type 2: Excluding only 3-2 sentences

Table 4.3 shows that the agreement markers used in Squamish, a Type 2 language, again follow the general pattern. A difference with Lummi is that Squamish has different forms for first and second person objects. Type 2 languages are less restrictive as they only exclude the 3-2 combination. 3-1, on the other hand, is well-formed as can be seen from the

contrast between (39a) and (39b).

SQUAMISH (Coast Salish; Jacobs 1994:124)

- (39) a. *Ch'áw-at-s-as.*
 help-TR-1SG.OBJ-3SG.SU
 'He helped me.'
 b. **Ch'áw-at-umi-as.*
 help-TR-2SG.OBJ-3SG.SU
 'He helped you.'

Again combinations of clitic and suffix and of suffix and zero agreement are well-formed. Furthermore, as Kuipers (1967) reports, 3-2 sentences are ruled out only in three of the four verbal paradigms. That is, we do not find 3-2 sentences in the finite, factual, and hypothetical paradigm, but such sentences are present in the nominal paradigm, which lacks a third person marker. Consider the example in (40) and compare it to (38) from Lummi, in which the third person subject is also zero.

SQUAMISH (Coast Salish; Kuipers 1967:213)

- (40) *Na ch'áw-at-umi-∅*
 RL help-TR-2SG.OBJ-3SG.SU
 'the one who helped you'

Interestingly, Wiltschko (2003) reports similar facts for Halkomelem, a language which also prohibits 3-2 sentences. In this language the ban on 3-2 constructions is lifted when the third person subject agreement is absent. One such environment are SVO sentences. In VSO sentences 3-2 combinations are ungrammatical. This combination is perfectly well-formed, however, when the subject precedes the predicate, in which case third person subject agreement is absent. This can be seen by comparing (41a) with (41b):

UPRIVER HALKOMELEM (Coast Salish; Wiltschko 2003)

- (41) a. **Kw'éts-l-óme-s* *te swíyeqe.*
 see-TR-2SG.OBJ-3SG.SU DET man
 'The man saw you.'
 b. *Te swíyeqe kw'éts-l-óme.*
 DET man see-TR-2SG.OBJ
 'The man saw you.'

Type 3: No exclusion of any sentence with pronominal arguments

The third type of language is exemplified by Lushootseed. Let us first

Person	Subject	Object
1sg	=čad	-s (-bš)
2sg	=čax ^w	-sid (-bicid)
3sg	=∅	-∅
1pl	=čał	-ubuł(-buł)
2pl	=čaləp	-ubułəd (-bułəd)
3pl	=∅	-∅

Table 4.4: Agreement markers in Lushootseed (Hukari 1976)

consider the various subject and object markers of this language, listed in Table 4.4.⁹ In contrast with the two types discussed so far, in this language both the third person subject and object marker are zero. Interestingly, in the absence of a third person subject marker, this language puts no restrictions on any combination of pronominal arguments. Consider the examples in (42):

LUSHOOTSEED (Coast Salish; Hukari 1976:307, Hess 1973:92)

- (42) a. *ʔu k^wax^wa-cid=čad.*
 CP help-TR.2SG.OBJ=1SG.SU
 ‘I helped you.’
- b. *ʔu č’áx^wa-t-s.*
 CP club-TR-1SG.OBJ
 ‘He clubbed me.’

Also in contrast to the languages we have seen earlier, Lushootseed has an overt third person subject marker *-əs* in subordinate clauses. Instead of treating this marker as a suffix, in analogy with the main clause marker in other Coast Salish languages, Davis (1999) argues on the basis of distributional data that “[i]n Lushootseed, transitive subjects suffixes have been replaced in all clause types by indicative, possessive and conjunctive clitics.” The example in (43) shows that also in subordinate clauses a combination of a third person subject with a first person object is grammatical. This holds for all possible combinations of pronominal arguments in all clause types.

⁹Hukari (1976:307):“..., goal [=object] suffixes have two allomorphs, one after the /-t/ transitive suffix and the other elsewhere. The elsewhere is listed in parentheses...”

LUSHOOTSEED (Coast Salish; Bates 1997:327)

(43) $\text{ʔəs-}x\acute{a}c=\acute{c}\acute{a}d$ $g^w\acute{a}-la\acute{x}-du-b\acute{s}=\acute{a}s.$

ST-fear=1SG.SU SBJ-remember-TR-1SG.OBJ=3SG.SU.SBJ

‘I’m afraid he might remember me.’

In the introduction to this section I noted that the data discussed have often been taken as a prime example of a person hierarchy at work. These person hierarchy accounts were partially informed by ungrammatical passives already discussed above in (37), and repeated below for convenience:

LUMMI (Coast Salish; Jelinek 1993b:27)

(44) * $Le\eta-t-\eta=sx^w$ $\acute{a}-o\eta\acute{a}s/\acute{a}=s\acute{a}n.$

see-TR-PASS-2SG.SU OBL-1SG.OBJ/OBL=1SG.SU

‘You were seen by me.’

The example in (44) shows that a passive construction with a first person agent results in an ungrammatical structure. This also holds for passives with a second person agent. These restrictions are shared by all three types of Coast Salish languages identified above in relation to the active paradigm gaps. The occurrence of restrictions related to person both in the active and in the passive voice has led researchers to the idea to propose a uniform analysis of the two phenomena in terms of a person hierarchy (Jelinek and Demers 1983; Jelinek 1993a, 1994). Given this hierarchy, the element ranked highest has to become the subject of the sentence. Under an equal ranking of first and second person in the hierarchy, this constraint readily explains the ungrammaticality of passives with a first or second person agent. In such constructions, there is always a highest-ranked element, which is not realized as the subject but as an oblique. Given the uniformity of this restriction across the Coast Salish languages this analysis can be based on one single hierarchy for all languages. This nevertheless does not hold for restrictions found in the active (see also Aissen 1999; Brown et al. 2004; Wiltschko and Burton 2004). As shown above, languages differ in which combinations they rule out and even within one language the ungrammaticality of a different combination may depend on the clause type it occurs in. This means that in order to account for the pattern found in the active voice different hierarchies have to be stipulated for the different types of languages, and crucially these hierarchies are sometimes different from the ones needed to account for the restrictions on the passive. This is summarized in Table 4.5, which is meant to illustrate three points.

First, as mentioned above, all three language types use the same person hierarchy to account for the ungrammaticalities in the passive. Second, different person hierarchies have to be stipulated in order to ac-

Language	Gaps			Hierarchies		
	Active		Passive	Active		Passive
	Main	Subordinate		Main	Subordinate	
Type 1	3-1,3-2	∅	1,2	1,2>3	∅	1,2>3
Type 2	3-2	∅	1,2	2>3	∅	1,2>3
Type 3	∅	∅	1,2	∅	∅	1,2>3

Table 4.5: Person hierarchies across voices and language types

count for the variation found across the languages. That is, every type of language corresponds with a different person hierarchy for active main clauses. Third, different person hierarchies have to be stipulated in order to account for the variation within languages. To take the extreme case, in Type 2 languages three different hierarchies are at work, one in active main clauses, another in active subordinate clauses, and yet another in passive constructions. This set of facts makes an account in terms of person hierarchies implausible.

Aissen (1999) acknowledges the fact that different hierarchies are active and develops an account in terms of person without making direct reference to a person hierarchy. Instead she derives constraints which ban certain combinations of person and grammatical functions. By reordering these constraints the different types of languages fall out of her system.

An account in terms of person hierarchies or in terms of preferred associations between person and grammatical functions are problematic in the light of examples like the following:

LUMMI (Coast Salish; Jelinek 1993b:168)

(45) *Leŋ-t-ŋ=st^w 'ə cə 'əs.*

see-TR-PASS-2SG.SU OBL DET 1SG.EMPH

'You were seen by ME.'

This example shows that, in contrast to (44) above, passive constructions are grammatical with a first person agent when it is expressed as an independent pronoun. The same holds for second persons. The crucial difference between these independent pronouns and the agreement suffixes and clitics discussed above is that, whereas they both refer to first and second person, the independent pronouns syntactically are third person nominals (see Jelinek 1993b). The existence of examples like (45) are problematic for any account based on the semantic feature of person. According to such accounts these independent pronouns, as they make reference to first or second person, should be ungrammatical as non-subject agents in passive constructions.

In sum, a uniform account of the ungrammaticalities found in active and passive constructions in Coast Salish in terms of a person hierarchy is problematic in two respects. On the one hand, it is uneconomical as it has to stipulate multiple person hierarchies within and across languages. On the other hand, it makes the wrong predictions with respect to the ungrammaticality of passive constructions involving first or second person agents. In my view, these problematic aspects make an account in terms of (a) person (hierarchy) undesirable.

Not all authors make use of (a) person (hierarchy) to account for the data discussed above. Wiltschko and Burton (2004) argue at length for an account based on a morphological co-occurrence restriction: the ungrammaticalities follow from the co-occurrence of two agreement morphemes in one position (an insight already implicit in the work of Jelinek 1993a, 1994). In this section, I develop an OT account that shares this main idea but is different in many respects, especially in the way in which it is implemented (see below for discussion of the contrasts). Moreover, my account has a wider empirical coverage as it can also explain the ungrammaticalities found in passive constructions.

In line with earlier work on voice alternations in OT (Aissen 1999; Bresnan et al. 2001), I assume active and passive constructions to be elements of the same candidate set. Active and passive constructions are considered to be equal alternatives, the choice dependent on the discourse status of the participants. A given input can be realized either by an active or a passive construction, and the actual choice is dependent on the evaluation of the output candidates against the constraints involved. The input is considered to be a simple predicate-argument structure in which the semantic roles and the number features of the arguments are specified.

In my analysis I make use of three types of constraints. The starting point is the constraint on argument linking in (46):

(46) SUBAG: the agent argument is assigned the function of subject.

The linking of the agent argument to the subject function is not specific to the Salish language family but seems to be a universal tendency (Zanen et al. 1985; Jelinek 1993a; Aissen 1999; cf. also section 3.1). The constraint SUBAG is satisfied when the agent in the input is linked to the subject function. It is violated when the agent is linked to any non-subject function, e.g., direct object or oblique phrase. It thus favours active constructions over passive ones: the latter are more marked than the former. We will see that this constraint may be overruled by two other types of constraints.

Above we have seen that if two agreement suffixes co-occur the resulting active construction is deemed ungrammatical. The question arises why this should be the case. As said above, I assume that the two agreement suffixes are competing for one single position (as also noted by Jelinek 1994, 1996b and Wiltschko and Burton 2004): both want to occupy the position immediately following the transitivizer. This observation is captured by the two constraints formulated in (47):

- (47) a. ALIGN-P: align the left edge of an object suffix to the right edge of the stem.¹⁰
 b. ALIGN-A: align the left edge of a subject suffix to the right edge of the stem.

These constraints are so-called alignment constraints (McCarthy and Prince 1993), which state the placement preference for a morphological category. They are also used by Woolford (2003) to account for person and clitic clustering restrictions in different languages. In the present case, a suffix violates one of them if it does not immediately follow the stem. Thus, in a construction with two suffixes, one of them will always violate either of the constraints in (47). In case the object suffix immediately follows the stem, the subject suffix violates its alignment constraint, and if the subject suffix is positioned immediately after the stem, the object suffix violates its alignment constraint. In case we have only one agreement suffix and either a clitic or zero agreement, the alignment constraint is not violated and the corresponding active construction is grammatical.¹¹

As Tableaux 4.1 and 4.2 show, the three constraints formulated so far can describe Type 1 and Type 2 languages with the constraint ranking in (48):

- (48) *Constraint Ranking for Type 1 and Type 3 languages:*
 ALIGN-P >> ALIGN-A >> SUBAG

Tableau 4.1 shows the evaluation of a 3-2 sentence in Lummi. In accordance with the examples in (35) and (36a) above, in this language such combinations are only possible in a passive construction. The active construction would contain two agreement suffixes and therefore always violates one of the high-ranked alignment constraints. The passive construction does not violate either alignment constraint, but only the lowest

¹⁰I use the term *stem* to refer to the combination of verb root and transitivizer.

¹¹As discussed above, the agreement clitics come in second position right after the first predicate of the clause following agreement suffixes and tense, aspect, mood markers (Jelinek 1996b). As such, they do not compete with the suffixes for a position.

	V(Agt/3, Pat/2)	ALIGN-P	ALIGN-A	SUBAG
a.	Act(Su/3/suf - Oj/2/suf) V-TR-əs-oŋəs	*!		
b.	Act(Oj/2/suf - Su/3/suf) V-TR-oŋəs-əs		*!	
 c.	Pas(Su/2 - NSu/3) SU/2 V-TR-PASS OBL/3			*

Tableau 4.1: Evaluation of a 3-2 sentence in Lummi (Type 1)

	V(Agt/3, Pat/2)	ALIGN-P	ALIGN-A	SUBAG
 a.	Act(Oj/2/suf-Su/3/∅) v-TR-sid-∅			
b.	Pas(Su/2 - NSu/3) SU/2 V-TR-PASS OBL/3			*!

Tableau 4.2: Evaluation of a 3-2 sentence in Lushootseed (Type 3)

ranked argument-linking constraint and therefore is considered the optimal expression for this input.

In case of the Type 3 language Lushootseed (Tableau 4.2), the active comes out as the optimal candidate as it violates none of the constraints. In this language, third person subject agreement is zero and therefore competition between suffixes will never take place. Consequently, the active does not violate a single constraint. The passive, on the other hand, violates the argument linking constraint and is deemed suboptimal. Nevertheless, both active and passive are grammatical options in this language and we do find an optional voice alternation.¹² This optionality can be easily incorporated into the analysis by integrating discourse constraints, e.g. link the most discourse prominent argument to the subject function, which outrank the constraint SUBAG (see Aissen 1999 for such an approach).

So far I cannot account for the languages of Type 2, however. In these languages 3-2 constructions are ruled out, but 3-1 constructions are perfectly grammatical even though both constructions contain two overt agreement suffixes (cf. ((39)) above). Apparently, another constraint interferes which leads to this type of language. But what constraint should

¹²As discussed in the previous chapter the data are more complicated though. In Lushootseed active sentences with two third person arguments are ungrammatical, but for different reasons than the one discussed here. See section 3.3 for more discussion.

this be?

Wiltschko and Burton (2004:53), who develop a morphological account for Halkomelem (Type 2; see also Wiltschko 2003; Brown et al. 2004), state that in this language the following *3-2 constraint holds: “3rd person [subject] morphology cannot co-occur with 2nd person object agreement morphology.” This constraint accounts for the fact that both types of agreement are in complementary distribution: both occupy the head position of *vP* (Brown et al. 2003:12). This analysis immediately raises the question why we only find a *3-2 constraint and not a *3-1 constraint, since first person object agreement is also assumed to hold the same position as third person subject agreement. The answer given in Brown et al. (2004:12) is that the 3-1 combination is well-formed because it is “lexicalized” as a single agreement morpheme (*-əxes*; *-əxwes*),¹³ i.e. it constitutes a kind of “portmanteau” morpheme. In contrast, the 3-2 combination is not lexicalized and thus the agreement endings compete for the same position (cf. also Wiltschko and Burton 2004).

This account raises several questions. Why, for instance, is the 3-1 combination lexicalized but not the 3-2 combination? What is this so-called ‘portmanteau’ morpheme assumed for Halkomelem? In order to describe the other Type 2 languages we would have to assume that they all have lexicalized the 3-1 combination as a portmanteau morpheme. In other words, we would have to assume for all these languages that they (independently) have developed a different portmanteau morpheme, given that they have different agreement suffixes (as shown in Table 4.6 below). Given that all these languages can develop the same strategy (developing a 3-1 portmanteau) on the basis of different agreement morphemes, one wonders why no language has deviated from it and developed a 3-2 portmanteau morpheme. If language after language lexicalizes the 3-1 combination, but not the 3-2 combination, one would expect a principled explanation for this pattern.

Related to this is the question why the 3-1 combination is not lexicalized in a Type 1 language like Lummi, or more in general why does Lummi exclude both 3-1 and 3-2 sentences? Interestingly, in discussing variation across Coast Salish, Wiltschko and Burton (2004) argue that although Type 2 Halkomelem has no *3-1 constraint we do find it in Type 1 Lummi. Following the authors, the “crucial” reason for this is that in Lummi first and second person are homophonous and thus share the same paradigmatic cell. Therefore, the *3-1 and the *3-2 constraint affect the combination of the same morphemes and in effect can be reduced to one

¹³These morphemes are composed of the third person subject suffix *-es* and the first person object suffix *-əx* or the second person object suffix *-əxw* respectively.

single constraint.¹⁴ This homophony, however, only exists in the singular, but not in the plural, as can be seen from Table 4.2 and thus cannot be taken as a reason for the existence of the *3-1 constraint in Lummi, which instead has to be stipulated separately. In order to account for different language types this account thus has to stipulate different constraints for each: Type 1 has both *3-1 and *3-2, Type 2 has only *3-2 (plus lexicalization of 3-1) and Type 3 has no such constraints.

On a more general note, the motivation of the co-occurrence constraint (*3-2), based on the fact that third person subject agreement and all object agreement morphemes are in complementary distribution because both occupy the same position (v^0) is problematic in itself. It would namely predict that even in Lushootseed (Type 3) and in subordinate clauses in Type 1 and Type 2, i.e., all contexts in which the third person subject marker is phonologically zero, combinations with a third person subject would be ruled out. Third person, even though phonologically zero, would still occupy its syntactic position in v^0 , i.e., its position in the syntax is independent of its phonological realization (one of the hallmarks of generative grammar). It thus shares this position with object agreement and therefore such constructions should be ruled out. As discussed above, this is not the case as in the absence of a phonological third person subject marker the ungrammaticality of person combinations disappears. Overall, this account is faced with a number of problems.

Instead of stipulating that only 3-2 morphemes are conflicting by assuming a lexicalization of the 3-1 combination, I argue that the difference in well-formedness between 3-1 and 3-2 in Type 2 languages is due to a third constraint, well-known from phonology (cf. Kager 1999):

(49) ONSET[*VV]: avoid sequences of two adjacent vowels.

When we apply this constraint to Squamish, it correctly rules out the combination 3-2 because the second person object suffix ends in a vowel and the third person subject suffix starts with one. By contrast, the 3-1 combination is well-formed with respect to this constraint because the first person object suffix ends in a consonant, cf. (39) above. This is shown in Tableau 4.3.¹⁵

The fact that phonology is partly responsible for a voice alternation may come as a surprise. There are two pieces of evidence in favour of this analysis. First, there is diachronic evidence that vowel sequences are not

¹⁴This homophony is probably also taken as the explanation why neither the 3-2 combination nor the 3-1 combination is lexicalized in Lummi.

¹⁵Tableau 4.3 only shows the order in which the object suffix precedes the subject suffix. In Tableaux 4.4 and 4.5 I also discuss the reverse order.

		*VV
3-1	V-TR-s-as	
3-2	V-TR-umi-as	*

Tableau 4.3: The exclusion of adjacent vowels

Type	Language	Object		Subject	Gaps
		1st	2nd	3rd	
1	Lummi	-oŋəs	-oŋəs	-əs	3-1, 3-2
2	Squamish	-s	-umi	-as	3-2
2	Sechelt	-ts	-tsi	-as	3-2
2	Saanich	-s/-aŋəs	-sə/-aŋə	-əs	3-2
2	Halkomelem	-samʔs	-samə	-əs	3-2
3	Lushootseed	-s	-sid	∅	-

Table 4.6: Suffix inventory and paradigm gaps

preferred when combining agreement suffixes. In Table 4.3 we have seen that Jacobs (1994) analyzes the first and second person subject clitics as *chen* and *cherw*. Kuipers (1967) notes in his Squamish grammar written almost thirty years earlier that these clitics are actually composed of the clitic *ch* meaning ‘to be, to act as’ and the subject suffixes *-an* (1.SG) and *-arw* (2.SG). He states that the language at his time of writing still had free occurrences of these subject markers, which are absent today due to the merger with *ch*. Crucially, the first person subject markers *-an* (1.SG), *-at* (1.PL) were never combined with the second person object suffix *-umi* in the same word. Instead speakers would either attach the markers to the clitic *ch* or take recourse to possessive prefixes. The second person subject markers *-arw* (2.SG), *-ap* (2.PL) were nevertheless used as free forms and could be attached to the first person object markers *-s* and *-umulh*, which both end in a consonant. This clearly shows that the language avoids sequences of vowels in its agreement paradigms.

Secondly, there is cross-linguistic evidence within the Coast Salish branch. Consider the overview presented in Table 4.6.¹⁶ It shows that all languages with a restriction only on 3-2 sentences have a first person

¹⁶This table only shows the singular markers. The plural markers follow the same pattern as (or are identical to) the singular ones: if the singular marker ends in a vowel/consonant the plural will also end in a vowel/consonant. The third subject person marker is identical in singular and plural. The data in this table come from the following sources: Squamish (Jacobs 1994), Sechelt (Beaumont 1985), Saanich (Montler 1986, 1996), Halkomelem (Galloway 1993), Lummi (Jelinek 1993a), Lushootseed (Hukari 1976).

	V(Agt/3-Pat/1)	*vV	ALIGN-P	SUBAG	ALIGN-A
a.	Act(Su/3/suf-Oj/1/suf) V-TR- <i>as-s</i>		*!		
b.	Act(Oj/1/suf-Su/3/suf) V-TR- <i>s-as</i>				*
c.	Pas(Su/1-NSu/3) SU/1 V-TR-PASS OBL/3			*!	

Tableau 4.4: Evaluation of a 3-1 sentence in Squamish (Type 2)

object suffix ending in a consonant, a second person object suffix ending in a vowel, and a third person subject suffix starting with a vowel. This neatly shows the correlation between the phonological shape of the suffixes and the exclusion of certain suffix combinations. The other two languages listed in the table for comparison do not show this pattern and more importantly show different paradigm gaps. Thus, instead of stipulating the lexicalization of the 3-1 combination in language after language even though the languages differ from each other in the morphophonological make up of their agreement markers, this constraint gives a principled explanation why we find exclusion of 3-2 only in these languages.

We have already seen above that Type 1 and 3 languages can be captured by means of the two constraint types on argument linking and suffix alignment. With this third constraint on syllable shape Type 2 languages can be modeled as well. Consider the constraint ranking in (50), which deviates from the previous ranking with respect to the position of SUBAG:

- (50) *Constraint Ranking for Type 2 languages:*
*vV >> ALIGN-P >> SUBAG >> ALIGN-A

With this constraint ranking we correctly predict that in this language type only 3-2 active constructions are ruled out, whereas 3-1 is fine. This can be seen by comparing Tableaux 4.4 and 4.5.

Tableau 4.4 shows that in the case of a 3-1 input the active with the subject suffix following the object suffix correctly comes out as the optimal output (cf. example (39)[a]). The active with the reverse order is ruled out because it violates the constraint on object alignment. The passive comes out as a suboptimal candidate but again, if we would take discourse constraints into account which are higher ranked, then SUBAG the passive may come out as an optimal candidate.¹⁷ In the case of a 3-2

¹⁷It may be possible to reduce the constraint SUBAG to such discourse constraints,

	V(Agt/3-Pat/2)	*vV	ALIGN-P	SUBAG	ALIGN-A
a.	Act(Su/3/suf-Oj/2/suf) V-TR- <i>as-umi</i>		*!		
b.	Act(Oj/2/suf-Su/3/suf) V-TR- <i>umi-as</i>	*!			*
 c.	Pas(Su/2-NSu/3) SU/2 V-TR-PASS OBL/3			*	

Tableau 4.5: Evaluation of a 3-2 sentence in Squamish (Type 2)

input both active constructions are ruled out (Tableau 4.5), the subject-object order because it violates the constraint on object alignment and the object-subject order because it violates the highest-ranked constraint on vowel sequences. The passive therefore comes out as the winning candidate since it only violates the lower ranked constraint on argument linking.

So far I have shown that the obligatory voice alternation from active to passive found in Coast Salish languages can be accounted for by a cross-modular model in which three types of constraints are in conflict with one another. In this approach the different paradigm gaps observed in different languages do not fall out from constraints stipulated for each language only in relation to this single phenomenon (see the discussion of Wiltschko and Burton's 2004 approach above), but rather fall out from the conflict between constraints present in the grammar for independent reasons, that is, to account for other facts such as suffix placement and syllable shape.

Moreover, my account can also explain the ungrammaticalities found in the passive voice. Consider again the contrast between the two examples below:

LUMMI (Coast Salish; Jelinek 1993b:167-168)

- (51) **Leŋ-t-ŋ=sx^w* 'ə-*oŋəs*/'ə=*sən*.
see-TR-INTR-2SG.SU OBL-1SG.OBJ/OBL=1SG.SU
'You were seen by me.'

- (52) *Leŋ-t-ŋ=sx^w* 'ə *cə* 'əs.
see-TR-INTR-2SG.SU OBL DET 1SG.EMPH
'You were seen by ME.'

in this way providing a more natural account of the choice of one voice construction over the other in case both are grammatical. However, in order to pursue this we first need a better understanding of the motivations behind this free voice alternation (see Jacobs 1994 for discussion of the use of active and passive constructions in Squamish).

The difference in grammaticality between the passive construction in (51) and the one in (52) in my account can be explained by the alignment constraints also involved in explaining the gaps in the active paradigm. They require an agreement suffix to align with a verb stem and, following footnote 11, agreement clitics to align with a predicate. In the ungrammatical example (51) the suffix or clitic is not aligned with either a stem or a predicate but with the oblique prepositional marker 'ə. This means that in this example either alignment constraint would be violated, which demotes such constructions to a suboptimal status. Given that there exists no such alignment constraint for independent pronouns, (52) can come out as the optimal candidate. This shows how with the same set of constraints, which are independently motivated, we can account for the ungrammaticalities observed in the Coast Salish active and passive voice. I take this to be convincing evidence to consider the account presented in this section superior to an account in terms of person (hierarchies).

4.4 Differential Object Marking: Animacy vs. Definiteness

In the present section I discuss the influence of two distinct prominence features on differential object marking (DOM), a phenomenon which was already scrutinized in the previous chapter and earlier on in this chapter.¹⁸ In the previous chapter I have made a distinction between DOM based on recoverability and that based on prominence. Here prominence-based DOM will be central. In particular, I focus on animacy and definiteness/specificity.

Recall that the recurrent DOM pattern is that animates receive overt marking whereas inanimates generally stay unmarked. A similar pattern can be observed for DOM based on definiteness or specificity: only definite/specific objects tend to be overtly case marked (cf. the discussion of Turkish and Hebrew in 4.1). Indeed, many authors have proposed a systematic correlation between case and semantic interpretation (cf. Enç 1991; de Hoop 1992; Butt 1993; Ramchand 1997; Aissen 2003; Bleam 2005; Danon 2006). This correlation always seems to fall out in the following way that overt/accusative case corresponds with a strong interpretation, i.e., a definite, specific, *de re*, or presuppositional interpretation, and absence of case or oblique case with a weak interpretation, i.e., an indefinite, non-specific, *de dicto*, or non-presuppositional interpretation.¹⁹

¹⁸This section is partially based on de Swart and de Hoop (2007).

¹⁹In type-theoretical terms weak objects are often equated with the property denoting type $\langle e,t \rangle$ or the type $\langle \langle e,t \rangle, \langle e,t \rangle \rangle$ of a predicate modifier. Strong objects are

It thus seems that DOM based on definiteness/specificity follows exactly the same pattern as does animacy-based DOM.

Nevertheless, I will argue that this similarity between animacy and definiteness/specificity with respect to DOM cannot be maintained. I will show that the influence of the one can counteract the influence of the other. That is, the association between case and a definite/specific interpretation can be counteracted by the association of this case with an animate argument. Furthermore, I argue that in the cases discussed, definiteness/specificity does not drive DOM but rather should be viewed as the interpretational result of the use of case marking. Animacy and definiteness thus play different roles with respect to differential object marking. These different roles are argued to be the consequence of a fundamental difference between the two semantic features: whereas animacy is an inherent feature of noun phrases, this is not the case for definiteness or specificity.

The relevant domain of investigation which I will use to tease apart the different roles played by animacy and definiteness/specificity is that of two-dimensional DOM. Whereas in one-dimensional languages, DOM is related to a single prominence feature, in two-dimensional systems it is determined by a combination of two features (cf. Aissen 2003). An example of such a two-dimensional system was discussed in the previous chapter (section 3.5): in Spanish DOM is determined by an interplay between animacy and definiteness/specificity. Below, I will focus on the two-dimensional DOM systems of two South Asian languages, Hindi and Kannada.

Starting with Hindi, in which direct objects can be marked with *ko*, the same marker that is used for indirect objects.²⁰ In the present discussion I limit myself to the use of *ko* on direct objects that occur without a determiner. The differential use of *ko* on direct objects has received much attention in the literature (see Mohanan 1990; Butt 1993; Singh 1994; McGregor 1995; Aissen 2003; de Hoop and Narasimhan 2005; Kachru 2006; de Hoop and Narasimhan to appear, a.o.) and two factors can be distinguished that influence it. On the one hand, there is animacy as *ko* is

equated with type *e* or the generalized quantifier type $\langle\langle e,t \rangle, t \rangle$ (cf. de Hoop 1992; Van Geenhoven 1998b). See also section 2.1.3.

²⁰In the interlinear gloss I label the use of *ko* on indirect objects as dative (DAT) and the use on direct objects as KO. In this chapter I remain agnostic as to the theoretical case status of *ko* on direct objects. Some authors identify it with accusative case (e.g., Mohanan 1990) and label the unmarked object with nominative case. Others reject this analysis and label the unmarked object nominative in presence of a non-nominative subject, but accusative in the presence of a nominative subject (e.g., Anand and Nevins 2006; Woolford, to appear). The status of *ko* is unclear under the latter account and is sometimes simply referred to as objective case.

obligatory for objects that are human, but not for objects that are animate or inanimate. On the other hand, the occurrence of *ko* is related to the definiteness or specificity of the direct object. Regarding the latter factor authors differ as to whether they take definiteness or specificity to be the primary factor. Mohanan (1990), for instance, seems to relate DOM in Hindi mainly to definiteness, with specificity playing a secondary role. Butt (1993), on the other hand, takes specificity to be the relevant notion but acknowledges that it interacts with definiteness. I will not make a principled choice for one or the other factor but instead I follow the respective authors providing the data. Whether we call the interpretation given to a *ko*-marked direct object definite or specific, and that of an unmarked direct object indefinite or non-specific, does not affect my claim that animacy takes priority over definiteness/specificity in the use of *ko*.²¹

Following Mohanan (1990), human objects have to be obligatorily marked with *ko*. When a human object is marked, it can be interpreted as definite or indefinite. When such an object occurs without *ko* this results in an ungrammatical sentence. This contrast is shown in (53) and (54) for the noun ‘child’:

HINDI (Indo-Aryan; Mohanan 1990:103)

(53) *Ilaa-ne bacce-ko uthayaa.*

Ila-ERG child-KO lift.PF

‘Ila lifted the/a child.’

(54) **Ilaa-ne baccaa uthayaa.*

Ila-ERG child lift.PF

In the absence of a determiner, inanimate nouns, on the other hand, can either be marked with *ko* or be left unmarked. The use of *ko* does have repercussions for the interpretation associated with the direct object. An unmarked inanimate can be interpreted as definite or indefinite, as is shown in (55):

HINDI (Indo-Aryan; Mohanan 1990:103)

(55) *Ilaa-ne haar uthaayaa.*

Ila-ERG necklace lift.PF

‘Ila lifted a/the necklace.’

Definiteness of an inanimate noun is expressed by using *ko*. This is shown for the noun ‘necklace’ in (56) below:

²¹The distinction between definiteness and specificity is notoriously difficult (see von Heusinger 2002 for a discussion).

HINDI (Indo-Aryan; Mohanan 1990:104)

- (56) *Ilaa-ne haar-ko uthayaa.*
 Ilaa-ERG necklace-KO lift.PF
 ‘Ila lifted the necklace.’

The above examples show that both animacy and definiteness play a role in differential object marking in Hindi. Their roles are, nevertheless, clearly differentiated. Consider the table in (57):

(57)

	human	-human
KO	def/indef	def
∅	*	def/indef

From this table we can conclude two things: (i) the use of *ko* on direct objects is primarily triggered by the humanness of the direct object; (ii) definiteness does not trigger the use of *ko* but rather is an effect of the use of this marker. Let me start with the second claim. If we were to claim that definiteness triggers case marking on Hindi direct objects we would have trouble explaining why indefinite human objects are marked with *ko* as well. Furthermore, it is left unexplained why in the absence of case marking both a definite and an indefinite reading are possible for non-human objects. If definiteness triggers case marking we would expect a definite reading always to co-occur with *ko*. The fact that both a definite and an indefinite reading are possible for an unmarked non-human object is well established (cf. Butt 1993), and either reading can be filtered out in a specific linguistic context. The indefinite reading can be assessed with the following example provided by Butt (1993; who labels it the non-specific reading) in which the context of (58a) assures that the object in (58b) has to be interpreted as indefinite/non-specific:

HINDI (Indo-Aryan; Butt 1993:90-91)

- (58) a. *Adnaan aaj raat=kii salen ke-liye murvii*
 Adnaan.NOM today night=GEN curry for chicken
cah-taa thaa.
 want-IMP be.PST
 ‘Adnan wanted chicken for tonight’s curry.’
- b. *Us=ke xansaame-ne bazaar=se murvii xariid-ii.*
 he=GEN cook-ERG market=from chicken buy-PF
 ‘His cook bought a chicken from the market.’

The definite interpretation of an unmarked direct object, by contrast, becomes obligatory in certain contexts involving movement of the direct

object. Consider the following two examples:

HINDI (Indo-Aryan; Mohanan and Mohanan 1994:169)

(59) *Sunaar-ne laḍkii-ko haar b^hejaa.*
 goldsmith-ERG girl-DAT necklace sent
 ‘The/?a goldsmith sent the/a necklace to the/a girl.’

(60) *Sunaar-ne haar laḍkii-ko b^hejaa.*
 goldsmith-ERG necklace girl-DAT sent
 ‘The/?a goldsmith sent the/*a necklace to the/*a girl.’

The two examples in (59) and (60) show how word order influences the possible interpretations of an unmarked direct object. In (59) the direct object follows the indirect object and can be interpreted as either indefinite or definite. In (60), in which the direct object precedes the indirect object, the only possible reading is a definite one. This example clearly shows that a definite reading is perfectly possible without the occurrence of overt case marking, in this way providing counterevidence to an analysis in which the occurrence of the case marker is triggered by the definiteness of the object. In order to establish that the occurrence of *ko* is not prohibited by the fact that it already occurs on the indirect object (a restriction which was discussed for Spanish in 3.5), which would save an analysis in which definiteness triggers case marking, consider the following example:

HINDI (Indo-Aryan; Bhatt and Anagnostopoulou 1996:13)

(61) *Ram-ne chitthii-ko Anita-ko bhej-aa.*
 Ram-ERG letter-KO Anita-DAT send-PF
 ‘Ram send the letter to Anita.’

In (61), the case marker *ko* appears on the direct object ‘letter’ irrespective of its occurrence on the indirect object. Clearly, if definiteness triggers the occurrence of *ko* in (61), we would have expected it to occur in (60) as well.²²

Definiteness plays a role in differential object marking in Hindi, but I have argued that it does not trigger the occurrence of the object marker. The other possibility is that the case marker itself triggers a definite interpretation. This is in accordance with the conclusion reached in Butt (1993) who argues that *ko* is a marker of specificity. The fact that *ko*-marked non-human objects have to be interpreted as definite was already

²²The double occurrence of *ko* does have repercussions for the possible word orders. In case both the direct and indirect object are *ko*-marked, the direct object has to precede the indirect object (cf. Bhatt and Anagnostopoulou 1996).

established in example (56) and is also demonstrated in (62). The direct object ‘chicken’ in (62) has to be interpreted as definite (specific in Butt’s terminology) and as such it is infelicitous in the context requiring indefinite/non-specific elements in (58).

HINDI (Indo-Aryan; Butt 1993:91)

- (62) *Xansaame-ne bazaar=se murvii-ko xariid-aa.*
 cook-ERG market=from chicken-KO buy-PF
 ‘The cook bought a particular/the chicken from the market.’

The characterization of *ko* as a definiteness/specificity marker (as argued for in Butt 1993) however does not hold across-the-board, but only within the domain of non-human objects. This brings me to the first claim I made above with respect to the table in (57), i.e., *ko* is primarily triggered by animacy. If we characterize *ko* as a definiteness/specificity marker we leave unexplained the fact that its occurrence on human direct objects is compatible with both a definite and an indefinite reading, cf. (53) above. In my view the absence of an unambiguous reading for such objects is due to the fact that they require overt case marking because of their animacy feature, i.e., high animacy triggers the case marking. Therefore, case can no longer trigger an alternation in definiteness. This in contrast to less animate nouns, where the case alternation clearly influences definiteness/specificity. In other words, the marking of direct objects with *ko* due to animacy takes priority over the function of *ko* as a definiteness/specificity marker. Only in contexts in which the case marker is not required by the animacy of the direct object can it be used to encode definiteness/specificity.

Further evidence for my claim that animacy takes priority over definiteness/specificity in DOM can be found in Kannada, a Dravidian language with a differential object marking system very similar to that of Hindi (cf. Lidz 1999, 2006). As in Hindi the occurrence of accusative case on direct objects interacts with the animacy and specificity of the object. In Kannada, human and animate direct objects are obligatorily marked with accusative case. This is shown for human objects by the contrast in grammaticality between (63) and (64):

KANNADA (Dravidian; Lidz 2006:11)

- (63) **Naanu sekretari huDuk-utt-idd-eene.*
 I.NOM secretary look.for-NPST-be-1SG
 ‘I am looking for a secretary.’

- (64) *Naanu sekretari-yannu huDuk-utt-idd-eene.*
 I.NOM secretary-ACC look.for-NPST-be-1SG
 ‘I am looking for a secretary.’²³

Inanimate objects, on the other hand, can occur with or without accusative case:

KANNADA (Dravidian; Lidz 2006:11)

- (65) *Naanu pustaka huDuk-utt-idd-eene.*
 I.NOM book look.for-NPST-be-1SG
 ‘I am looking for a book.’
- (66) *Naanu pustaka-vannu huDuk-utt-idd-eene.*
 I.NOM book-ACC look.for-NPST-be-1SG
 ‘I am looking for a book.’

As for the interpretation of the direct objects, Lidz notes that an animate direct object marked with accusative case can either be interpreted as non-specific or specific (*de dicto* or *de re* in the terminology used by Lidz). The same holds for inanimate objects without accusative case. Inanimate objects which occur with accusative case have to be interpreted as specific (*de re*). The pattern is summarized in the table in (67):

(67)		animate	inanimate
	ACC	<i>de dicto/de re</i>	<i>de re</i>
	∅	*	<i>de dicto/de re</i>

This pattern looks very similar to that of Hindi, as again we find that an analysis of the accusative case as a specificity marker breaks down in the domain of animate direct objects. It cannot be used as a specificity marker when it is required by the animacy of the direct object. In other words, animacy takes priority over definiteness/specificity. As a result, the correlation between accusative case and a strong interpretation does exist, but not across-the-board. That is, it only holds in the domain of non-humans (Hindi) or inanimates (Kannada).

The analysis presented here differs from the account provided by Aissen (2003). Whereas Aissen treats animacy and definiteness on a par, taking both features to be triggers for overt case, in my view only animacy acts in this way. Definiteness, by contrast, is viewed as the result of case marking as case can trigger the semantic interpretation associated with an object. Concentrating on Hindi, this difference between both

²³The occurrence of the glide *v* ([w]) or *y* ([j]) in the initial position of the accusative ending is determined by the preceding vowel.

approaches emerges most clearly in the domain of non-human definite objects. As shown in the table in (57) above such objects can occur with or without *ko*. From a perspective in which the definiteness of an object functions as a trigger for the occurrence of the object marker this optionality is unexpected. In order to model this optionality Aissen assumes that the constraint that forces overt case on definite non-human objects can rerank with respect to a constraint which penalizes the use of overt case marking. When the former constraint outranks the latter the definite object will be marked with *ko* but not when the constraint ranking is reversed.

In my account, in which definiteness does not trigger the use of case marking but rather is a result of the use of this case marker, I do not have to take recourse to such optionality to explain this pattern. Instead, I can analyze the pattern in terms of the speaker taking into account the perspective of the hearer. In case of a human direct object the speaker is forced to use *ko* due to the animacy feature of the object. In the case of a non-human direct object the animacy feature does not require *ko* and the marker can be used to express the definiteness of the object. In this case the speaker has a choice: if he wants to be sure that the hearer will interpret the direct object as definite he uses *ko*. If he, on the other hand, does not want to force a particular interpretation on the direct object, he can leave it unmarked. Thus, although on the surface the pattern may look like one involving true optionality, i.e., the speaker can choose whether or not to use *ko* on a definite inanimate direct object, it rather seems to be the result of a principled choice on behalf of the speaker to mark the direct object explicitly as definite or not.

The account sketched above, in which animacy takes priority over definiteness, can be reinterpreted as a conflict between the violable constraints given in (68):

- (68) a. HUM \rightarrow object case.
 b. object case \rightarrow DEF.

The constraint in (68a) is a production constraint, which requires human objects to be marked with case (as was introduced in section 3.5 above). The constraint in (68b), by contrast, is an interpretation constraint which assigns a definite interpretation to case marked objects. The fact that animacy takes priority over definiteness can be modeled by ranking the production constraint above the interpretation constraint. Furthermore, both constraints must be available to the hearer as well as to the speaker. That is, we need a bidirectional model like the one proposed in the previous chapter. This model would have to be modified in such a way that

the speaker not only takes into account the hearer's perspective but the hearer also takes into account the speaker's perspective.²⁴

4.4.1 Animacy vs. Definiteness/Specificity

Above, I have shown that animacy takes priority over definiteness. But why should this be the case? The answer to this question lies in a fundamental difference between the semantic feature of animacy and that of definiteness/specificity. Animacy is an inherent feature of noun phrases (see Comrie 1989; Dahl 2007). Every noun is lexically specified for an animacy feature and this feature cannot be altered by linguistic structure. That is, if we for instance would remove the case ending from the Latin animate noun *hominem* 'man.ACC' this would not change it from an animate referring noun into an inanimate referring noun. Indeed, on a more general note, one would be hard pressed to find in the languages of the world something that can be truly labelled an animacy marker, a piece of morphology that marks and can change the animacy feature of a noun.

The opposite holds for definiteness and specificity. Nouns are not inherently specified for definiteness or specificity, but in many languages linguistic devices exist which can make a given noun phrase definite or specific. In English, for instance, the same noun *man* can be turned into a definite noun phrase by addition of the article *the* and likewise be made indefinite by means of the article *a*. English lacks a pure specificity marker, although the content words *certain* and *particular* come close. Instead, this feature is attributed to nouns, and can be changed, in context. There are also languages which do have dedicated pieces of morphology to mark the specificity of nouns and case marking is an often cited example. Recall the use of accusative case on direct objects in Turkish to mark them as specific. Other languages for which it has been argued that case marking indicates the specificity of a noun include

²⁴I will not develop the details of such a model. It should be noted that the weak version of Bidirectional Optimality Theory as formulated by Blutner (2000) cannot be applied to the data discussed, even though it may seem an ideal model to formalize the intuition expressed, as it explicitly integrates both the hearer's and the speaker's perspective by means of Gricean reasoning. This is due to the rigid pairing of forms and meanings in this approach, i.e., each form corresponds to exactly one meaning and vice versa. In the data discussed, however, we find that a single form, e.g., a *ko*-marked human object, can occur with two meanings, i.e., it can be both definite and indefinite.

The Gricean reasoning employed by weak Bidirectional Optimality Theory, nevertheless, is on the right track but it seems that in order to formalize the account sketched here we need the stronger form of 'mutual knowledge' on behalf of the speaker (S) and hearer (H) such the "S knows that H knows that S knows that H knows (and so on ad infinitum) that S has [a] particular intention" (Levinson 1983:16).

Persian (Karimi 1996, a.o.) and Gujarati (Mistry 1998).

Due to the fact that animacy is an inherent feature of nouns, a case system in which animacy takes priority over definiteness/specificity is the only possible way in which one case morpheme can make reference to both features. The reverse situation is hard to think of: a system in which case is first assigned on the basis of definiteness and for nouns which do not have the required definiteness feature case can be used to indicate the animacy of a noun.

The difference in inherence is not the only difference between animacy and definiteness. As shown in the previous chapter, animacy but not definiteness may be related to disambiguation mechanisms. Animacy provides information about the semantic role of an argument. However, when two arguments have the same animacy value, ambiguity may arise with respect to semantic roles. As a result the animacy of arguments can be a reason to use overt case marking in order to explicate its semantic role. Given that the definiteness of an argument does not provide information about its semantic role, this feature cannot be linked to the disambiguating function of case marking in the same way. A nice example of a language which teases apart animacy and definiteness with respect to this distinguishing function of case is Mandarin Chinese. The present discussion is based on Yang and van Bergen (2007; see also van Bergen 2006, 2007).

The basic word order of Mandarin is SVO. Sometimes, however, positioning of the object in preverbal position is allowed or even obligatory. The latter situation is due to the fact that only one constituent is allowed to appear in postverbal position. In case the object appears in preverbal position it can or sometimes even has to be marked with the marker *ba*, originally a lexical verb meaning ‘to hold, to take’. Its status in the present-day language is a hotly debated issue in Chinese linguistics. In the present discussion, I follow Yang and van Bergen (2007) who treat *ba* as a case marker. Much of the discussion concerning the *ba*-construction has concentrated on identifying which elements can enter this construction. Yang and van Bergen (2007) take a slightly different angle by looking at which factors influence whether *ba* is obligatory or not with the elements which can enter the construction.

Yang and van Bergen show that the use of *ba* depends on both animacy and definiteness, thus making Mandarin a language with a two-dimensional DOM system.²⁵ The examples in (69)-(71) show that *ba* is

²⁵In fact, Yang and van Bergen (2007) argue that Mandarin has a three-dimensional DOM system as apart from animacy and definiteness also the syntactic feature of word order plays a role. That is, the marking of objects with *ba* is restricted to preverbal objects.

obligatory for human objects independent of their definiteness. The same holds for animate objects.

MANDARIN CHINESE (Sino-Tibetan; van Bergen 2006)

- (69) *Ta *(ba) na-ge laoshi piping le.*
 He BA that-CL teacher criticise PRT
 'He criticised that teacher.'
- (70) *Ta *(ba) yi-ge laoshi piping le.*
 He BA a-CL teacher criticise PRT
 'He criticised a teacher.'
- (71) *Ta *(ba) laoshi piping le.*
 He BA teacher criticise PRT
 'He criticised the teacher.'

It should be noted that bare nouns in preverbal position receive a definite interpretation.

Inanimate objects show a pattern different from the one for human and animate objects. *Ba* is optional for inanimate objects that are overtly marked with a definite determiner (72) and with bare inanimate objects (73):

MANDARIN CHINESE (Sino-Tibetan; van Bergen 2006)

- (72) *Ta (ba) na-ge pingguo chi le.*
 He (BA) that-CL apple eat PRT
 'He ate that apple.'
- (73) *Ta (ba) pingguo chi le.*
 He (BA) apple eat PRT
 'He ate the apple.'

For inanimate objects that are overtly marked with an indefinite determiner (*yige*), the use of *ba* is obligatory.²⁶ This is shown in (74):

MANDARIN CHINESE (Sino-Tibetan; van Bergen 2006)

- (74) *Ta *(ba) yi-ge pingguo chi le.*
 He BA one-CL apple eat PRT
 'He ate an apple.'

These data show that animacy and definiteness work in different directions in Mandarin Chinese. Objects high in the animacy hierarchy are obligatorily marked whereas the ones low in the hierarchy are not. For definiteness the opposite pattern holds: elements low in the definiteness

²⁶ Abstracting away from the role of aspect, for the moment. See below for discussion.

hierarchy are obligatorily marked and the ones high in the hierarchy not. Deviating slightly from the analysis presented in Yang and van Bergen (2007), we can attribute the opposite behavior of animacy and definiteness to two different functions fulfilled by *ba*.

On the one hand, *ba* is used to mark objects in order to distinguish them from the subject. Recall that the canonical word order in Mandarin is SVO and that in this order *ba* cannot be used. When the object moves to the preverbal position and ends up at the same side of the verb as the subject, *ba* can and sometimes must be used. In the canonical SVO order, the verb distinguishes the subject from the object. In an SOV ordering of the arguments, the verb no longer can fulfill its distinguishing role and therefore another element, i.e., *ba*, takes over this function.²⁷

An additional factor which supports such a distinguishability analysis is the fact that apart from a preverbal subject and object position, Mandarin sentences also have a clause initial topic position. This implies that an NP NP V ordering could be either interpreted as topic/object-subject or as topic/subject-object. The use of *ba* distinguishes the latter ordering from the former. Indeed without *ba* a sentence with two animate preverbal NPs would be interpreted as topic(object)-subject as is shown in (75):

MANDARIN CHINESE (Sino-Tibetan; Yang and van Bergen 2007:6)

(75) *Laohu wo chi le.*
 tiger I eat PRT
 'I ate the tiger.'

Given that inanimate NPs do not qualify as natural subjects (cf. Aissen 2003; see also chapter 3), the distinguishing function explains why they need not be obligatorily marked in preverbal position. The optional marking of (some) inanimate objects may be attributed to the fact that although strictly speaking *ba* is not necessary to distinguish the object from the subject, its presence still speeds up the interpretational processing of sentences.

The other function of *ba* is related to definiteness and to restrictions of the preverbal position with respect to this feature. It seems that the preverbal position is restricted to elements which are semantically strong and that *ba* is used to license elements that do not meet that requirement. That the preverbal position requires strong elements can be seen from the

²⁷This can be compared to the difference between clauses with local persons and ones with solely third persons, discussed in the previous chapter. Only in the latter case disambiguation is needed, as in the former grammatical functions are identified by unique agreement morphology. Likewise, in Mandarin, SVO, but not SOV, uniquely identifies the grammatical functions of arguments. Therefore, only in the latter case is overt marking of the object needed.

fact that bare nouns which can be either definite or indefinite, receive a definite interpretation in preverbal position, cf. (71) above. The licensing nature of *ba* with respect to weak elements can be illustrated with the contrast between the example in (74) above and the ones in (76) and (77) below.

MANDARIN CHINESE (Sino-Tibetan; Yang and van Bergen 2007:10-11)

(76) *Ta (ba) yi-ge pingguo chi-wan le.*
 He (BA) one-CL apple eat-finish PRT
 'He finished an apple.'

(77) *Ta (ba) yi-ge pingguo dou chi le.*
 He (BA) one-CL apple all eat PRT
 'He finished an apple.'

In (74) the use of *ba* on the weak indefinite is obligatory. By contrast, the examples in (76) and (77) show that this obligatoriness disappears when the indefinite object is given a strong interpretation. This can be achieved by either embedding it under an accomplishment predicate (76) (cf. Sybesma 1992) or by modifying it with a quantificational element *dou*. As stated above, the fact that use of *ba* is still optional in these cases can be ascribed to the distinguishing function it fulfills as well.

Mandarin Chinese provides an example of a language in which animacy and definiteness both influence the use of a single object marker, but each in their own way. Animacy is related to the distinguishing function of the object marker and definiteness to a 'licensing' function. The interplay of these two functions results in an intricate pattern in which objects sometimes are marked due to both functions (animate indefinite objects), sometimes due to the distinguishing function only (animate definite objects), and sometimes due to the licensing function only (inanimate indefinite objects). Thus, Mandarin Chinese can be seen as an additional illustration of the claim put forward in this section that animacy and definiteness do not influence case marking in the same way.

4.4.2 Split vs. Fluid Case Alternations

The different relations that animacy and definiteness/specificity exhibit towards case marking can be analyzed as reflections of a more fundamental distinction among case alternations, that between split and fluid alternations (de Hoop and Malchukov 2007). A case alternation based on animacy exemplifies a split alternation as within one linguistic context, i.e., animate nouns, case marking is obligatory, whereas it is not in another linguistic context, i.e., inanimate nouns. A case alternation

based on definiteness/specificity, on the other hand, exemplifies a fluid case alternation as within one linguistic context the same noun can either be case marked or not with a concomitant change in meaning. Thus, in Hindi, the fact that human nouns obligatorily take *ko* represents a split case alternation between human and non-human nouns. The fact that within the class of non-human nouns a noun can either take *ko* or not with a concomitant change in meaning represents a fluid alternation.

The fact that case marking on the basis of animacy represents a split case alternation can be explained by the fact that animacy is an inherent feature of noun phrases. If a language assigned case marking on the basis of animacy, it can only do so by means of splitting the class of noun phrases into groups along the animacy hierarchy, as it cannot change the animacy of nouns. A case alternation based on definiteness/specificity can nevertheless result in a fluid alternation. However, so far I have only considered the relation between animacy and definiteness/specificity in the domain of bare nouns.

There are often also possibilities to mark nouns lexically for their definiteness by means of articles and other determiners. Marking an NP with a definite determiner turns it into a DP with an inherent definiteness value. That is, the DP *the man* due to the lexical definiteness value of its determiner will be interpreted as definite. Similarly, the indefinite DP *a man* due to its lexical indefiniteness value will be interpreted as indefinite. The use of case marking cannot influence this lexical definiteness value of a DP. A lexically definite DP remains definite with or without case and the same holds for a lexically indefinite DP although the use of case may result in an indefinite specific interpretation in the latter case (a fluid alternation). Nevertheless, when one finds fluid case alternations with bare NPs, one may expect to find split case alternations on the basis of lexical definiteness. This expectation is confirmed by the data to be discussed below.

Consider the following Hebrew examples, discussed in chapter 2, which show that in in this language DOM is related to definiteness:

HEBREW (Semitic; Aissen 2003:453)

- (78) *Ha-seret her?a 'et-ha-milxama.*
 the-movie showed ET-the-war
 'The movie showed the war.'
- (79) *Ha-seret her?a (*'et)-milxama.*
 the-movie showed ET-war
 'The movie showed a war.'

The contrast between (78) and (79) suggests that definite objects go with

the object marker *'et* and that indefinite objects resist this marker. Danon (2001), however, argues that an account based on the semantic definiteness of noun phrases cannot explain all the occurrences of this object marker. For instance, the examples in (80) and (81) are problematic for such an analysis:

HEBREW (Semitic; Danon 2001:1076)

(80) *Kara?ti sefer ze.*

I-read book this

'I read this book.'

(81) *Kara?ti 'et-ha-sefer ha-ze.*

I-read ET-the-book the-this

'I read this book.'

From a semantic point of view the object in (80) is as definite as the one in (81). In fact, there does not seem to be any semantic difference between the two examples. Nevertheless, only the object in (81) occurs with the object marker. This contrast clearly cannot be explained by referring to semantic definiteness. There is, however, a syntactic difference between the two examples, as only the object in (81) is preceded by the definite article *ha*. Danon (2001) takes this presence of the definite article to be a prerequisite for the occurrence of the object marker: only objects that are preceded by the article *ha* can be marked with *'et*.

Further evidence for the fact that DOM in Hebrew is determined by the presence of the definite article comes from the following examples:

HEBREW (Semitic; Danon 2001:1076)

(82) *Ri?ayanti (*et) kol mu?amad (*ha-)recini.*

interviewed.1SG (ET) every candidate (the)-serious

'I interviewed every serious candidate.'

(83) *Ri?ayanti *(et) kol ha-mu?amadim ha-reciniyim.*

interviewed.1SG (ET) every the-candidates the-serious.PL

'I interviewed all the serious candidates.'

These examples present universally quantified DPs with the determiner *kol* meaning 'every'/'each'/'all'. In order to appreciate these examples one should know that Hebrew has obligatory definiteness agreement between nouns and adjectives. If a noun is preceded by the definite article *ha* its adjective has to be as well, but if the noun is not preceded by the article the adjective cannot be either. The determiner *kol* can precede both singular indefinite and singular/plural definite nouns. Danon notes that although there are semantic differences between the examples in (82)

and (83) these do not concern the semantic definiteness, as most semantic approaches would treat them as equivalent in this respect. Again, however, we see that (82) cannot occur with the object marker, whereas (83) has to. And again we find a difference in lexical definiteness: the example preceded by the object marker (83) is marked with the definite article, whereas the example without the object marker (82) is not, as can be seen from the ungrammaticality of the use of *ha* on the adjective *recini*.

Danon (2001) discusses additional evidence from partitives and construct-state nominals to support the claim that DOM in Hebrew is not driven by semantic definiteness but by the presence of the definite article. Hebrew thus seems to represent a language with a split case alternation in which the split is based on the lexical definiteness of the object.

The above discussion shows that definiteness is not related to the occurrence of overt case marking in a uniform way. On the one hand, lexical definiteness can trigger the occurrence of case marking, and, on the other hand, case marking can trigger the semantic definiteness assigned to a noun phrase. In other words, definiteness can be involved in both a split and a fluid case alternation. Approaches that make use of the definiteness hierarchy repeated from (20) conflate this dual behaviour of definiteness:

- (84) *Definiteness Scale*: Pronouns > Proper Names > Definite NPs
> Indefinite Specific NPs > Indefinite Non-specific NPs

On the one hand, this hierarchy contains what one could call a lexical definiteness or NP type hierarchy which triggers split alternations like the one found in Hebrew. This hierarchy is given in (85):

- (85) *Lexical Definiteness/NP Type Hierarchy*: Pronouns > Proper Names > Definite NPs > Indefinite NPs

On the other hand, the hierarchy in (84) also incorporates interpretational effects of the use of case marking on certain types of noun phrases. That is, indefinite NPs can be interpreted as specific or non-specific when they occur with or without case respectively. The same holds for bare nouns, cf. the discussion of Hindi and Kannada above. The lower part of the hierarchy thus represents a fluid alternation. Conflation of these two types of definiteness into one hierarchy like (84) obscures the fact that definiteness does not show uniform behaviour with respect to the occurrence of overt case marking.

The discussion of Hindi, Kannada, and Hebrew has shown that there are both fluid case alternations and split case alternations on the basis of

definiteness. Spanish provides an example of both a fluid and a split case alternation on the basis of definiteness within a single language. The distribution of the Spanish object marker *a* has been extensively discussed in the literature but still is not entirely understood (for discussion, see Brugé and Brugger 1996; Torrego 1998; Delbecque 2002; von Heusinger and Kaiser 2003; Leonetti 2004; Bleam 2005, among many others). Below, I will show that the occurrence of *a* follows an intricate pattern in which different split alternations and a fluid case alternation interact. The factors underlying the case splits are animacy, lexical definiteness, and mood, and the one underlying the fluid case alternation is specificity. I will focus here solely on prominence-based use of *a* and leave its distinguishing function, discussed in the previous chapter, out of consideration.

The primary split is between animate and inanimate noun phrases in that only the former can take the object marker.²⁸ This contrast between animate and inanimate objects can be seen by comparing (86)-(87) to (88):

SPANISH (Romance; Brugé and Brugger 1996:3)

- (86) *Esta mañana he visto *(a) Juan/la hermana de María.*
 this morning have.1SG seen A Juan/the sister of María
 ‘This morning I saw Juan/María’s sister.’
- (87) *Esta mañana he visto *(a) mi perro.*
 this morning have.1SG seen A my dog
 ‘This morning I saw my dog.’
- (88) *Esta mañana he visto (*a) la nueva iglesia.*
 this morning have.1SG seen A the new church
 ‘This morning I saw the new church.’

Examples (86) and (87) show that human and animate objects have to be marked with the prepositional object marker. For the inanimate object in (88) it is prohibited.

The obligatoriness of the object marker with human and animate objects only holds in context in which they are not preceded by an indefinite article. Hence, the second split case alternation in Spanish is determined by lexical definiteness. Indefinite human and animate objects can occur with or without the object marker:

²⁸The language is changing at this point, as the object marker is also intruding into the domain of inanimates (for discussion, see the previous chapter and Delbecque 2002; Company 2002; Morimoto and de Swart 2006).

SPANISH (Romance; Hopper and Thompson 1980:256)

- (89) *Celia quiere mirar un bailarín.*
 Celia want.3SG watch.INF a ballet.dancer
 ‘Celia wants to watch a (non-specific) ballet dancer.’
- (90) *Celia quiere mirar a un bailarín.*
 Celia want.3SG watch.INF A a ballet.dancer
 ‘Celia wants to watch (specific) a ballet dancer.’

The absence and presence of *a* correlate with a change in meaning. An indefinite object preceded by the object marker can be interpreted as specific, something which is not possible for an unmarked indefinite object.

In order to establish that lexical definiteness and specificity each play a separate role in Spanish DOM, contra von Heusinger and Kaiser (2003) who claim that only specificity but not definiteness is a relevant factor, consider the following examples:

SPANISH (Romance; Leonetti 2004:83, García García 2005:23)

- (91) *Está buscando a alguien.*
 be.3SG looking.for A someone
 ‘(S)he is looking for someone.’
- (92) *No está buscando a nadie.*
 not be.3SG looking.for A anyone
 ‘(S)he is not looking for anyone.’
- (93) *Besó a todo el mundo.*
 kissed.3SG A whole the world
 ‘(S)he kissed everybody.’

The examples in (91)-(93) all involve lexically definite objects and have to be preceded by the object marker. Crucially, despite its presence none of the objects receive a specific interpretation. In fact, the examples all represent non-specific direct objects. This shows that lexical definiteness is a factor independent from specificity. Furthermore, it shows that lexical definiteness takes priority over specificity in determination of the occurrence of the object marker. Only when the direct object is not lexically definite, the object marker can be used to indicate its specificity. Definiteness itself is in turn outweighed by animacy resulting in the following partial ordering of the relevance of the factors discussed so far: animacy > definiteness > specificity.

Finally, there is a split on the basis of mood illustrated in (94) and (95):

SPANISH (Romance; Bleam 2005:17)

(94) *Juan busca *(a) un estudiante que habla francés.*
 Juan look.for A a student that speaks.IND French
 ‘Juan is looking for a student who speaks French.’

(95) *Juan busca (a) un estudiante que hable francés.*
 Juan look.for A a student that speaks.SBJ French
 ‘Juan is looking for a student who speaks French.’

When an animate direct object is modified by a relative clause, it is obligatorily preceded by *a* in case the finite verb in the relative clause is in the indicative (cf. (94)), but may be optionally preceded by *a* (given that it is an indefinite noun phrase) when the relative clause is in the subjunctive mood (cf. (95); see von Heusinger and Kaiser 2003:48-50 for an overview; see also Bleam 2005:16-17). In the latter case the object can be interpreted as specific only when it is preceded by the object marker. The pattern in (95) in which the occurrence of *a* results in a specific interpretation, and the absence of *a* does not is the general pattern for direct objects for which *a* is not obligatory, i.e. indefinite and bare nouns.

The correlation between specificity and the occurrence of *a* is in need of some further discussion. Leonetti (2004) argues that direct objects without *a* can only be interpreted as non-specific. Indefinite objects preceded by *a*, by contrast, can be interpreted as both specific and non-specific.²⁹ If this is the case, the pattern in Spanish differs from the pattern found in Hindi and Kannada in which the absence of case goes with both a specific and a non-specific reading and the presence of case only with a specific reading.

The significance of Spanish lies in the fact that it shows that more than one split alternation can take priority over a fluid alternation. Moreover, it shows that definiteness and specificity can be involved in differential object marking independently and in different ways. Finally, it provides evidence that when both animacy and definiteness are involved in split alternations, the former still takes priority over the latter.

The above discussion has shown how a fluid case alternation, which surfaces as a correlation between overt case marking and strong interpretations, can be overruled by other factors. The primary focus of the discussion has been on the semantic factor animacy, and was expanded later on to include lexical definiteness and mood. I want to conclude this section with a discussion of Turkish, in which the correlation between case marking and specificity is blocked by formal requirements of the grammar of the language. In this way, Turkish provides us with an example of

²⁹The same observation is voiced by Judith Aissen (p.c.) on the basis of discussion with native speakers of Spanish.

yet another way in which fluid case marking based on specificity can be overruled. The discussion below is based on von Heusinger and Kornfilt (2005) and Kornfilt (to appear).

It has been noted several times throughout this thesis that in Turkish accusative case on a direct object corresponds with a specific reading. The contrast between marked and unmarked direct objects is demonstrated once more in (96):

TURKISH (Turkic; von Heusinger and Kornfilt 2005:8)

- (96) *(Ben) bir kitap oku-du-m.*
 I a book read-PST-1SG
 ‘I read a book.’
- (97) *(Ben) bir kitab-ı oku-du-m.*
 I a book-ACC read-PST-1SG
 ‘I read a certain book.’

Von Heusinger and Kornfilt (2005) show, however, that accusative case is only a reliable indicator of specificity when the direct object immediately precedes the verb. In any other position, use of accusative is obligatory and can conceal a non-specific reading of the object. This is demonstrated in the following example in which the object ‘tea’ receives a non-specific (generic) reading:

TURKISH (Turkic; von Heusinger and Kornfilt 2005:11)

- (98) *Bizim ev-de çay-ı her.zamen aytül yap-ar.*
 our house-LOC tea-ACC always Aytül make-AOR
 ‘Aytül always makes the tea in our family.’

A similar thing can be observed with the marking of embedded subjects. When they directly precede the verb and are unmarked they receive a non-specific reading, cf. (99), but when they are marked with genitive case they have to be interpreted as specific, cf. (100):

TURKISH (Turkic; von Heusinger and Kornfilt 2005:15)

- (99) [*Yol-dan bir araba geç-tiğ-in*]-ı gör-dü-m.
 road-ABL a car pass-NMZ-3SG-ACC see-PST-1SG
 ‘I saw that a car [non-specific] went by on the road.’
- (100) [*Yol-dan bir araba-nın geç-tiğ-in*]-ı gör-dü-m.
 road-ABL a car-GEN pass-NMZ-3SG-ACC see-PST-1SG
 ‘I saw that a car [specific] went by on the road.’

Like direct objects, when the embedded subject is moved away from the preverbal position it has to be marked with genitive case and can receive

either a specific or non-specific reading. This is illustrated in (101):

TURKISH (Turkic; von Heusinger and Kornfilt 2005:16)

- (101) [*bir araba*(-nın) yol-dan geç-tiğ-in*]-ı gör-dü-m.
 a car-GEN road-ABL pass-NMZ-3SG-ACC see-PST-1SG
 ‘I saw that a car [non-specific or specific] went by on the road.’

Yet another environment in which the correlation between specificity and overt case marking breaks down involves partitives. When partitive direct objects occur with a lexical head they can surface with or without accusative case, resulting in the familiar difference in interpretation. This can be seen by comparing (102) and (103):

TURKISH (Turkic; von Heusinger and Kornfilt 2005:32)

- (102) *Ali büro-ya çocuk-lar-dan iki kız al-acak.*
 Ali office-DAT child-PL-ABL two girl take-FUT
 ‘Ali will hire, for the office, two (non-specific) girls of the children.’
- (103) *Ali büro-ya çocuk-lar-dan iki kız-ı al-acak.*
 Ali office-DAT child-PL-ABL two girl-ACC take-FUT
 ‘Ali will hire, for the office, two (specific) girls of the children.’

When the lexical head of the partitive, *kız* in (102) and (103), is missing it has to be replaced by an agreement marker, *sin* in (104). This agreement marker, however, comes with the morphological requirement that it has to be followed by accusative case (in transitive contexts). Due to this formal requirement, accusative case can no longer be used to indicate specificity and as a result partitives objects without a lexical head can be interpreted as both specific and non-specific. This is illustrated in (104):

TURKISH (Turkic; von Heusinger and Kornfilt 2005:34)

- (104) *Kitap-lar-dan iki-sin*(-ı) al, geri-sin-ı*
 book-PL-ABL two-AGR(3)-ACC buy remainder-AGR(3)-ACC
kutu-da bırak.
 box-LOC leave
 ‘Take (any) two of the books and leave the remainder [of the books] in the box.’

Thus, Turkish provides a good illustration of how formal requirements of the grammar, i.e., word order and agreement, can overrule the otherwise robust correlation between overt case marking and specificity. These formal requirements can be seen as split case alternations, e.g., a split between preverbal and non-preverbal position or between presence and

absence of agreement morphology. In this way, the Turkish system provides additional evidence for the fact that split alternations take priority over fluid ones.

4.5 Conclusions

In this chapter I have argued that not only the need to ensure recoverability but also the prominence of arguments per se can trigger differential case marking. The prominence of an argument can be influenced by a wide range of factors, including animacy, definiteness, specificity, and person. Moreover, I have shown that two levels of prominence should be distinguished: semantic or inherent prominence and discourse or contextually derived prominence. As a matter of fact, the former type can influence the latter, because an element which is inherently prominent is more likely to be the topic of conversation.

The prominence of arguments is generally determined on the basis of hierarchies which visualize the internal structure of a prominence category. Elements ranking high in the hierarchy are considered high-prominent and those ranking low low-prominent. I have shown that it is not straightforward to ground such prominence hierarchies in general cognitive patterns or independently motivated theoretical constructs such as constituent hierarchies. As a result, they cannot be considered universal primitives.

Not in every case where prominence features seem to play a role on the surface can they be held solely responsible for the observed alternations, however. I illustrated this with the obligatory voice alternations found in Coast Salish languages. Although on the surface they seem to be constrained by a person hierarchy, on closer scrutiny they were shown to fall out of general principles of the grammars of these languages. In particular, I analyzed them in terms of cross modular constraint conflicts because of which active constructions become suboptimal when they contain two agreement suffixes or, alternatively, a sequence of two vowels.

Differential object marking is another phenomenon which seems to be triggered by prominence features, in this case animacy, and definiteness or specificity. Objects that are high in animacy and/or high in specificity/-definiteness occur with overt case marking cross-linguistically. Closer examination of these case alternations revealed that the two features in fact play a radically different role with respect to case marking. That is, while animacy can only trigger the occurrence of case marking, case marking can trigger a definite/specific interpretation. This was argued to be the result of the fact that only animacy but not definiteness is an

inherent feature of arguments. Moreover, I have shown that inherent features always take priority over derived features in the determination of case marking.

The discussion in this chapter has revealed that although prominence has a clear effect on the morphosyntactic marking of arguments, two conditions have to be met before it can be invoked as an explanation of a given phenomenon. Not all apparent prominence effects turn out to be real as some can be reduced to the interaction of other independent principles. Also, the direction of the cause-effect relation between a prominence feature and overt marking may vary. Not only can overt marking be the effect of prominence, it can also be the other way around, when overt marking affects prominence.

Chapter 5

Conclusions

In the introduction to this dissertation (chapter 1), I formulated three research questions raised by the by now familiar differential object marking pattern found in Malayalam. In this language animate but generally not inanimate objects are marked with accusative case. The first question concerns the formal status of the constructions with and without overt case marking. Given that accusative case is often considered the hallmark of a transitive clause, should we conclude that the caseless object does not represent a transitive construction even though it seems to express a semantically two-place predicate? The second question focuses on the influence of animacy on the morphosyntactic alternation. Why should animacy have this effect on morphosyntactic structure and why does this effect surface the way it does? The third and final question addresses the relation between animacy and other semantic features. Are there other semantic features which have an effect on morphosyntactic structure similar to that of animacy in Malayalam? And if such features exist, to what extent are they similar to or different from animacy? In the remainder of the thesis my aim was to answer these questions.

In chapter 2, I have argued for a gradient approach to transitivity in which sentences can be assigned different degrees of transitivity. This approach solves the question concerning the transitive status of the constructions involved in differential object marking. Both the construction with a case marked object and the one without are formally transitive, yet the former shows a higher degree of transitivity due to the presence of accusative case. A transitive status for both constructions is in line with the observation that both express a semantically transitive relation.

Apart from this gradient nature of transitivity, I have shown that there are clear mismatches between form and meaning in the domain of transitivity. That is, we find constructions that are morphosyntactically

intransitive, but semantically transitive. Likewise, there are morphosyntactically transitive constructions which correspond to semantically intransitive configurations. A prime example of the latter phenomenon is the cognate object construction in English. Semantically, it should be analyzed as intransitive with the cognate object functioning as an adverbial. Syntactically, however, the cognate object patterns with regular direct objects on a number of different tests. Indeed, its syntactic behaviour has led many researchers to the conclusion that also semantically it represents a direct object. On the basis of cross-linguistic data, however, I have argued that a semantically intransitive analysis is more adequate. Evidence for this comes from languages that show a transparent mapping from semantic to morphosyntactic transitivity. For instance, in Russian differences in semantic transitivity are clearly reflected in the morphosyntactic transitivity. In this language, we indeed find that cognate objects mirror their semantic status as they behave syntactically just like adverbials. English by contrast maps a wide range of semantic configurations to the same syntactically transitive construction, in this way obscuring differences in semantic transitivity in its surface structure. As a result the cognate object construction surfaces as a transitive construction syntactically, even though semantically it is intransitive. The English cognate object construction provides a good illustration of how a cross-linguistic perspective is needed in order to fully understand a phenomenon in a single language.

Having established that transitivity involves different degrees, the question arises what triggers this difference. In chapter 2, a number of parameters were discussed which influence the degree of transitivity of a clause. Among them we can distinguish verb-related parameters such as aspect, subject-related parameters such as volitionality, and object-related parameters such as affectedness. I have singled out animacy as a special parameter given its relation to both the subject and the object argument. Indeed, the animacy of the subject and the object have a clear impact on the encoding of arguments, in particular on the phenomenon of differential object marking.

In chapter 3, I have explored the explanation that the occurrence of accusative case on direct objects is due to potential ambiguity: a speaker may case mark a direct object in order to avoid misunderstanding of the sentence on the side of the hearer. I have shown that animacy provides crucial information about the role an argument plays in the event described by the predicate. When animacy information is neutralized, i.e., the two arguments of a transitive relation share their animacy value, other sources of information have to be used to interpret the sentence.

This need to avoid misunderstanding as a force behind differential

object marking can be accounted for within a model of bidirectional optimization. In particular, I have defended an asymmetric speaker's model in which the speaker takes the hearer's perspective to determine whether the intended meaning is recoverable from the form used. Only forms that ensure such recoverability are considered optimal output candidates. This bidirectional model can account for a range of phenomena beyond differential object marking. A nice illustration of this are the word order restrictions on exceptional case marking (ECM) constructions found in Dutch. In this language, embedded direct objects cannot precede ECM subjects with which they share their animacy feature. This pattern can be interpreted in terms of ambiguity avoidance. Or rather, the word order restrictions can be said to follow from a need to avoid misinterpretations or to secure the recoverability of the intended meaning. Therefore, when certain odd interpretations do arise, they are not perceived as misinterpretations, but as correct/optimal, yet pragmatically strange, interpretations. In this way, the system optimizes recoverability and at the same time maximizes expressivity.

The increase in transitivity observed with accusative marked objects in differential object marking systems can be explained by the pressure to avoid ambiguity. Animacy is an important trigger in the occurrence of case marking as it can cause ambiguities. However, not all instances of differential object marking can be explained in terms of ambiguity avoidance. At the end of chapter 3, I have demonstrated on the basis of historical data from Spanish that a strategy to mark all and only animate objects can develop out of a strategy of ambiguity avoidance. The result is a prominence-based system in which animate objects are marked because of their animacy and irrespective of any actual ambiguity.

In chapter 4, I have shown that prominence-based marking is widespread. However, not every phenomenon which seems to involve prominence on the surface does so on closer scrutiny. This was demonstrated with obligatory voice alternations found in Coast Salish languages. Given that they involve exclusions of certain person combinations, these alternations are often analyzed in terms of person hierarchies. I have argued that the influence of person is only visible on the surface and that an analysis in terms of conflicting morphophonological constraints which are independently available in the grammar provides a better account of these alternations.

In the remainder of chapter 4, I have examined the similarities and the differences between the prominence features animacy and definiteness/-specificity. Together with animacy this latter feature is often singled out as the primary trigger for overt case marking in differential object marking languages. Although both features can be subsumed under the general

notion of prominence, each plays a radically different role when it comes to differential object marking. This difference comes out most clearly in languages with two-dimensional differential object marking, where both animacy and definiteness/specificity are involved. I have argued that in these languages definiteness/specificity only plays a role when animacy does not require case marking. This was based on the observation that case marked objects can only be unambiguously interpreted as definite/-specific when they can also occur without case marking. That is, animate objects require case marking because of their animacy value, and can be interpreted either as definite or indefinite. Inanimate objects, on the other hand, do not require case marking but when they do appear with case they have to be interpreted as definite/specific. I attributed this difference between the two features to the fact that animacy but not definiteness/specificity is an inherent feature of noun phrases. As such, case marking can change the definiteness/specificity but not the animacy of direct objects. The priority of animacy over definiteness/specificity was shown to be an instantiation of a general pattern in which inherent features take priority over contextually derived features. That is, case marking can only be used to indicate a derived feature when it is not required by an inherent one. An additional difference between animacy and definiteness is the fact that the former feature shows a strong correlation with semantic roles, which is absent for definiteness/specificity. As was shown in chapter 3, animacy can therefore be used to determine the role of an argument, and neutralization of the animacy values of two arguments can result in ambiguity. Case marking and other morphosyntactic mechanisms are employed to keep the roles distinguished. Given that this does not hold for definiteness/specificity, we again find that animacy is a more basic factor in case marking.

This dissertation has shown how semantic properties of direct objects can influence their morphosyntactic encoding. It has also shown that languages differ in their sensitivity to and their encoding of such semantic properties. Moreover, even a cross-linguistically uniform phenomenon can have different underlying motivations. I have shown for differential object marking based on animacy that two factors can be identified: recoverability and prominence-based marking. Finally, different semantic properties can relate to one single phenomenon in different ways as was shown for animacy and definiteness/specificity. Only when the above mentioned types of variation are taken into consideration, we can account for the cross-linguistic variation in object marking.

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Samenvatting

Summary in Dutch

Crosslinguïstische variatie in de markering van objecten

Talen verschillen in de manier waarop ze hun directe objecten (lijdende voorwerpen) markeren. Zelfs binnen een taal kan er verschil bestaan tussen objecten. Dit wordt geïllustreerd door de volgende voorbeelden uit het Malayalam, een Dravidische taal gesproken in India:

MALAYALAM (Dravidisch; Asher and Kumari 1997:203)

(1) *Avan oru pasuvin-e vappi.*
hij een koe-ACC kocht
'Hij kocht een koe.'

(2) *naan teepna vappi.*
ik kokosnoot kocht
'Ik kocht een kokosnoot.'

Beide zinnen rapporteren een gebeurtenis waarbij iemand iets gekocht heeft en in dit opzicht zijn ze semantisch vrijwel identiek. Morfosyntactisch verschillen ze echter van elkaar: alleen het object in (1) is gemarkeerd met de accusatief naamval. Dit verschil in vorm is toe te schrijven aan een semantisch verschil tussen de twee objecten. Het object 'koe' in (1) verwijst naar een levende (*animate*) entiteit, terwijl 'kokosnoot' in (2) naar een niet-levende (*inanimate*) entiteit verwijst. In het Malayalam resulteert dit semantische verschil in *animacy* in een morfosyntactisch verschil. Deze alternantie in objectmarkering reflecteert een crosslinguïstisch terugkerend fenomeen, dat bekend staat als *gedifferentieerde objectmarkering* (Bossong 1985; Aissen 2003).

De voorbeelden uit het Malayalam illustreren hoe een semantisch verschil kan resulteren in een morfosyntactisch verschil. Tegelijkertijd roepen

deze voorbeelden vragen op waarvan er drie centraal staan in dit proefschrift: (i) Is er een verschil in transitiviteit tussen (1) en (2)? Het feit dat het object in (2) geen accusatief naamval draagt – waarbij accusatief naamval vaak wordt gezien als een kenmerk van transitiviteit – kan worden gezien als indicatie dat (2) niet transitief is. Dit lijkt echter in strijd met het feit dat deze zin wel een transitieve handeling uitdrukt en roept op tot een algemenere discussie over de relatie tussen morfosyntactische en semantische transitiviteit; (ii) De voorbeelden laten duidelijk zien dat animacy een effect kan hebben op de morfosyntaxis, maar waarom is dit het geval en waarom is dat effect zodanig dat animate objecten, maar niet inanimate objecten, gemarkeerd worden?; (iii) Zijn er naast animacy wellicht nog andere (semantische) eigenschappen van objecten die van invloed kunnen zijn op hun markering? Als dergelijke eigenschappen geïdentificeerd kunnen worden, kunnen we ons afvragen in welke mate ze lijken op en/of verschillen van animacy.

Zoals valt op te maken uit bovenstaande vragen is het terugkerende thema in dit proefschrift de relatie tussen semantiek en morfosyntaxis. De vragen worden behandeld binnen het domein van semantisch transitieve relaties, d.w.z. relaties tussen twee entiteiten. Het onderzoek richt zich in het bijzonder op de invloed die (semantische) eigenschappen van het lijdend voorwerp kunnen uitoefenen op hun morfosyntactische realisatie.

In hoofdstuk 2 beargumenteer ik dat transitiviteit niet als een zwart-wit onderscheid moet worden gezien maar als een gradueel verschijnsel (in navolging van o.a. Hopper and Thompson 1980). Zo kan de constructie in (2), ondanks de afwezigheid van accusatief naamval, als transitief worden beschouwd, zij het in mindere mate dan die in (1). Naast het graduele karakter van transitiviteit laat ik in dit hoofdstuk zien dat er duidelijke verschillen kunnen bestaan tussen de morfosyntactische en semantische transitiviteit van een constructie. Niet alleen vinden we morfosyntactisch intransitieve constructies die semantisch als transitief beschouwd moeten worden, ook zijn er morfosyntactisch transitieve constructies die semantisch intransitief zijn. Bovendien kunnen talen verschillen in de manier waarop zij variatie in semantische transitiviteit koppelen aan variatie in morfosyntactische transitiviteit.

Ter illustratie van dat laatste presenteer ik de resultaten van een studie naar zogenaamde *cognate* objecten in het Engels, waarbij het object hetzelfde lijkt uit te drukken als het (intransitieve) werkwoord (bv. *live a happy live, laugh a loud laugh*). Semantisch gezien gedragen deze objecten zich als een adverbiaal element dat de handeling die door het werkwoord wordt uitgedrukt, modificeert. Syntactisch gezien gedragen zij zich echter vrijwel identiek aan reguliere directe objecten, wat ertoe geleid heeft dat ze in de literatuur vaak ook semantisch als objecten zijn geanaly-

seerd. Aan de hand van crosslinguïstische data laat ik zien dat een analyse waarbij de cognate objecten semantisch als intransitief worden gezien superieur is. In het Russisch, bijvoorbeeld, gedragen deze objecten zich ook syntactisch als bijwoorden. Een bijkomend verschil tussen het Engels en het Russisch is dat het Russisch een transparantere afbeelding laat zien van semantische transitiviteit op morfosyntactische transitiviteit. In deze taal is er bijna sprake van een een-op-een relatie tussen semantische en formele transitiviteit. Het Engels daarentegen gebruikt één enkele formeel transitieve constructie om verschillende gradaties van semantische transitiviteit uit te drukken. Op deze manier worden verschillen in semantische transitiviteit verbloemd in de morfosyntactische structuur. De cognate-objectconstructie vormt hier een duidelijke illustratie van.

De observatie dat transitiviteit een gradueel verschijnsel is, roept de vraag op welke factoren van invloed zijn bij het vaststellen van de mate van transitiviteit van een constructie. In hoofdstuk 2 bespreek ik een aantal van dergelijke parameters. Speciale aandacht gaat uit naar animacy omdat dit een eigenschap van zowel subjecten als objecten is. De invloed van animacy op morfosyntactische verschijnselen wordt verder uitgediept in hoofdstuk 3.

In dit hoofdstuk beargumenteer ik dat accusatief naamval op objecten ingezet kan worden om een mogelijke ambiguïteit te voorkomen: de spreker kan een object markeren om er zo voor te zorgen dat de hoorder de zin correct zal interpreteren. Animacy speelt hierbij een belangrijke rol omdat het informatie verschaft over de rol van een argument in de zin. Zo zijn subjecten vaak animate, terwijl een dergelijke voorkeur voor objecten niet bestaat. In het geval er geen verschil is in animacy tussen de twee argumenten van een transitieve relatie moet een hoorder andere informatie gebruiken om een zin juist te interpreteren. Naamval vormt een cruciale indicatie voor de functie van een argument in de zin.

Om dit desambiguerende gebruik van naamval te beschrijven ontwikkel ik een asymmetrisch model van bidirectionele optimalisatie waarbij de spreker het perspectief van de hoorder in acht neemt om te bepalen of de betekenis die hij wil uitdrukken volledig herleidbaar (*recoverable*) is uit de vorm die hij kiest. Enkel en alleen die vormen die een dergelijke terugvindbaarheid garanderen worden als optimale vormen voor die betekenis gezien. Dit model is niet alleen toepasbaar op het fenomeen gedifferentieerde objectmarkering, maar ook op andere fenomenen waarbij terugvindbaarheid van betekenis een rol speelt. Ik demonstreer dit aan de hand van twee verschillende verschijnselen. Het eerste verschijnsel is de *one nominal interpretation constraint* zoals die wordt gevonden in verschillende inheemse talen van Noord-Amerika. Deze regel bepaalt dat in zinnen met twee derde-persoonsargumenten waarvan er één een volle NP

is, deze laatste altijd als object geïnterpreteerd wordt. Ten tweede zijn er beperkingen op de woordvolgorde in *exceptional case marking* constructies (ook wel *accusativus cum infinitivo* genoemd) in het Nederlands. Hier vinden we dat wanneer het ingebedde subject en object dezelfde animacywaarde hebben, zij in een vaste volgorde moeten voorkomen (subject voor object). Echter, wanneer ze verschillen in animacy is variatie in woordvolgorde wel mogelijk.

Wanneer we terugkeren naar het gebruik van accusatief naamval voor niet alle objecten, dan moeten we vaststellen dat niet alle naamvalsgebruik kan worden toegeschreven aan het terugvindbaar maken van grammaticale functies. Er bestaan ook talen waarin animate objecten worden gemarkeerd onafhankelijk van enige ambiguïteit, maar juist omdat ze animate zijn. Een dergelijk op *prominentie* gebaseerd systeem verklaart ook het gebruik van de accusatief naamval in de Malayalam voorbeelden (1) en (2). De twee manieren waarop animacy het gebruik van objectsnaamval kan beïnvloeden staan niet noodzakelijk los van elkaar. Aan het eind van hoofdstuk 3 laat ik zien dat een naamvalstelsel waarin alle en alleen animate objecten worden gemarkeerd zich kan ontwikkelen uit een systeem waarin naamval wordt gebruikt om te desambigueren.

In hoofdstuk 4 bestudeer ik dergelijke op prominentie gebaseerde systemen nader. Ik laat zien dat behalve animacy ook andere factoren, zoals persoon en definitieid, een rol kunnen spelen. Ik stel echter ook vast dat niet overal waar prominentie een rol lijkt te spelen, dit ook daadwerkelijk het geval is. Dit illustreer ik aan de hand van een verplichte alternantie van actieve naar passieve constructies in Coast Salish talen. In deze talen kunnen bepaalde combinaties van personen niet als actieve constructies worden gerealiseerd. In plaats daarvan moet er een passieve constructie worden gebruikt. Deze alternantie wordt doorgaans toegeschreven aan de invloed van een zogenaamde persoonshiërarchie waarbij actieve constructies die ingaan tegen deze hiërarchie ongrammaticaal zijn. Ik beargumenteer dat de invloed van persoon slechts een oppervlakteverschijnsel is en dat de verplichte alternantie beter geanalyseerd kan worden als het resultaat van een interactie van morfosyntactische en fonologische constraints die elk een onafhankelijk gemotiveerde rol spelen in de grammatica's van deze talen.

In de tweede helft van hoofdstuk 4 bestudeer ik de overeenkomsten en verschillen in de invloed van animacy en definitieid, beide semantische eigenschappen die bijdragen aan de prominentie van een object, op het gebruik van objectsnaamval. Het is bekend in de literatuur (cf. Bossong 1985; Aissen 2003) dat beide factoren een rol spelen in talen met gedifferentieerde objectmarkering. Ik betoog echter dat hun rollen verschillend zijn. Dit verschil komt het duidelijkst naar voren in talen,

zoals bijvoorbeeld het Hindi, waarin beide factoren van invloed zijn op het gebruik van objectснаamval. Ik laat voor een aantal van dergelijke talen zien dat definietheid alleen een rol speelt wanneer animacy het gebruik van naamval niet verplicht maakt. Met andere woorden, animacy heeft voorrang op definietheid. We zien namelijk dat animate objecten, die verplicht naamval dragen, zowel een definiete als een indefiniete interpretatie kunnen krijgen. Inanimate objecten, die geen naamval vereisen, kunnen expliciet als definiet worden gemarkeerd door het gebruik van objectснаamval. Objectснаamval resulteert dus in een verandering in de definietheid van een object, terwijl de animacy van een object resulteert in het gebruik van objectснаamval. Het feit dat animacy prioriteit heeft ten opzichte van definietheid kan worden verklaard uit het feit dat alleen de eerste een inherente eigenschap van argumenten is. Definietheid daarentegen is een eigenschap die in context aan argumenten wordt toegekend. Deze prioritering past in het algemene patroon dat inherente eigenschappen voorrang hebben op contextafhankelijk eigenschappen. Naamval kan enkel gebruikt worden om het laatste type eigenschappen uit te drukken.

Dit proefschrift laat zien hoe semantische eigenschappen van invloed kunnen zijn op de markering van directe objecten. Talen verschillen in of en hoe zij variatie in semantische eigenschappen tot uitdrukking laten komen in de vorm van objecten. Bovendien kunnen er aan een crosslinguïstisch uniform fenomeen verschillende verklaringen ten grondslag liggen. In het geval van op animacy gebaseerd gebruik van objectснаamval heb ik laten zien dat twee factoren van invloed zijn: desambiguering en prominentie. Tenslotte kan er ook variatie optreden in de invloed van twee verschillende semantische eigenschappen op hetzelfde fenomeen, zoals in het geval van animacy en definietheid. Alleen met inachtneming van deze variatie kunnen we tot een sluitende beschrijving komen van de crosslinguïstische variatie in objectmarkering.

Curriculum Vitae

Peter de Swart was born in Nijmegen in 1981. In 1999, he began studying *Greek and Latin Languages and Cultures* at the University of Nijmegen. After his propedeutics (*cum laude*), he switched to *General Linguistics* at the same university where he graduated *cum laude* in 2003 with an MA thesis on differential case-marking patterns. In 2002-2003, he was a research assistant of the NWO PIONIER Project *Case Cross-linguistically*. After his graduation, he spent six months at the Department of Linguistics of the University of British Columbia, Vancouver with a VSB scholarship. In March 2004, he rejoined the Department of Linguistics and the NWO PIONIER Project *Case Cross-linguistically* at the University of Nijmegen as a junior researcher (PhD candidate). Up to 2007 he worked on his PhD dissertation and was involved in the organization of several international workshops and the editing of subsequent volumes. He has presented and published on topics related to transitivity and case marking.

Currently, he holds a post-doctoral position in the NWO Project *Animacy* and teaches in the Department of Linguistics at the Radboud University Nijmegen.