

# The Case Mirror

Peter de Swart

Contact Address:  
PIONIER Project *Case Cross-linguistically*  
Department of Linguistics  
University of Nijmegen  
P.O. Box 9103  
6500 HD Nijmegen  
The Netherlands  
[www.kun.nl/pionier](http://www.kun.nl/pionier)  
[P.deSwart@let.kun.nl](mailto:P.deSwart@let.kun.nl)

# The Case Mirror

Peter de Swart

Master's Thesis  
General Linguistics  
Faculty of Arts  
University of Nijmegen  
August 2003

Peter de Swart  
9938338

1<sup>st</sup> supervisor: dr Helen de Hoop  
2<sup>nd</sup> supervisor: prof. dr Pieter Muysken

# Dank

Aan de medewerkers van het PIONIER project “Case Cross-linguistically”

Aan Miriam Butt en Andrej Malchukov voor hun nuttige commentaar op een eerdere versie van deze scriptie.

Aan Pieter Muysken, dat hij tweede begeleider wilde zijn en voor het waardevolle commentaar op een eerdere versie.

Aan Helen de Hoop, voor de prettige samenwerking, de enthousiaste discussies en het immer relevante commentaar. Verder voor de ongekende mogelijkheden die ze me het afgelopen jaar gaf om me te ontwikkelen in de taalwetenschap.

Aan mijn moeder zonder wie grote delen van deze scriptie nog steeds handgeschreven zouden zijn.

Corien, Emar, Marieke and Henri voor de zomerse discussie en verwarring over dankwoorden, ergativiteit en lijdende vrouwen.

# Table of Contents

<b>General Introduction</b>	<b>1</b>
<b>Chapter 1</b>	
<b>Optimality Theory</b>	<b>3</b>
1.1 Conflicting Constraints: The Architecture of an OT-grammar	3
1.1.1 The Architecture of an OT-grammar	4
1.1.1.1 The Generator	4
1.1.1.2 Constraints	5
1.1.1.3 The Evaluator and the Optimal Output	5
1.1.2 The Metalanguage of Optimality Theory	6
1.2 Markedness	7
1.2.1 Harmonic Alignment	7
1.2.2 Local Conjunction	8
<b>Chapter 2</b>	
<b>Differential Object Marking</b>	<b>11</b>
2.1 Differential Object Marking Cross-linguistically	11
2.2 An OT-model for Differential Object Marking: Aissen (2000)	13
2.2.1 Animacy and Definiteness	13
2.2.2 Markedness Reversal, Iconicity and Economy	14
2.2.3 Deriving Constraints	16
2.2.3.1 Animacy	16
2.2.3.2 Definiteness	17
2.2.3.3 Iconicity and Economy	18
2.2.4 One Dimensional DOM	19
2.2.4.1 Definiteness	20
2.2.4.2 Animacy	20
2.2.5 Two Dimensional DOM	21
2.3 Discussion	25

2.3.1 Local Conjunction of ‘Star Zero’	25
2.3.2 Other Features besides Animacy and Definiteness	25
2.3.3 How Semantic are the Features?	27
2.3.4 Case Alternations	29
2.3.5 Case Marking of Prototypical Objects	31
2.3.6 The Unmarked Object	31
2.4 Concluding Remarks	34

## **Chapter 3**

<b>Differential Subject Marking</b>	<b>35</b>
3.1 Subjects Cross-linguistically: a short overview	35
3.1.1 Subjects in Coast Salish	35
3.1.2 Split Ergativity in Dyirbal	38
3.2 An OT-model for Subject Choice: Aissen (1999)	39
3.2.1 Subjects and Syntactic Markedness	39
3.2.2 The Dimensions of Subject Choice	40
3.2.2.1 Universal or Language Specific?	40
3.2.2.2 Relevant Dimensions and their Markedness Reversal	41
3.2.2.3 Deriving Constraints	41
3.2.2.3.1 Person	41
3.2.2.3.2 Semantic Role	43
3.2.2.3.3 Discourse Prominence	43
3.2.3 The Expression of Markedness	44
3.2.3.1 Voice	44
3.2.3.1.1 Lushootseed	44
3.2.3.1.2 Lummi	45
3.2.3.1.3 Squamish	46
3.2.3.2 Morphological Markedness	47
3.2.3.3 Case Marking: Split Ergativity	48
3.2.3.3.1 Dyirbal	48
3.2.3.4 Direction	49
3.3 Discussion	50
3.3.1 Local Conjunction of ‘Star Zero’	51
3.3.2 Differential Subject Marking in Transitive Construction	51
3.3.3 Differential Subject Marking in Intransitive Constructions	53
3.4 Concluding Remarks	55

<b>Chapter 4</b>	
<b>Modelling Differential Case Marking</b>	<b>57</b>
4.1 The Interaction of Aissen's Frameworks	57
4.1.1 The Implicit Models in Aissen's Frameworks	57
4.1.2 Subject-Object Dependencies	60
4.2 Transitivity and the Unmarked Object	62
4.2.1 The Transitivity Parameters of Hopper & Thompson	62
4.2.1 Transitive Constructions	64
4.2.3 Markedness of Structure	65
4.2.3.1 Semantic Transitivity	66
4.2.4 Language Particular Markedness	68
4.3 Semantic Distinctness as a Trigger for Differential Case Marking	69
4.3.1 Minimal Semantic Distinctness	70
4.3.2 Properties of the Arguments	72
4.3.3 Properties of the Predicate	75
4.3.4 Other Properties	77
4.3.5 Differential Case Marking and Semantic Distinctness in Hindi	77
4.3.5.1 Tense Split and Subject Marking	78
4.3.5.2 Object Marking	79
4.3.6 Summary	82
4.4 Case Marking as a Mirror	83
4.4.1 Bidirectional Optimality Theory: Blutner (2000)	83
4.4.2 The Constraints	86
4.4.2.1 Constraints on Form	87
4.4.2.2 Constraints on Meaning	87
4.4.3 Language Particular Constraint Rankings	88
4.4.3.1 Spanish	88
4.4.3.2 Malayalam	90
<b>Conclusions</b>	<b>95</b>
<b>References</b>	<b>97</b>

# List of Abbreviations

1	First person	NNOM	Non-nominative
2	Second person	NOM	Nominative
3	Third person	NSPEC	Nonspecific
A	Transitive subject	OBJ	Object marker
ABL	Ablative	OBL	Oblique
ABS	Absolutive	OJ	Object
ACC	Accusative	P	Transitive object
ADEL	Adelessive	PART	Partitive
AGT	Agent	PAT	Patient
ANIM	Animate	PAST	Past
CONN	Connective	PERF	Perfective
DAT	Dative	PL	Plural
DEF	Definite	PN	Proper noun
ERG	Ergative	PREP	Preposition
F	Feminine	PRES	Present
FUT	Future	PRO	Pronoun
GEN	Genitive	S	Intransitive subject
GR	Grammatical relation	SG	Singular
HUM	Human	SPEC	Specific
INAN	Inanimate	SIM	Imperative singular
INDEF	Indefinite	SU	Subject
INF	Infinitive	SUB	Subjunctive
INST	Instrumental	TRANS	Transitive
INTR	Intransitive	V	Verb
LOC	Locative	VOL	Volitional

## General Introduction

Some languages with overt case marking on their subjects and objects do not mark all their arguments in the same way. They only mark a subset of their objects and subjects and often differ in which subset. This phenomenon is called *differential case marking* and it is this phenomenon that is the subject of this thesis.

In the example in (1) we see an example of a language that employs different case marking on its direct objects depending on the features of the argument that functions as the direct object.

- (1) HINDI [Indo-Aryan; Mohanan 1990]
- a. *ilaa-ne haar-ko ut<sup>h</sup>aayaa*  
 Ila.ERG necklace.ACC lift.PAST  
 ‘Ila lifted up the necklace.’
  - b. *ilaa-ne haar ut<sup>h</sup>aayaa*  
 Ila.ERG necklace.NOMlift.PAST  
 ‘Ila lifted up a/the necklace.’

The Hindi examples in (1) show differential case marking on the object *haar* ‘necklace’. If this object has a definite interpretation the accusative form *haarko* is used, but when the object is not specified for definiteness, i.e. it can either be definite or indefinite, the nominative form *haar* is used. As we will see similar patterns exist for the use of case marking on subject arguments.

In this thesis I focus on patterns of differential case marking. I examine which semantic features play a role in these systems and which morphosyntactic devices are used to mark subjects and objects. Central is the relation between markedness of form and markedness of meaning.

In the first chapter I introduce the framework of Optimality Theory which is used in the analyses in this thesis. Optimality Theory describes linguistic phenomena in terms of conflicting constraints. I set out the general principles of the theory and discuss some particular formal mechanisms.

The second chapter deals with differential case marking of direct objects. First I introduce the phenomenon of differential object marking with some examples from the world’s languages. This short overview is followed by the

outline of an Optimality Theoretic analysis of differential object marking as formulated in Aissen (2000). Her model is formulated on the basis of the principle of ‘markedness reversal’ which states that what is unmarked for the object is marked for the subject and vice versa. I end the chapter by signalling some problems for this particular analysis.

In chapter 3 I continue the discussion of differential case marking systems by focussing on the different ways in which subjects are encoded in the different languages of the world. I start with some examples of differential subject marking in Lummi, a Salish language, and the Australian language Dyirbal. This introduction is followed by an Optimality Theoretic analysis again formulated by Judith Aissen (1999). This chapter also end with a discussion of this formalization in which some of the shortcomings of the model are highlighted.

The fourth and final chapter focuses on the development of a new formal model of differential case marking patterns. First, I discuss how the two models discussed in chapter 2 and 3 are related to each other. We will see that it is not sufficient to have two separated models for differential case marking of objects and subjects, but that one single model is needed in which the features of both subject and object are taken into account. I continue by looking at the role semantic and morphosyntactic structures play in differential case marking systems. I show which alternations in semantic features are relevant in describing the alternations we find in morphosyntactic structures. I focus on the relation between markedness of form and markedness of meaning. A relation, which, as I will show, is assumed in the formalization developed by Aissen (1999, 2000), but which does not follow naturally from her system. I propose the principle of ‘minimal semantic distinctness’ which states that the two arguments of a transitive predicate must be minimally distinct. If this minimal distinctness is in danger, morphosyntactic marking is used to avoid ambiguity in distinguishing subject from object. This principle of ‘minimal semantic distinctness’ is central to a new formalization of differential case marking using Blutner’s version of Bidirectional Optimality Theory (Blutner 2000). In this bidirectional view both the production (OT Syntax) and interpretation (OT Semantics) perspective are taken into account which results in a natural account of the relation between markedness of form and markedness of meaning. The formalization in a bidirectional perspective will prove a fruitful approach to differential case marking phenomena.

## CHAPTER 1

# Optimality Theory

In this chapter I introduce the framework of Optimality Theory (OT), the linguistic theory that is central to the analyses presented in this thesis. In section 1.1 I give a general outline of the grammatical system of Optimality Theory, followed in section 1.2 by the description of two more specific formal operations that will be used in chapters 2 and 3.

### 1.1 Conflicting Constraints: The Architecture of an OT-grammar

In 1993 Prince and Smolensky published a manuscript with a general outline of the framework of Optimality Theory.<sup>1</sup> The theory became very popular in the area of phonology where it is one of the leading theories today. Also other areas in linguistics followed and began using Optimality Theory in describing linguistic facts. At this moment the theory is a common theory in all linguistic disciplines. In this section I discuss the main hypotheses put forward by Optimality Theory as given in Legendre (2001) and listed below in (1).

- (1) 1. UG is an optimising system of universal well-formedness constraints on linguistic forms.
2. Well-formedness constraints are simple and general. They routinely come into conflict and are (often) violated by the surfacing form.
3. Conflicts are resolved through hierarchical rankings of constraints. The effect of a given constraint is relative to its ranking, which is determined on a language particular basis.
4. Evaluation of candidates by the set of constraints is based on strict domination. For any two constraints  $C_1$  and  $C_2$ , either  $C_1$  outranks  $C_2$  or  $C_2$  outranks  $C_1$ .
5. Alternative structural realizations of an input compete for the status of being the optimal output – the one that best satisfies, or minimally violates, the full set of ranked constraints in a given

---

<sup>1</sup> See De Hoop (1996) and Gilbers and De Hoop (1998) for the historical development of Optimality Theory out of Harmonic Grammar.

language – is the optimal one. Only the optimal structure is grammatical.

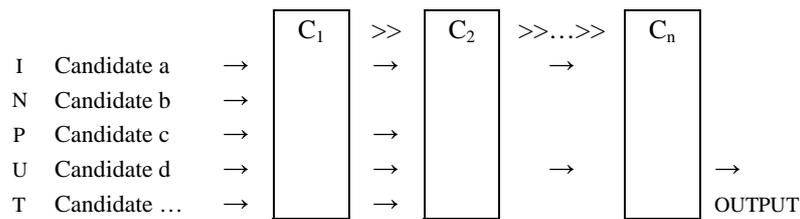
6. Every competition yields an optimal output.

In the next section I address these issues starting with the outline of the architecture of an OT-grammar first.

### 1.1.1 The Architecture of an OT-grammar

An Optimality Theory grammar essentially is a mechanism that maps inputs to outputs as is nicely schematised by Kager (1999: 8).

#### (2) Input - output mapping in Optimality Theory



This mapping of input to output is done by a grammatical system that consists of three components.

- (3) Generator (GEN): generates candidate outputs on the basis of an input
- Constraints (CON): a set of universal well-formedness constraints
- Evaluator (EVAL): ranked set of constraints, which evaluates output candidates as to their harmonic values, and selects the optimal candidate

We will now discuss these three components of the OT grammar in turn, starting with the generator.

#### 1.1.1.1 The Generator

In the GENERATOR the output candidates for a given input are generated. The nature of the input is in itself very complex and something I consider to be beyond the scope of this thesis. The input varies depending on the level of linguistic representation, in our case syntax and semantics. Where in syntax the input is thought of to consist of a semantic predicate structure, in OT-semantics the input is considered to be a given structure that has been uttered.

The GENERATOR is free to generate candidates with any amount of structure, given that this structure is made of elements that are committed to universal linguistic representation such as segmental structure, morphology and syntax (see Kager 1999: 20).

#### 1.1.1.2 Constraints

Constraints are part of any grammatical theory, but where in traditional linguistic theories the Universal Grammar (UG) consists of a set of inviolable principles, in OT UG is a set of constraints which are violable, which means that an output form can be realized even if it does not satisfy all constraints.

The nature of the OT constraints is also an important issue. The claim is that they are simple and general and that the complexity is derivative in an OT grammar: complexity is seen as the product of the interaction between constraints. OT constraints are not only violable and simple, they are also (at least partly) universal. This means that any proposed constraint is assumed to be present in every natural language. It does not mean that a given constraint is ranked in the same way in all languages. If a constraint C is ranked very high in a language  $L_1$ , this same constraint can be hardly effective in some other language  $L_2$ , because of its low ranking. Thus, the typological variation we find in the languages of the world can be explained by the fact that a different ranking of constraints results in a different grammatical system. In this way Optimality Theory claims to be able to describe all natural languages.

A final remark on the constraints is that all constraints belong to some constraint family. In OT a distinction is made between two types of constraints. The first type consists of families of constraints which are not universally ranked with respect to each other, but belong to the same family on the basis of their content; so-called faithfulness constraints are examples of such a constraint family: all constraints in this family specify the relation between elements in the input and the ones in the output, without being universally ranked with respect to each other. The second type of constraint families consists of the so-called constraint subhierarchies. These are constraints that are relatively ranked with respect to each other and an example of this type of families is given in chapter two and three.

#### 1.1.1.3 The Evaluator and the Optimal Output

The EVALUATOR is the component of the OT grammar in which it is decided which generated output candidate is the optimal output given the set of constraints. With optimal we mean an output, which incurs the least serious violations of a set of constraints, taking into account their hierarchical ranking (Kager 1999:13).

In this ranking we assume that the principle of ‘strict domination’ holds. This means that any higher-ranked constraint takes absolute priority over any lower-ranked one, i.e. satisfying lower-ranked constraints cannot soften a violation of a high-ranked constraint. In the EVALUATOR the output candidates are evaluated with respect to the constraint hierarchy and the one candidate that satisfies the highest-ranked constraints best, or put differently, violates them least, is considered to be the optimal output.

### 1.1.2 The Metalanguage of Optimality Theory

The process of evaluation can be visualized by using a so-called tableau. In this section I will show how this works by using the tableau in (4) below.

(4) *Evaluation visualized in a tableau*

INPUT	C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	...	C <sub>n</sub>
Candidate <sub>1</sub>	*!*				
$\mathcal{E}$ Candidate <sub>2</sub>			*		
Candidate <sub>3</sub>		*!	*		
...					
Candidate <sub>n</sub>	*!		*		*

In the tableau we can find all the information that is relevant for the evaluation process.

- (5)
1. Input: specified in the top left cell.
  2. Constraints: ranked from left to right in the top row. The leftmost constraint is the highest ranked one.
  3. Candidates: only the most appropriate ones are listed in the tableau.
  4. Constraint violations: each violation of a constraint by a candidate output is marked with an ‘\*’ in the relevant cell.
  5. Fatal violation: a violation that results in a suboptimal candidate is indicated by ‘!’.
  6. Optimal output: the optimal output, which is also called the winner of the evaluation, is preceded by a ‘ $\mathcal{E}$ ’.
  7. Shaded cells: the area behind a fatal constraint violation is normally shaded grey to indicate that these cells are not relevant anymore because the candidate is already out of competition.

It is important to note that a tableau is only a helping hand to the reader in order to figure out in a relatively simple way which candidate is the optimal output with a given set of constraints. The tableaux are just a representation and are in no way part of the grammatical theory of Optimality Theory.

## 1.2 Markedness

Markedness of structure is a central notion in the framework of Optimality Theory. With this notion we try to make a distinction in the complexity of structures: structures that are less complex or more natural, in our case one might say more harmonic, are conceived of to be unmarked, while structures that are complex are thought to be marked. The theory of markedness of structure was developed by linguists in the Prague School, in particular Jakobson and Trubetzkoy, and one could say that Optimality Theory is a formalization of the findings of this theory<sup>2</sup>.

Optimality Theory has several devices to derive constraints that express the (relative) markedness of a structure and two of these will be highlighted in the following two sections.

### 1.2.1 Harmonic Alignment

Harmonic Alignment is a technical tool used within Optimality Theory that can provide constraints, which characterize the relative markedness of grammatical configurations. The technique was proposed by Prince and Smolensky (1993) in order to give an account of the relation between sonority and syllable structure.

Harmonic Alignment is an operation that works on two scales, one of which must be binary. The operation associates the high-ranking elements on the binary scale with the elements on the other scale from left to right and the low-ranking elements on the binary scale with the elements on the other scale from right to left. This results in two Harmony Scales with the leftmost elements as the most harmonic combinations. As we saw above the idea of Optimality Theory is for configurations to be as harmonic, or unmarked, as possible given the set of constraints and in this view we want to punish highly marked configurations more sincerely than lowly marked ones. This idea is expressed in constraints by reversing the Harmony Scales and putting an avoidance operator (\*) in front of them in this way turning the Harmony Scales into hierarchies of (avoidance) constraints. In (6) below the operation of Harmonic Alignment is expressed in a more formal representation (Prince and Smolensky 1993: 155):

---

<sup>2</sup> See Battistella (1990) for the historical development of markedness theory and for references to the work of Jakobson and Trubetzkoy.

## (6) HARMONIC ALIGNMENT:

Suppose given a binary dimension  $D_1$  with a scale  $X > Y$  on its elements  $\{X, Y\}$ , and another dimension  $D_2$  with a scale  $a > b > \dots > z$  on its elements. The harmonic alignment of  $D_1$  and  $D_2$  is the pair of harmony scales:

$$\begin{aligned} H_x: & X/a > X/b > \dots > X/z \\ H_y: & Y/z > \dots > Y/b > Y/a \end{aligned}$$

The constraint alignment is the pair of constraint hierarchies:

$$\begin{aligned} C_x: & *X/z \gg \dots \gg *X/b \gg *X/a \\ C_y: & *Y/a \gg *Y/b \gg \dots \gg *Y/z \end{aligned}$$

Important to notice is that the constraint hierarchies derived by harmonic alignment are universal subhierarchies. This means that it is not possible to change the rankings of these constraint hierarchies in any given language. According to this notion of universality the constraint ranking given in (7) is allowed by the OT-grammar where the one in (8) is disallowed.

$$(7) X/a \gg Y/b \gg X/z \gg Y/a$$

$$(8) X/a \gg Y/a \gg X/z \gg Y/b$$

## 1.2.2 Local Conjunction

Another formal technique to create new constraints is called Local Conjunction. This operation was proposed by Smolensky (1995b) on the basis of the idea that, as a result of the fact that constraint interactions can be stronger locally than non-locally, two constraint violations are worse when they occur in the same location.

Put simply, local conjunction is an operation that ties together two separate constraints, or a constraint and a constraint subhierarchy, in this way forming a new constraint. This local conjunction of  $C_1$  and  $C_2$  in domain  $D$ ,  $C_1 \& C_2$ , is violated when there is some domain of type  $D$  in which *both*  $C_1$  and  $C_2$  are violated. The local conjunction  $C_1 \& C_2$  is universally ranked above the two constraints,  $C_1$  and  $C_2$ , that are its components. So suppose we have two constraints  $C_1$  and  $C_2$  and their local conjunction, the ranking of these constraints would be (9).

$$(9) C_1 \& C_2 \gg C_1, C_2$$

In this chapter I outlined the framework of Optimality Theory by discussing the main hypotheses put forward by this linguistic theory. I introduced the components of an Optimality Theoretic Grammar and showed how the evaluation of linguistic structure can be visualized by using tableaux. Finally, I discussed two formal operations related to markedness of structure which are used in the analyses presented in the next two chapters. This chapter by no means intended to be a complete introduction to the ideas of Optimality Theory. For more detailed introductions to the theory I refer to the references cited in this chapter.

## CHAPTER 2

# Differential Object Marking

This chapter deals with the phenomenon of differential object marking. First I give a short overview of how differential object marking is triggered in different languages. This overview is followed by the outline of a formalization of differential object marking as formulated in Aissen (2000). I end this chapter with discussing some of the problems which can be opposed to Aissen's formalization.

### 2.1 Differential Object Marking Cross-linguistically

In many languages with overt case marking on direct objects, it is common to mark some objects, but not others. In Romanian, for example, object case marking is obligatory for some objects, optional for others and excluded for a third set. Semantic features of the object are taken to determine whether an object will receive case marking or not. In Malayalam, for instance, only objects that are animate receive accusative case as can be seen from the examples in (1). The examples in (2) show that inanimate objects do not receive case, unless they are objects of worship as in (2c).

#### (1) MALAYALAM [Dravidian; Asher and Kumari 1997]

- a. avan kuṭṭiye aṭiccu  
he child.ACC beat-PAST  
'He beat the child.'
- b. avan oru paṣuvine vaṛṇi  
he a cow.ACC buy-PAST  
'He bought a cow.'

#### (2) MALAYALAM [Dravidian; Asher and Kumari 1997]

- a. ṇaan teeṇṇa vaṛṇi  
I coconut buy-PAST  
'I bought some coconut.'
- b. avan pustakam vaayiccu  
he book read-PAST  
'He read the book.'

- c. ava| jilpatte araadhiccu  
 she statue.ACC worship-PAST  
 'She worshipped the statue.'

Other languages do not use animacy as a determining factor, but definiteness or specificity as in Pitjantjatjara and Turkish respectively. In Pitjantjatjara only pronouns and proper nouns are case marked, all other object NPs are left unmarked and this all happens irrespectively of the animacy of the objects involved, as can be seen from the examples in (3) and (4).

(3) PITJANTJATJARA [Australian, Bowe 1990]

- a. Minyma-ngku ngayu-nya pu-ngu  
 woman.ERG I.ACC hit-PAST  
 'The woman hit me.'
- b. Ngayula minyma pu-ngu  
 I.NOM woman hit-PAST  
 'I hit the woman.'
- c. Tjitji-ngku Billy-nya nya-ngu  
 child.ERG Billy.ACC see-PAST  
 'The child saw Billy.'

(4) PITJANTJATJARA [Australian; Bowe 1990]

- a. Wati kuta-ngku matu kati-ngu  
 man older-brother.ERG kangaroo carry-PAST  
 'The older brother carried the kangaroo.'
- b. Nyanga minima-ngku mutaka palya-mnu  
 this woman.ERG car fix-PAST  
 'This woman fixed the car.'

Turkish is a language that makes a clear-cut distinction between specific and non-specific objects by marking the first set, but not the second with accusative case.

(5) TURKISH [Turkic; Enç 1991]

- a. Ali bir piyano-yu kiralamak istiyor  
 Ali one piano.ACC rent.INF want.3SG  
 'Ali wants to rent a certain piano.'
- b. Ali bir piyano kiralamak istiyor  
 Ali one piano rent.INF want.3SG  
 'Ali wants to rent a (non-specific) piano.'

Up to now, we only saw languages that let one semantic feature determine whether or not to case mark a direct object. There are also languages, like Spanish, that rely on two or more features in the distribution of case markers over direct objects. In Spanish animacy and definiteness/specificity are the relevant semantic features.

(6) SPANISH [Romance; De Jong 1996]

- a. Juan vio a María  
John saw to Mary  
'John saw Mary.'
- b. Juan observó a cada candidato  
John observed to each candidate  
'John observed each candidate.'

As we can see from the examples in (6) above animate NPs are marked with the preposition *a*. In the example in (7a), however, we find an animate NP that cannot be case marked due to the fact that it has a non-specific reading indicated by the use of the subjunctive form *sepa* in the relative clause. So, in Spanish, only NPs that are [+ animate] and [+ specific] receive case marking. This implies that inanimate objects do not receive *a* as confirmed by (7b).

(7) SPANISH [Romance; De Jong 1996]

- a. \*Busco a una secretaria que sepa hablar inglés.  
I-search to one secretary who can-SUB speak English  
'I look for a secretary who can speak English.'
- b. El arenal desvió la corriente  
the sand diverted the stream  
'The sands diverted the stream.'

In the first part of this chapter I provided a short overview of the phenomenon that is known in the literature as differential object marking. In the second part of this chapter I will give an overview of a framework developed by Judith Aissen in which she has tried to formalize the phenomena involved in differential object marking by using Optimality Theoretic constraints. We will end this chapter with a discussion of Aissen's framework in section 3.

## 2.2 An OT-model for Differential Object Marking: Aissen (2000)

### 2.2.1 Animacy and Definiteness

As Judith Aissen notes the general understanding of how Differential Object Marking (DOM) manifests itself in different languages is due to work in

functional and typological syntax and to descriptive work of individual languages. The formulation she gives of this general understanding of DOM is shown here in (8).

- (8) The higher in prominence a direct object, the more likely it is to be overtly case marked.

The two dimensions that determine the prominence of a direct object are animacy and definiteness. Both dimensions can be captured by a prominence scale as is done in (9) and (10) for animacy and definiteness respectively, with  $x > y$  meaning 'x is more prominent than y'.

- (9) Human > Animate > Inanimate
- (10) Personal Pronoun > Proper Noun > Definite NP > Indefinite Specific NP > Indefinite Nonspecific NP

What we see in languages with DOM is that if a direct object at some level on the scale(s) in (9) and (10) can be case marked, then objects that are higher-ranked can also receive case marking, but not necessarily lower-ranked ones. As we have seen in the introduction languages differ in which dimensions they use: some languages use only animacy, others only definiteness and others both. Moreover, as we shall see below, languages that use the same dimension(s) for DOM differ according to where they place the cut-off point on the relevant scale(s).

### 2.2.2 Markedness Reversal, Iconicity and Economy

Aissen says that in the literature on DOM we can find the general idea that differential object marking is used to disambiguate subject from object and indeed we can find many situations in which this disambiguating functions holds true, but there are also many cases in which no disambiguation is needed but where languages do employ DOM. Aissen thinks that we should understand this idea of disambiguation as a motivation for differential object marking in the following way:

- (11) The high prominence which motivates DOM for objects is exactly the prominence which is unmarked for subjects.

In other words, what we see is not that case marking is employed for the need of disambiguation, but rather that only direct objects that most typically resemble subjects receive case marking. The notion of 'typical resemblance' is based on

the properties that are marked and unmarked for transitive subjects and objects. A few of these properties are shown in the figure in (12).

(12)	subject	object
	animate	unmarked    marked
	definite	unmarked    marked
	topicality	unmarked    marked
	agenthood	unmarked    marked
	patienthood	marked       unmarked

So, what we see in this figure is that what is unmarked for subjects is marked for objects and vice versa; a situation that has been called *markedness reversal* in the literature (see Aissen 2000 for references).

Bernard Comrie (1989) has argued that the markedness reversal between subjects and objects is reflected in linguistic structure:

“... the most natural kind of transitive construction is one where the A is high in animacy and definiteness, and the P is lower in animacy and definiteness; and any deviation from this pattern leads to a more marked construction.” [Comrie 1989, p. 128]

We have to make clear that two notions of markedness should be distinguished here. First, there is something we call semantic markedness and that is established on semantic grounds through features such as animacy and definiteness. The second notion is a morphological notion of markedness which is expressed through morphological marking on linguistic elements, e.g. case marking. What Comrie notes is that there is a relation between semantic and morphological markedness in a way that if some element is marked in a semantic sense, it is likely to be marked on the morphological level. In this correlation between semantic and morphological markedness, we see reflected two general principles of the organization of language. Iconicity is reflected in the fact that nominals, objects in our case, that are semantically marked will also receive a morphological mark, i.e. complexity on one level is reflected by complexity on some other level. Economy also plays a role in that comprehension of atypical objects is facilitated by the fact that these objects receive case marking, but, even more important, that it is unnecessary to case mark semantically unmarked objects, which would indeed be an uneconomical situation.

A nice example of this economy principle is the Zaiwa example given in (13). In Zaiwa inanimate objects are usually unmarked (cf. 13a), but in (13b) we see that the object receives the object marker *r*.

- (13) ZAIWA [Sino-Tibetan; Lustig 2002]
- a. Nye<sup>11</sup>                      sing=<sup>31</sup>                      lye<sup>31</sup>  
     bamboo.thong    split(bamboo)    also+I  
     ‘I am/we are splitting bamboo thongs.’
- b. Nui<sup>31</sup> r<sup>55</sup>                      sing=<sup>31</sup>                      gvan<sup>31</sup>-aq<sup>1</sup>  
     vine    OBJ    split(bamboo)    put.into-SIM  
     ‘Make thongs out of vines.’

According to Lustig (2002) "in sentence [13b], 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." In a different formulation he repeats the economy principle Aissen uses in her framework: "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."

### 2.2.3 Deriving Constraints

In this section I show how Optimality Theoretic constraints can be derived that can describe differential object marking systems in formal terms. If we assume, as we did in the previous section, with Judith Aissen that markedness reversal is a central notion in describing DOM, then we want to include it in our formalization. The first thing we want our formalization to characterize is the relative markedness of various associations of grammatical functions with animacy and definiteness. In the first chapter we already saw a tool that can help us to do so: Harmonic Alignment. Furthermore, we saw that iconicity and economy play a role in DOM systems and later on we will present constraints that can deal with these notions. Let us start with markedness reversal on the dimensions animacy and definiteness.

#### 2.2.2.1 Animacy

In order to be able to express the relative markedness of grammatical functions with respect to animacy by using Harmonic Alignment, we need two scales that can be aligned. One, the animacy scale, was already presented in (9) above and repeated in (14) below and the other is the so-called relational scale shown in (15). The relational scale expresses the idea that a subject is more prominent than an object.

(14) Human > Animate > Inanimate

(15) Subject > Object

If we apply Harmonic Alignment to these two scales we will get the Harmony scales in (16), which in turn result in the universal constraint hierarchies in (17).

- (16) a. Su/Hum > Su/Anim > Su/Inan  
 b. Oj/Inan > Oj/Anim > Oj/Hum
- (17) a. \*Su/Inan >> \*Su/Anim >> \*Su/Hum  
 b. \*Oj/Hum >> \*Oj/Anim >> \*Oj/Inan

The harmony scales in (16) express that human subjects are less marked than animate subjects, which themselves are less marked than inanimate ones. Stated differently, inanimate subjects are the most marked ones and they are to be avoided more than animate or human ones. This latter is expressed by the constraint hierarchy in (17) by ranking the constraint 'avoid inanimate subjects' highest in the hierarchy.

### 2.2.3.2 Definiteness

The derivation of constraints through Harmonic Alignment for the association between grammatical function and definiteness proceeds similarly to that of the animacy constraints. We start again with two scales, the definiteness scale in (18) and the relational scale in (19).

- (18) Personal Pronoun > Proper Noun > Definite NP > Indefinite Specific NP > Indefinite Nonspecific NP
- (19) Subject > Object

These two scales result in the harmony scales in (20) and accordingly in the universal constraint hierarchies in (21)

- (20) a. Su/Pro > Su/PN > Su/Def > Su/Indef Spec > Su/Indef NSpec  
 b. Oj/Indef NSpec > Oj/Indef Spec > Oj/Def > Oj/PN > Oj/Pro
- (21) a. \*Su/Indef NSpec >> \*Su/Indef Spec >> \*Su/Def >> \*Su/PN >> \*Su/Pro  
 b. \*Oj/Pro >> \*Oj/PN >> \*Oj/Def >> \*Oj/Indef Spec >> \*Oj/Indef NSpec

These constraints express the idea that we want to avoid the most marked configurations most heavily. In other words it is bad to have a definite direct

object but it is much worse to have a pronoun object. This is signalled by the fact that the constraint that penalizes a pronoun object is ranked higher than the one that penalizes a definite object.

### 2.2.3.3 Iconicity and Economy

As noted above, the constraints we have derived so far penalize configurations depending on their semantic markedness: the more marked a configuration is, the more it should be avoided. If these constraints are really working in languages that employ DOM, we would expect that the configurations that are penalized by them would be avoided in these languages. What we see, however, is that these configurations are not avoided at all by these languages, but that they are used and receive a morphological marking. So what we see is that semantic markedness coincides with morphological markedness and we need a constraint that links these two levels of markedness to each other.

- (22) SPANISH [Romance; Aissen 2000]
- a. Veo la casa  
I-see the house  
'I see the house.'
  - b. Veo a la mujer  
I-see to the woman  
'I see the woman.'

In the first section of this chapter we saw how languages with differential object marking employ case marking to mark some object and not others. According to Aissen the prototypical morphology of DOM consists of an opposition between zero and audible expression, as is shown for Spanish in (22a) vs. (22b). In (22a) we see that an unmarked direct object does not receive marking where the marked object in (22b) does receive the accusative marking preposition *a*. To capture this general application of morphological marking in DOM systems in her formalization Judith Aissen provides the constraint 'Star Zero' of which the formulation is given in (23).

- (23)  $*\emptyset_C$ : 'Star Zero': penalizes the absence of a value for the feature CASE

By using this constraint, we want to compel case marking most forcefully on the most marked objects. We already have constraints that characterize the relative markedness of direct objects and if we can link 'Star Zero' to these constraints hierarchies, then we can make the right predictions. This linking of constraints can be done through the operation of Local Conjunction as shown in

1.2.2 above and is worked out for both the animacy hierarchy in (24) and the definiteness hierarchy in (25).

(24) Local conjunction of ‘Star Zero’ with the subhierarchy on object animacy: \*Oj/Hum & \*Ø<sub>C</sub> >> \*Oj/Anim & \*Ø<sub>C</sub> >> \*Oj/Inan & \*Ø<sub>C</sub>

(25) Local conjunction of ‘Star Zero’ with the subhierarchy on object definiteness: \*Oj/Pro & \*Ø<sub>C</sub> >> \*Oj/PN & \*Ø<sub>C</sub> >> \*Oj/Def & \*Ø<sub>C</sub> >> \*Oj/Indef Spec & \*Ø<sub>C</sub> >> \*Oj/Indef Nspec & \*Ø<sub>C</sub>

These new constraint hierarchies in (24) and (25) describe that if a DOM system based on animacy or definiteness marks any objects, human and pronoun objects are the first ones to receive case marking. We could say that these constraints link complexity in meaning to complexity in structure and thus that they are iconicity constraints.

These iconicity constraints compel case on all objects and this is something, as one can judge from the name, not the case in *differential* object marking systems. Therefore, we need a constraint that penalizes the presence of case morphology and Aissen proposes the constraint \*STRUC<sub>C</sub>.

(26) \*STRUC<sub>C</sub>: penalizes a value for the morphological category CASE

This constraint \*STRUC<sub>C</sub> can be viewed as an economy constraint, because it is less costly not to use morphological marking. In this section we have derived all the constraints that in Aissen's view are necessary to describe DOM systems. We see that differential object marking involves a tension between iconicity and economy, which is resolved in individual languages through constraint ranking. In the next sections we will see how reranking of the constraints can be used to describe DOM phenomena in different languages.

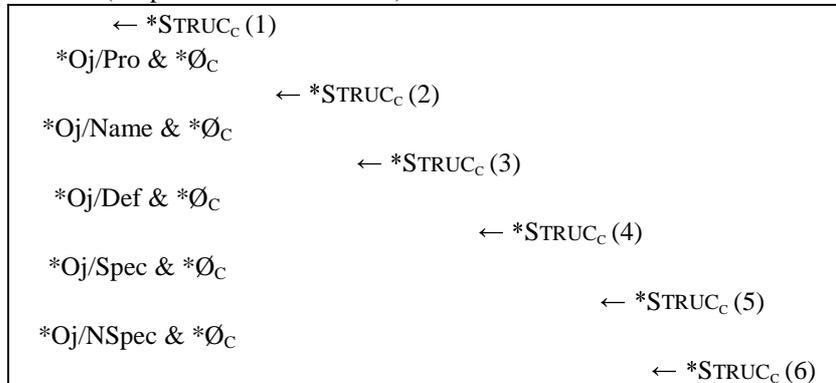
#### 2.2.4 One-Dimensional DOM

The term one-dimensional is used to refer to systems in which the differential object marking is determined either by animacy or by definiteness. In these systems we expect an interaction between the hierarchy in (24) with \*STRUC<sub>C</sub> in the case of animacy governed DOM and between the hierarchy in (25) and \*STRUC<sub>C</sub> in the case of definiteness. In this section we will see how this interaction describes one-dimensional DOM systems.

### 2.2.4.1 Definiteness

The interaction between the definiteness hierarchy and \*STRUC<sub>C</sub> results in a number of language types depending on the point where \*STRUC<sub>C</sub> gets inserted into the hierarchy. The figure in (27) shows how this works.

(27) *One dimensional DOM systems determined by definiteness*  
(adapted from Aissen 2000)



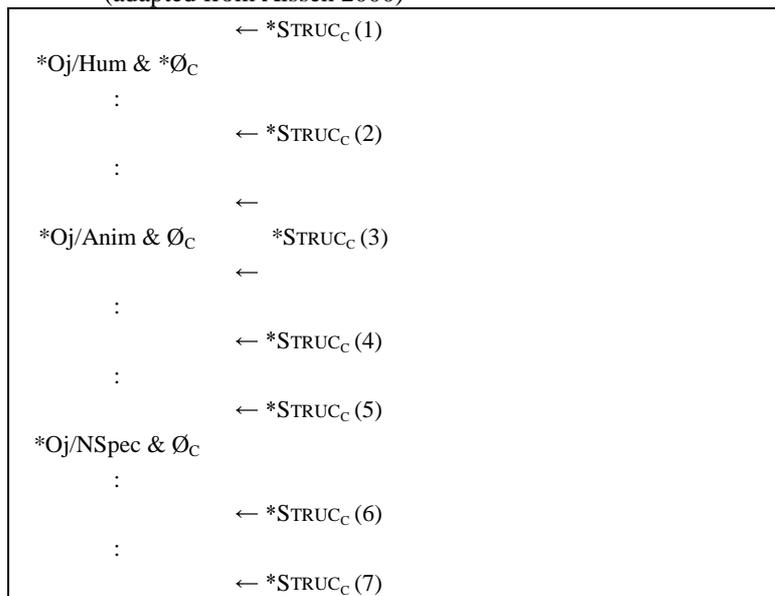
As we can see from the figure in (27) our system predicts the following six language types that according to Aissen are instantiated by the following languages.

- (28)
1. no objects are case marked (Kalkatunga) [No DOM]
  2. only personal pronoun objects are case marked (Catalan)
  3. only pronouns and proper nouns are case marked (Pitjantjatjara)
  4. pronouns, proper nouns and definite objects are case marked (Hebrew)
  5. pronouns, proper nouns, definite and specific objects are case marked (Turkish)
  6. all objects are case marked (written Japanese) [No DOM]

### 2.2.4.2 Animacy

The prediction that the four different insertion points in the animacy hierarchy will give us the actual number of language types, just like in the case of definiteness governed DOM, does not hold for animacy as the figure in (29) shows.

(29) *One dimensional DOM systems determined by animacy*  
(adapted from Aissen 2000)



This figure gives some of the possible DOM systems we find in natural languages. Again the language examples are adopted from Aissen.

- (30)
1. no objects are case marked (Kalkatungu) [No DOM]
  2. only some human objects are case marked (Yiddish)
  3. all animates are optionally case marked (Singhalese)
  4. all human objects and some animates are case marked (Ritharngu)
  5. all animate objects are case marked (Dhargari)
  6. all animate and some inanimates are case marked (Bayungo)
  7. all objects are case marked (Dhalandji) [No DOM]

Apparently, the distinctions on the animacy scale are not as clear-cut as the ones on the definiteness scale. We see language-particular variation within the three basic categories human, animate and inanimate. Where speakers of English consider concepts such as 'meat' and 'vegetable food' inanimate, speakers of Bayungo include these in the set of objects which receive case marking and in this way they put them on the same level as animate referents.

### 2.2.5 Two Dimensional DOM

We speak of two-dimensional DOM when both dimensions of prominence, animacy and definiteness, determine the case marking of objects. When DOM is

governed by two dimensions we often find a tripartite system of case marking: one set of objects is obligatorily marked, another set is obligatorily unmarked and for a third set case marking is optional. As examples of languages with two-dimensional DOM Aissen gives Romanian, Persian, Hindi and 12<sup>th</sup> century Spanish.

If we want to describe two-dimensional DOM systems, we will have to make reference to both the animacy and the definiteness of direct objects. According to Aissen “the most straightforward approach to two-dimensional DOM involves the ranking of a set of composite properties, formed by crossing the animacy and the definiteness scale.” The result of this operation is shown in the figure in (32) on the next page.

The figure in (32) predicts that two-dimensional DOM will flow top-down through the structure with human pronouns as the most marked type of objects and inanimate nonspecifics as the least marked ones. This is resembled in a case marking pattern where the configurations in the top of the structure are most likely to receive case marking. Aissen states the following claims about the structure in (32).

- (31) If in Figure 4,  $\alpha$  dominates  $\beta$ , then:
- a. if an object of type  $\beta$  may be case marked, then all objects of type  $\alpha$  may be case marked.
  - b. if an object of type  $\beta$  must be case marked, then all objects of type  $\alpha$  must be case marked.
  - c. if no object of type  $\alpha$  can be case marked, then no object of type  $\beta$  can be case marked.

With respect to the notion of ‘dominate’, we have to note that configurations at the same horizontal level have no fixed ranking. At this point we have a figure that (informally) gives a description of how two-dimensional DOM systems work. If we want to describe it in a more formal way, we have to derive the right constraints. Aissen suggests that this can be done through the Local Conjunction of the object hierarchies in (15b) and (17b) with the constraint ‘Star Zero’. This operation results in the structure in figure (33) and the constraint ranking in (34) both on page 24.

(32) *Two dimensional DOM* (adapted from Aissen 2000)

			Human Pronoun	
		Human Name	Animate Pronoun	
	Human Definite		Animate Name	Inanimate Pronoun
	Human Indefinite Specific	Animate Definite		Inanimate Name
Human Indefinite Non- specific		Animate Indefinite Specific	Inanimate Definite	
	Animate Non- specific		Inanimate Indefinite Specific	
		Inanimate Non- specific		
				← least marked for objects

(33) *The constraints involved in two-dimensional DOM*  
(adapted from Aissen 2000)

			*Oj/Hum-Pro & *Ø
		*Oj/Hum-Name & *Ø	*Oj/Anim-Pro & *Ø
	*Oj/Hum-Def & *Ø	*Oj/Anim-Name & *Ø	*Oj/Inan-Pro & *Ø
*Oj/Hum-Spec & *Ø	*Oj/Anim-Def & *Ø	*Oj/Inani-Name & *Ø	
*Oj/Hum-Nspec & *Ø	*Oj/Anim-Spec & *Ø	*Oj/Inan-Def & *Ø	
	*Oj/Anim-Nspec & *Ø	*Oj/Inan-Spec & *Ø	
		*Oj/Inan-Nspec & *Ø	

(34) \*Oj/Hum-Pro & \*Ø<sub>C</sub> >> { \*Oj/Hum-PN & \*Ø<sub>C</sub>, \*Oj/Anim-Pro & \*Ø<sub>C</sub> } >> { \*Oj/Hum-Def & \*Ø<sub>C</sub>, \*Oj/Anim-PN & \*Ø<sub>C</sub>, \*Oj/Inan-Pro & \*Ø<sub>C</sub> } >> ... >> { \*Oj/Anim-Nspec & \*Ø<sub>C</sub>, \*Oj/Inan-Spec & \*Ø<sub>C</sub> } >> \*Oj/Inan-Nspec & \*Ø<sub>C</sub>

The constraint ranking in (33) and (34) interacts with the constraint \*STRUC<sub>C</sub>. This interaction can result in three areas in figure (33) as is shown in (35).

- (35)
1. \*STRUC<sub>C</sub> dominated: case marking is obligatory
  2. \*STRUC<sub>C</sub> reranks: case marking is optional
  3. \*STRUC<sub>C</sub> dominates: case marking is prohibited

These three areas coincide with the case marking patterns we find in languages with a two-dimensional DOM system. As said earlier, these language often have one set of objects for which case marking is obligatory, another set for which it is optional and a third set for which it is prohibited. How these three areas are realized in different languages is not exactly known for all languages with two-dimensional DOM and as Aissen notes “assuming that DOM can ‘cut off’ at any point consistent with [31], the figure in [32] defines a very large set of possible DOM case systems. It is premature to assess the extent to which these possibilities are actually realized.” In her paper Aissen nevertheless tries to describe the two-dimensional systems of 12<sup>th</sup> century Spanish, Hindi and Persian. We will not discuss her accounts of these languages here.

## 2.3 Discussion

The framework discussed in the previous section is very appealing because of its simplicity and cross-linguistic predictive power. There are, however, some problems that arise from this conception of differential object marking and I would like to address those in this section.

### 2.3.1 Local Conjunction of ‘Star Zero’

As noted by Aissen herself in earlier work, namely Aissen (1999), no theory internal motivation exists which forces the constraint ‘Star Zero’ to locally conjoin with the animacy and definiteness hierarchies and prevents the other constraint \*STRUC<sub>C</sub> from doing so. As Aissen (1999) says herself “... formally, there is nothing in the present system that prevents local conjunction of the subhierarchies with \*STRUC<sub>C</sub>, and this would yield a set of ranked constraints that could entirely neutralize the predictions derived above.” However, as noted by Aissen and shown above, there is a functional motivation for conjoining ‘Star Zero’ with the subhierarchies and not \*STRUC<sub>C</sub>. As said earlier this local conjunction of ‘Star Zero’ makes morphologically explicit the fact that we are dealing with a semantically marked configuration: it correlates morphological markedness with semantic markedness. Due to the missing theory internal motivation, this correlation stays a stipulation in Aissen's formalization.

### 2.3.2 Other Features besides Animacy and Definiteness

In our discussion we have only looked at systems of differential object marking that rely on one or both of the features animacy and definiteness/specificity. There are, however, also examples of languages that use more or other features than these. Palauan is such a language. In Palauan object marking depends on the features animacy, specificity and number, that interact with each other in a complex way.

In Palauan, human objects always receive case, in this language instantiated by agreement on the verb in perfective aspect and prepositional marking in the imperfective, irrespective of their specificity or number as is shown in (36) and (37).

(36) PALAUAN [Austronesian; Woolford 1995]

- a. Mchelebed-ii a ngalek  
hit-3SG child  
'Hit the child!'
- b. Mchelebede-terir a rengalek  
hit-3PL children  
'Hit the children!'

(37) PALAUAN [Austronesian; Woolford 1995]

- a. Ak milsa a Droteo er a party  
I saw-3SG Droteo at party  
'I saw Droteo at the party.'
- b. Ak mils-terir a retede el sensei  
I saw-3PL three teacher  
'I saw three teachers.'

When an object is nonhuman it must be both specific and singular in order to receive case marking, as in (38) and (39).

(38) PALAUAN [Austronesian; Woolford 1995]

- a. Te-'illebed-ii a bilis a rengalek  
3PL-PERF-hit-3SG dog children  
'The kids hit the dog.'
- b. Te-'illebed a bilis a rengalek  
3PL-PERF-hit dog children  
'The kids hit a dog/the dogs/some dog(s).'

(39) PALAUAN [Austronesian; Woolford 1995]

- a. Ak ousbech er a bilas er a klukuk  
I need PREP boat tomorrow  
'I need the boat tomorrow.'

- b. Ak      ousbech      a bilas er a klukuk  
 I      need      boat      tomorrow  
 ‘I need a boat/the boats tomorrow.’

Moravcskik (1978) notes that Albanian also has a complex system of object marking, in which direct objects are only marked when they are definite, singular and either have masculine or feminine, but not neuter, gender.

As far as I can see such differential object marking systems as those in Palauan and Albanian cannot be described by the constraints proposed in Aissen (2000), because these constraints do not make reference to other features than animacy and definiteness/specificity. The problem could be solved by deriving new constraints that capture the situations in languages with systems similar to those discussed in this section.

### 2.3.3 How Semantic are the Features?

In Aissen’s analysis differential object marking is conceived of as a phenomenon that is governed totally by semantic features and in which case marking is not sensitive to any syntactic properties of the objects involved.

A counterexample to this purely semantic analysis of differential object marking is found in Hebrew. In Aissen’s conception of the case marking pattern of direct objects in Hebrew, as can be seen from the figure in (27) above, definite objects are preceded by the accusative marker *et* and indefinite ones are not, as Aissen illustrates with the example in (40) below.

- (40) HEBREW [Semitic; Aissen 2000]
- a. Ha-seret      her?a      et-ha-milxama  
 the-movie      showed      ACC-the-war  
 ‘The movie showed the war.’
- b. Ha-seret      her?a      (\*et) milxama  
 the-movie      showed      (ACC)war  
 ‘The movie showed a war.’

However, as Danon (2001) shows, this analysis of the occurrence of the accusative marker *et* with semantically definite objects is not totally accurate. According to Danon (2001), only those objects that are syntactically definite, i.e. those objects that are preceded by the definite article *ha*, are marked with *et* and other objects without *ha* are left unmarked even if they are semantically definite, as the examples in (41) show.

## (41) HEBREW [Semitic; Danon 2001]

- a. karaʔti sefer ze  
I-read book this  
'I read this book.'
- b. karaʔti et ha-sefer ha-ze  
I-read ACC the-book the-this  
'I read this book.'

A similar problem is found in Sardinian, where we find optionality in the use of the accusative marking preposition *a* with definite objects preceded by a determiner. In Sardinian all pronouns and proper nouns are marked with *a* as are human definites without a determiner, as the examples in (42) show.

## (42) SARDINIAN [Romance; Jones 1995]

- a. Amus mandatu a Juanne a Nùgoro  
we-have sent to John to Nuoro  
'We sent John to Nuoro.'
- b. Appo vistu a tie  
I-have seen to you  
'I saw you.'
- c. Amus mandatu (\*a) sa littera a Nùgoro  
we-have sent (to) the letter to Nuoro  
'We sent the letter to Nuoro.'
- d. Appo vistu a duttore Ledda  
I-have seen to doctor Ledda  
'I saw doctor Ledda.'

Optionality arises in the use of *a* with human definite direct objects that are preceded by a determiner, indicated by % in the examples below.

## (43) SARDINIAN [Romance; Jones 1995]

- a. Appo vistu (% a) su mere/su dottore/su re  
I-have seen (to) the boss/the doctor/the king  
'I saw the boss/the doctor/the king.'
- b. Appo vistu (% a) cudd' ómine  
I-have seen (to) that man  
'I saw that man.'

In Sardinian, there also seems to exist a correlation between syntactic features of the object and its case marking. Farkas (1978) reports a similar behaviour of the Romanian accusative marking preposition *pe* that also cannot be

combined with nouns that have the definite article, unless a restrictive clause follows.

- (44) ROMANIAN [Romance; Farkas 1978]
- a. \*L-am văzut pe băiatul  
 him-I-have seen to child-the  
 ‘I saw the child.’
- b. L-am văzut pe băiatul care te-a lovit  
 him-I-have seen to child-the who you-he-has hit  
 ‘I saw the child who hit you.’

In a semantically motivated conception of DOM as presented in Aissen’s framework, extra syntactic constraints must be assumed that can describe the facts in the languages mentioned in this section.

#### 2.3.4 Case Alternations

Aissen’s framework makes predictions about whether an object will receive case or not, but it does not say anything about what case will be assigned to an object, and this seems to be a shortcoming of the system.

When we look at the two sentences from Icelandic in (45) below, we see that the same argument, a human pronoun, gets assigned accusative case in one case and dative in another case.

- (45) ICELANDIC [Germanic; Barðdal 2001, quoted in Næss (to appear)]
- a. Hann klóraði mig  
 he scratched me.ACC  
 ‘He scratched me.’
- b. Hann klóraði mér  
 he scratched me.DAT  
 ‘He scratched me.’

According to Næss (to appear) “in [45a], the scratching is interpreted as a violent and painful act, probably intended to hurt me. [45b], on the other hand, means that I had an itch and the subject participant helped me out by scratching me, perhaps in a place I could not reach myself.” In these examples we thus see a case alternation between accusative and dative case, while the semantic features of the object argument stay the same.

We do not only find alternations between one case and the other, we also find alternations between the absence and presence of overt case marking, when the features of the object stay constant, i.e. there is no change in for instance

animacy or definiteness. The Lithuanian sentences below are examples of such an alternation.

(46) LITHUANIAN [Baltic; Moravcsik 1978]

- a. jis túri knýga  
 he has book.NOM  
 'He has a book.'
- b. jis netúri knýgos  
 he not-has book.GEN  
 'He has no book.'

Aissen formalizes the absence versus the presence of case in terms of semantic features of the object. Her system can therefore not account for the examples above, in which case alternations are triggered by features of the sentence as a whole, in the case of (46) negation.

We find similar patterns in Polish, which according to Moravcsik (1978) also changes case marking on objects due to specific conditions "... including choice of verb, choice of noun, emphasis and style, ..."

(47) POLISH [Slavic; Moravcsik 1978]

- a. daj me olówka  
 give me pencil.GEN  
 'Give me a pencil!'
- b. daj me ten czarny olówek  
 give me this black.NOM pencil.NOM  
 'Give me this black pencil!'
- c. daj me tego czarnego olówka na chwile  
 give me this.GEN black.GEN pencil.GEN for minute  
 'Give me this black pencil for a minute.'

Finnish is also a language in which a different marking of the object can lead to a different interpretation, like we saw in the Icelandic sentences in (44). In Finnish we find an alternation between accusative and partitive case on the object which results in a telic versus an atelic interpretation as can be seen from the examples below.

(48) FINNISH [Finnic; Hopper and Thompson 1980]

- a. Liikemies kirjoitti kirjeen valiokunnalle  
 businessman wrote letter.ACC committee-to  
 'The businessman wrote a letter to the committee.'

- b. Liikemies kirjoitti kirjettä valiokunnalle  
 businessman wrote letter.PART committee-to  
 ‘The businessman was writing a letter to the committee.’

In this section we have seen some examples of case alternations on objects. These alternations, however, were not the result of changing semantic features of the direct object. Rather, these differentiated markings of the objects invoked differences in the semantic interpretation of the sentences as a whole. As I have said at the beginning of this section, Aissen’s model is not capable of handling these alternations in the use of case marking and can in no way predict the semantic differences involved. However, if we want to make a model that is suited to describe all phenomena involved in differential object marking, we also must have an account of the facts presented in this section.

### 2.3.5 Case Marking of Prototypical Objects

In Aissen’s account we saw formalized the idea that languages employ case marking to mark the fact that objects are not prototypical, in Aissen’s terms this would mean not indefinite and/or not inanimate, and that they look too much like typical subjects. In other words, case marking is employed to resolve a potential ambiguity that can arise when a hearer has to decide what argument is the subject and what the object. Aissen’s predictions would be that inanimate/indefinite objects will never receive case marking, because they resemble in no way prototypical subjects. This prediction, however, does not seem to be borne out, as we can see from the Spanish example in (49).

- (49) SPANISH [Romance; De Jong 1996]
- a. el entusiasmo vence (a) la dificultad  
 the enthusiasm conquer.3SG (to) the difficulty  
 ‘Enthusiasm conquers difficulties.’
- b. A la dificultad vence el entusiasmo  
 to the difficulty conquer.3SG the enthusiasm  
 ‘Enthusiasm conquers difficulties.’

In both sentences in (49) above, we have an inanimate object that according to Aissen’s framework should never receive the object marker *a*, but that, however, is marked with it. In the first example marking of the object is optional. When the object is preposed, marking is obligatory in order to discriminate object from subject, which is also inanimate. Marking of inanimate objects seems possible after all, but only when the subject is also inanimate.

A quite similar use of case marking we find in Malayalam. As we saw in the introduction to this chapter, Malayalam marks objects depending on their

animacy features, leaving inanimates unmarked, unless they are object of worship. As the examples in (50) and (51) below show, inanimates do receive accusative case when a potential ambiguity in deciding what is the subject and what is the object cannot be resolved.

(50) MALAYALAM [Dravidian; Asher and Kumari 1997]

- a. tiyyə kuṭil naḷippiccu  
 fire.NOM hut.NOM destroy-PAST  
 ‘Fire destroyed the hut.’
- b. vellam tiyyə keṭutti  
 water.NOM fire.NOM extinguish-PAST  
 ‘Water extinguished the fire.’

(51) MALAYALAM [Dravidian; Asher and Kumari 1997]

- a. kappal tiramaalakaḷ bheediccu  
 ship wave-PL.ACC split-PAST  
 ‘The ship broke through the waves.’
- b. tiramaalakaḷ kappaline bheediccu  
 wave-PL ship.ACC split-PAST  
 ‘The waves split the ship.’

We see in the examples in (50) and (51) that accusative case can be used to mark inanimate objects. In the examples in (50) this marking is not necessary because we can infer through our knowledge of the world what is acting on what. We know that fire destroys a hut and that the reverse is not possible. Therefore, we do not have to add extra morphological marking to distinguish object from subject, because the relations are clear from the context. This does not hold for the examples in (51) in which it is not clear what is causing what to split. Therefore, we do need case marking in these sentences to make clear what is acting upon what. So we see that case marking of objects is used in different languages not only when the object resembles the subject, but also when the subject resembles the object. This ambiguity resolving function of case marking is not central to the system that Aissen describes. In her system only objects that resemble subjects cause a construction to become more marked, her system does not say anything about subjects that resemble objects and therefore, in the present form, it seems to be incapable of describing facts related to this kind of ambiguity resolution.

### 2.3.6 The Unmarked Object

Hinted at by Croft (1988) and elaborated recently in a paper by Næss (to appear) are the contradictions between the notion of typical object as advocated

by Comrie (1989), and formalized in Aissen's framework, and the view Hopper and Thompson develop in their 1980 article on transitivity. As Næss (to appear) notes "functional typology assumes a "natural" correlation between a high degree of individuation – that is, animacy and definiteness – and (transitive) subjects, on the one hand, and between a low degree of individuation and transitive objects on the other" (see also the quote from Comrie (1989) above (section 2.2.2))<sup>3</sup>. This view is the direct opposite to the notion of transitivity as we find it in Hopper and Thompson (1980) in which, as Næss (to appear) states, "typical objects, contrary to the functional-typological analysis, are considered to be highly individuated."

Næss continues her paper by showing that objects that are conceived of as prototypical in Aissen's view are not encoded as objects at all in numerous languages, as the example from Tongan in (52) shows.

- (52) TONGAN [Austronesian; Mithun 1984, quoted in Næss (to appear)]
- a. Na'e inu 'a e kavá 'é Sione  
 PAST drink ABS CONN kava ERG John  
 'John drank the kava.'
- b. Na'e inu kava 'a Sione  
 PAST drink kava ABS John  
 'John kava-drank.'

What we see in (52b) is the incorporation of the indefinite object *kava* into the verb phrase, the resulting structure is formally intransitive. According to Næss (to appear): "in many languages objects that are low in individuation are not objects from a formal point of view – they are encoded syntactically in intransitive constructions."

It is, however, not true for all languages that structures with incorporated object are formally intransitive as Baker (1988) notes:

"Hence, verbs with incorporated objects in Mohawk and Southern Tiwa continue to be morphologically transitive, whereas those in Eskimo are morphologically (although not semantically or syntactically) intransitive." (Baker 1988: 126)

Mohawk is given as an example of a language in which structures with incorporated objects are still analyzed as transitive constructions. The sentences in (53) show that both the non-incorporated (53a) and the

---

<sup>3</sup> Comrie's view on transitivity is called the functional-typological view by Næss (to appear)

incorporated (53b) structure shows verb agreement with both the subject and object. The intransitive constructions which shows only agreement with the subject is ruled out, as is illustrated by (53c).<sup>4</sup>

- (53) MOHAWK [Iroquoian; Baker 1988]
- a. Iʔi    khe-nuhweʔ-s ne        yao-wir-aʔa  
       I        1SGSU/3FOJ-like-ASP    PRE-baby-SUF  
       ‘I like the baby.’
  - b. Iʔi    khe-wir-nukweʔ-s  
       I        1SGSU/3FOJ-baby-like-ASP  
       ‘I like the baby.’
  - c. \* Iʔi    k-wir-nuhweʔ-s  
       I        1SGSU-baby- like-ASP  
       ‘I like the baby.’

Even though not all noun incorporating languages use intransitive constructions for the incorporated situation, there are still many languages that do. These languages provide a lot of data that cannot be dealt with in Aissen’s framework, because of a different conception of what is a typical object. Croft (1988), however, claims that Comrie’s view is ultimately right, a viewpoint I will elaborate on later in this thesis.

## 2.4 Concluding Remarks

In this chapter I gave an overview of the phenomenon that is known as differential object marking and we looked at a recent formalization (Aissen 2000) of the linguistic facts surrounding this phenomenon. In the last part we opposed some problems to the OT-framework Aissen developed and in the remaining part of this thesis I will address these problems and try to resolve them with an adjusted model. First, we will take a look at the phenomena involved in the encoding of subjects and again discuss a formalization proposed by Judith Aissen.

---

<sup>4</sup> See also Mohanan (1995) for data on similar noun incorporation facts in Hindi.

## CHAPTER 3

# Differential Subject Marking

In the previous chapter we saw how different languages employ different case marking strategies for marking direct objects. In this chapter I focus on the different ways subjects can be encoded in different languages. First we take a look at some particular languages and the means they have to mark the subject argument of a (transitive) sentence. This short overview will be followed in section 2 by an outline of the system in which Judith Aissen formalized the constraints involved in what she labels ‘subject choice’. I will conclude this chapter by discussing some of the problems that can be opposed to Aissen’s formalization, but that we want to be part of a system that describes the phenomena involved in subject marking.

### 3.1 Subjects Cross-linguistically: a Short Overview

In this section I first discuss subject marking patterns in Coast Salish languages, followed by an overview of the so-called split-ergative case system of Dyirbal. This overview intends by no means to be exhaustive, but is meant to make the reader familiar with the intriguing ways in which languages treat their subjects.

#### 3.1.1 Subjects in Coast Salish

In a paper by Jelinek and Deemers (1983), the authors describe the peculiarities that arise in three Coast Salish languages with respect to subject marking, voice alternations and ergativity. In these languages the relation between active and passive voice for some argument combinations seems to be a suppletive one, i.e. where you cannot use active voice you must use passive voice and vice versa.

In Lummi, one of the three languages discussed by Jelinek and Deemers (1983) and the one we will focus on here, it is possible to have active clauses with a first person pronominal subject and a third person nominal object, but passive constructions with a third person nominal subject and a first person pronominal oblique are excluded, as can be seen from (1).



## (5) LUMMI [Salish; Jelinek and Deemers 1983]

- a. 1<sup>st</sup>/2<sup>nd</sup> person pronominal patient – 3<sup>rd</sup> person pronominal agent (cf. b)
- 1<sup>st</sup>/2<sup>nd</sup> person pronominal patient – 3<sup>rd</sup> person nominal agent
- 3<sup>rd</sup> person pronominal patient – 3<sup>rd</sup> person nominal agent
- b. xč̣i-t-ŋ-səŋ/sx<sup>w</sup>
- know-TRANS-INTR-I.NOM/you.NOM
- ‘I/you are known (by someone).’

Finally, some constructions with two third person arguments have both options as can be seen from the examples in (6).

## (6) LUMMI [Salish; Jelinek and Deemers 1983]

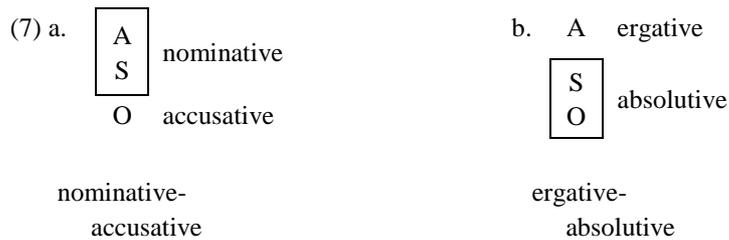
- a. 3<sup>rd</sup> person pronominal patient – 3<sup>rd</sup> person pronominal agent (cf. b and c)
- 3<sup>rd</sup> person nominal patient – 3<sup>rd</sup> person pronominal agent
- 3<sup>rd</sup> person nominal patient – 3<sup>rd</sup> person nominal agent
- b. xč̣i-t-s
- know-TRANS-ERG
- ‘He/she knows it.’
- c. xč̣i-t-ŋ
- know-TRANS-INTR
- ‘It is known (by someone).’

The data show that when we have a first or second person agent argument and a third person, either pronominal or nominal, patient argument, this configuration must be expressed through an active clause. Configurations with a first or second person patient and a third person agent, on the other hand, are always expressed with a passive construction, just as a combination of a third person pronominal patient and a third person nominal agent. For three structures, all with two third person arguments, the speakers of Lummi can choose whether they want to use an active or a passive clause. However, when they choose to use the active construction they have to use an extra suffix *s* on the verb stem (cf. (4b)), which is analysed as an ergative marker. The voice system in Lummi clearly depends on the properties of the arguments involved in the action denoted by the predicate. In the choice for an active or passive construction, an opposition exists between first and second person arguments on the one hand and third person ones on the other. Similar patterns have been attested in Squamish and Lushootseed, the two other languages discussed in Jelinek and Deemers (1983). These two languages show some slight alternations in which arguments are allowed in which constructions.

### 3.1.2 Split Ergativity in Dyirbal

One of the most frequently discussed instantiations of differential subject marking is so-called split ergative marking, a phenomenon found in about a quarter of the world's languages (Dixon 1979, 1994).

Split ergativity is characterized by a situation in which some subjects are marked according to a nominative-accusative system and others by ergative-absolutive cases. In the first system subjects of both intransitive and transitive sentences, since Dixon (1979) traditionally labelled as S and A, receive the same case marking (nominative) whereas the object of a transitive sentence, indicated by O, is marked with accusative, see (7a). In ergative-absolutive systems, however, S and O are grouped together receiving absolutive case and A is marked by ergative as is shown in (7b).



In split ergative languages both the nominative and the ergative system are used for marking the subject. The choice for one system or the other is determined by the semantic features of the subject argument or by other semantic factors. The classical example of a split ergative language with the split based on the semantic features of the subject argument is the Australian language Dyirbal as described by Dixon (1972).

In Dyirbal first and second persons follow the nominative-accusative pattern where third persons pronouns and nouns receive an ergative-absolutive marking, as can be seen from (8) and (9) respectively.

(8) DYIRBAL [Australian; Dixon 1972]

- a.  $\eta$ ada      bani $\eta$ u  
 I.NOM    coming  
 'I am coming.'
- b.  $\eta$ inda       $\eta$ ayguna      balgan  
 you.NOM    I.ACC            hit  
 'You are hitting me.'

(9) DYIRBAL [Australian; Dixon 1972]

- a.  $\eta$ uma            banagan<sup>y</sup>u  
 father.ABS    returned  
 ‘Father returned.’
- b.  $\eta$ uma            yabu $\eta$ gu        buran  
 father.ABS    mother.ERG    saw  
 ‘Mother saw father.’

In the previous sections we saw two ways in which languages can mark their subjects. In the next section I discuss a model that tries to describe some of these strategies that languages use.

### 3.2 An OT-model for Subject Choice: Aissen (1999)

As mentioned at the beginning of this chapter, Judith Aissen did not only develop a system to describe differential object marking, she also made a framework for the description of subject encoding. This system is in many respects quite similar to her system for differential object marking. In the following sections I give an overview of Aissen's subject choice framework (Aissen 1999).

#### 3.2.1 Subjects and Syntactic Markedness

As the starting point of her paper, Judith Aissen uses a slightly adapted version of Silverstein's hierarchy of person/animacy rank (Silverstein 1976), which she combines with the hierarchy of semantic roles. Both hierarchies are given in (10) and (11) respectively.

- (10) local person > 3<sup>rd</sup> pronoun > 3<sup>rd</sup> proper noun > 3<sup>rd</sup> human >  
 3<sup>rd</sup> animate > 3<sup>rd</sup> inanimate.
- (11) Agent > Patient

The association of elements on the scale in (10) with a semantic role of (11) results in marked and unmarked configurations. Silverstein (1976) claims that it is unmarked for elements high on (10) to be agents of transitive propositions and marked to be patients of such propositions. The opposite holds for elements ranked on the lower end of the scale. Again we find in the languages of the world, just as was the case in differential object marking systems, that semantically marked configurations are expressed through morphological complexity. When we look at different languages, we see a number of ways in which they morphosyntactically express this markedness of subject configurations.

- (12) 1. case marking  
 2. direction marking  
 3. voice alternations

In the next sections we will see how these three types of markedness come about. First we shall have to find out which properties are determining subject choice and how we can formalize these properties to make the right predictions.

### 3.2.2 The Dimensions of Subject Choice

#### 3.2.2.1 Universal or Language Specific?

The phenomenon of subject choice has both a language particular dimension and a universal one. When studying natural languages, we find that they differ in which elements they rank, but at the same time that the rankings themselves show no variation. This is illustrated by an example in (13) for the ranking of the elements that are allowed in active clauses in the three Coast Salish languages we already saw in the first section of this chapter.

- (13) Lummi: local > 3  
 Squamish: 2 > 3  
 Lushootseed: no elements ranked

The three languages in our example differ with respect to which elements they rank: Lushootseed, on the one hand, is a language that ranks no elements, Squamish and Lummi on the other hand rank elements, but in different ways. Lummi makes no distinction between first and second person, together called local pronouns, but Squamish does make this distinction. It specifies that only second persons should be ranked higher than third and makes no statement about first persons. Thus, both languages differ in which elements they rank, but they apply the same ranking to the elements they rank: both Squamish and Lummi rank third person at the lower end of the scale, outranked by first and/or second person. This way of ranking elements is found in many languages of the world and is thought to be universal.

Aissen (1999) wants to develop a framework to describe the marking of subjects. This framework should account at the same time for both language particular hierarchies and universal rankings. According to Aissen, Optimality Theory has developed the right devices to solve this problem "by replacing language-particular hierarchies with language-particular rankings of simple, universal constraints." How this is done and what ingredients are needed is the subject of the following sections.

### 3.2.2.2 Relevant Dimensions and their Markedness Reversal

In her analysis of differential object marking systems, Aissen makes use of universal prominence scales, which she assumes to be part of universal grammar as we saw in chapter two. Her analysis of the phenomena involved in the marking of subjects also rests on four such prominence scales, which are given in (14) below. Note that Aissen limits her account to the analysis of pronouns.

- (14) Person scale: local > 3<sup>rd</sup>  
 Role scale: agent > patient  
 Discourse prominence: X > x (X = discourse prominent)  
 Relational scale: subject > nonsubject

Aissen states that these scales are not arbitrary and have been assumed throughout linguistic literature (see Aissen (1999) for references). It is important to note that the scales in (14) do not express markedness themselves, but a ranking. Thus, a local person is not inherently less marked than a third person, but local persons are less marked as subjects and more marked as objects and the opposite holds for third persons. As was the case in differential object marking systems, again we see an instance of markedness reversal in differential subject marking systems (see also section 2.2.2). And again Aissen establishes her analysis on the basis of the alignment of prominence scales. In the current system she aligns the relational scale with the person, role and animacy scale respectively. The constraints that are needed to describe the data are derived by Harmonic Alignment as we will show in the next section.

### 3.2.2.3 Deriving Constraints

In her analysis Aissen wants to characterize the association of the structural position of subject with the dimensions of person, semantic role and discourse prominence. She says that "it is the job of constraint ranking to adjudicate in particular languages between the various dimensions that play a role, crosslinguistically, in subject choice." Before looking at the possible constraint rankings, I show first how the right constraints are derived. As stated above, and as we saw earlier in the case of differential object marking, this is done through the operation of Harmonic Alignment and I will show how this works for each scale separately starting with person.

#### 3.2.2.3.1 Person

In a previous section we came across the person scale (repeated here in (15a)), which itself can be divided into the two separate scales in (15b) and (15c).

- (15) a. local > 3  
 b. 1 > 3  
 c. 2 > 3

When we rank local person above third person, we imply that it also holds that both first and second person separately outrank third person. Similar reasoning can be used for the relational scale in (16a), which can be divided into the two scales in (16b) and (16c).

- (16) a. subject > nonsubject  
 b. subject > object  
 c. subject > oblique

Aissen decomposes the notion of nonsubject into object and oblique, the latter she uses to refer exclusively to the syntactic relation borne by an agent in a passive clause. All the scales in (16) above can be aligned with the ones in (15) resulting in the Harmony scales in (17).

- (17) a. Su/Local > Su/3  
 Su/1 > Su/3  
 Su/2 > Su/3  
 b. Oj/3 > Oj/Local  
 Oj/3 > Oj/1  
 Oj/3 > Oj/2  
 c. Obl/3 > Obl/Local  
 Obl/3 > Obl/1  
 Obl/3 > Obl/2

The Harmony scales in (17) can be turned into constraint subhierarchies by reversing the order and putting an avoid operator '\*' in front of each harmony pair, as is shown in (18) below.

- (18) a. \*Su/3 >> \*Su/Local  
 \*Su/3 >> \*Su/1  
 \*Su/3 >> \*Su/2  
 b. \*Oj/Local >> \*Oj/3  
 \*Oj/1 >> \*Oj/3  
 \*Oj/2 >> \*Oj/3

- c. \*Obl/Local >> \*Obl/3
- \*Obl/1 >> \*Obl/3
- \*Obl/2 >> \*Obl/3

### 3.2.2.3.2 Semantic Role

Through the same procedure as in the previous section we can derive constraints for the association of semantic role and grammatical relation. In this case, however, the relevant relational opposition, according to Aissen, is that between subjects and objects, these being the structural positions relevant for thematic role assignment.

- (19) a. Agt > Pat
- b. Subject > Object

The alignment of these two scales results in the Harmony scales in (20) and the constraint hierarchies in (21).

- (20) a. Su/Agt > Su/Pat
- b. Oj/Pat > Oj/Agt

- (21) a. \*Su/Pat >> \*Su/Agt
- b. \*Oj/Agt >> \*Oj/Pat

### 3.2.2.3.3 Discourse Prominence

The third relevant dimension is that of discourse prominence<sup>5</sup>, on which the unmarked situation for a subject is assumed to be a high prominent (X) discourse participant and for a nonsubject to be a low prominent (x) discourse participant. Again Aissen decomposes the notion of nonsubject into object and oblique resulting in the scales in (22) and (23).

- (22) X > x

- (23) a. Su > Oj
- b. Su > Obl

These two scales are harmonically aligned and turned into constraint subhierarchies.

---

<sup>5</sup> The notion of prominence is defined by Aissen in terms of *attention*, an individual in the center of attention is more prominent than one that is not and *discourse distance*, an individual mentioned in recent, local discourse is more prominent than one not mentioned.

- (24) a.  $Su/X > Su/x$   
 b.  $Oj/x > Oj/X$   
 c.  $Obl/x > Obl/X$
- (25) a.  $*Su/x \gg *Su/X$   
 b.  $*Oj/X \gg *Oj/x$   
 c.  $*Obl/X \gg *Obl/x$

At this point we have derived the constraints relevant for Aissen's analysis, but before we turn to the actual analysis we first have to make some general remarks. First, all the constraints Aissen derives are part of a universal subhierarchy, as already mentioned in section 1.1.1.2. This means that each constraint is in a fixed ranking with respect to the other constraints in the subhierarchy; a ranking that under no circumstances can be altered in a natural language. In this view, linguistic diversity is a result of the interaction of the different subhierarchies.

Secondly, in the next section we will see how this constraint analysis applies to situations in different languages. We will see a different sensitivity to each constraint hierarchy in the different languages we come across.

### 3.2.3 The Expression of Markedness

In the beginning of our discussion of subject choice, we saw that the markedness of subjects can be expressed in various ways. The three main types of markedness are reviewed in the following sections with the corresponding analyses proposed by Aissen (1999).

#### 3.2.3.1 Voice

The passive is considered to be the marked member of the voice alternation pair active-passive. In this section we will see how the proposed analysis describes the facts of the three Coast Salish languages we discussed in section 3.1.1 above.

##### 3.2.3.1.1 Lushootseed

In Lushootseed no restrictions exist for combinations of elements in active clauses. In passive clauses, however, first and second person are excluded as agents. The exact distribution of the elements is shown in (26).

(26)	agt↓ pat→	1	2	3
	1	--	act/*pas	act/*pas
	2	act/*pas	--	act/*pas
	3	act/pas	act/pas	act/pas

For this language Aissen assumes the constraint ranking in (27) below, where \*GR/Pers stands for the constraint hierarchy developed in section 3.2.2.3.1. The constraint \*Obl/Local has been extracted from this hierarchy.

(27) \*Obl/Local >> \*Su/x >> \*Su/Pat >> \*GR/Pers

This constraint ranking excludes passives with local person agents systematically. These configurations are ruled out by \*Obl/Local, and the ranking of \*Su/Pat over \*GR/Pers makes sure that person plays no further role.

Furthermore, with third person agents, the highest ranked constraint is irrelevant and the system favours an active construction, unless the patient has very high discourse prominence. The tableau in (28) shows how the constraint ranking works for a sentence with a third person prominent patient.

(28) LUSHOOTSEED

V(Agt/1/x/, Pat/3/X)	*Obl/ Loc	*Su/x	*Su/Pat	*GR/ Pers
☞ ACTIVE (Agt/Su/1/x/ - Pat/Oj/3/X)		*		**
PASSIVE (Pat/Su/3/X - Agt/Obl/1/x)	* !		*	*

### 3.2.3.1.2 Lummi

In the introduction we already saw that Lummi is quite similar to Lushootseed except that Lummi also imposes restrictions on active clauses as is shown in (29).<sup>6</sup>

(29) agt↓ pat→

	1	2	3
1	--	act/*pas	act/*pas
2	act/*pas	--	act/*pas
3	*act/pas	*act/pas	act/pas

<sup>6</sup> As is mentioned earlier, Aissen restricts her analysis to pronouns. As one might recall from section 2.1.1, active and passive constructions are excluded in some configurations with two third person elements, either pronominal or nominal ones.

Active clauses with a third person agent and a local person patient are excluded. The facts are described by the constraint ranking in (30) where the \*Oj/Local constraint excludes active clauses with local person agents.

(30) \*Obl/Local >> \*Oj/Local >> \*Su/x >> \*Su/Pat >> \*GR/Pers

Again we see that a language reserves the passive for clauses with a high prominent patient. This is illustrated with an example in the tableau in (31).

(31) LUMMI

V(Agt/3/X/ Pat/1/x)	*Obl/ Loc	*Oj/ Loc	*Su/x	*Su/ Pat	*GR/ Pers
ACTIVE (Agt/Su/3/X/ - Pat/Oj/1/x)		* !			*
☞ PASSIVE (Pat/Su/1/x – Agt/Obl/3/X)			*	*	**

### 3.2.3.1.3 Squamish

In Squamish we see the need for a further differentiation between first and second person. Active clauses are only excluded when they have a third person agent in combination with a second person patient. The conditions for passive sentences are exactly the same as for Lushootseed and Lummi. The proposed constraint ranking is presented in (32) with two examples in the tableaux in (33).

(32) \*Obl/Local >> \*Oj/2 >> \*Su/x >> \*Su/Pat >> \*Oj/1

(33) SQUAMISH

V(Agt/3/x/, Pat/2/x)	*Obl/ Loc	*Oj/2	*Su/x	*Su/ Pat	*Oj/1
ACTIVE (Agt/Su/3/x/ - Pat/Oj/2/x)		* !	*		
☞ PASSIVE (Pat/Su/2/x – Agt/Obl/3/x)			*	*	

V(Agt/3/x/, Pat/1/x)	*Obl/ Loc	*Oj/2	*Su/x	*Su/ Pat	*Oj/1
☞ ACTIVE (Agt/Su/3/x/ - Pat/Oj/1/x)			*		*
PASSIVE (Pat/Su/1/x - Agt/Obl/3/x)			*	* !	

We have seen that the three Coast Salish languages show different sensitivity of voice to person. We also saw that all languages discussed here can be captured by the proposed constraints through reranking of the constraints.

### 3.2.3.2 Morphological Markedness

In the case of voice oppositions, we saw that languages choose between two clause types, active or passive, to express the relative markedness of a configuration. In the two other categories, discussed by Aissen (1999), languages use morphological categories, namely case marking and direction marking, to express markedness. Again we see the correlation between a semantically marked configuration and a morphological complex structure. The constraints we have derived up to now express this relative markedness of configurations, but cannot be used to express morphological complexity. As we saw in the case of differential object marking, Aissen also makes use of the constraints ‘Star Zero’ and ‘Star Structure’ (as specified in (34) and (35)) in describing the morphological categories, case marking and direction marking, used in subject choice.

(34) ‘Star Zero’ (\*Ø): penalize zero morphological expression

(35) ‘Star Structure’ (\*STRUC): penalize morphological expression

We can express the coincidence of marked configurations with morphological complexity by making a local conjunction of ‘Star Zero’ and the constraint hierarchies we have derived so far, as is shown in (36) for the hierarchies that are relevant in the following sections.

(36) a. \*Su/3 & \*Ø >> \*Su/2 & \*Ø  
           \*Su/3 & \*Ø >> \*Su/1 & \*Ø  
           \*Su/3 & \*Ø >> \*Su/Loc & \*Ø

- b. \*Oj/2 & \*Ø >> \*Oj/3 & \*Ø  
 \*Oj/1 & \*Ø >> \*Oj/3 & \*Ø  
 \*Oj/Loc & \*Ø >> \*Oj/3 & \*Ø

These constraints do not only express that languages should avoid semantically marked configurations, for instance a third person subject, but also that languages should not leave such marked configurations without morphological marking. According to Aissen, this is exactly what we find in natural languages.

### 3.2.3.3 Case Marking: Split Ergativity

As we saw above in the chapter on differential object marking, it is common for third persons to function as objects of transitive clauses and quite uncommon to be subjects of such clauses. The opposite holds for first and second persons. Case marking patterns in different languages seem to parallel the marked configurations by giving them overt case marking. In this respect Aissen claims that the generalizations in (37) hold and that they can be expressed by the constraint rankings in (38).

- (37) a. If 3<sup>rd</sup> persons objects are case marked, then so are local person objects  
 b. If local person subjects are case marked, then so are 3<sup>rd</sup> person subjects
- (38) a. \*Oj/Loc & \*Ø<sub>c</sub> >> \*Oj/3 & \*Ø<sub>c</sub>  
 b. \*Su/3 & \*Ø<sub>c</sub> >> \*Su/Loc & \*Ø<sub>c</sub>

#### 3.2.3.3.1 Dyirbal

According to Aissen, the case marking system of the Australian language Dyirbal instantiates these observed generalizations quite clearly as is shown in the table in (39).

(39)	M = <i>marked form</i>	M	U	U	M
	U = <i>unmarked form</i>	↓	↓	↓	↓
		ACC	NOM	ABS	ERG
	local subject – 3 <sup>rd</sup> object		S	O	
	local subject – local object	O	S		
	3 <sup>rd</sup> subject – 3 <sup>rd</sup> object			O	S
	3 <sup>rd</sup> subject – local object	O			S

We can see in this figure that in Dyirbal local subjects and third person objects never receive overt case marking, whereas local objects and third person subjects do receive overt case marking. However, the constraints proposed above force overt case marking on all subjects and objects. We saw earlier that this problem is resolved by inserting the constraint ‘Star Structure’ in the constraint hierarchies, resulting in the ranking in (40) below.

$$(40) \quad \{ *Su/3 \ \& \ * \emptyset_c, *Oj/Loc \ \& \ * \emptyset_c \} \gg *STRUC_c \gg \{ *Su/Loc \ \& \ * \emptyset_c, *Oj/3 \ \& \ * \emptyset_c \}$$

How this constraint ranking works for a transitive sentence can be seen on the basis of the tableau in (41).

(41) DYIRBAL

V(Agt/1, Pat/3)	*Su/3 & * $\emptyset_c$	*Oj/ Loc & * $\emptyset_c$	*STRUC <sub>c</sub>	*Su/ Loc & * $\emptyset_c$	*Oj/3 & * $\emptyset_c$
Agt/Su/1/CASE - Pat/Oj/3			* !		*
Agt/Su/1/ - Pat/Oj/3/CASE			* !	*	
$\emptyset$ Agt/Su/1/- Pat/Oj/3				*	*
Agt/Su/1/CASE - Pat/Oj/3/CASE			*!*		

As we can see, the unmarked configuration of a transitive clause with a local subject and a third person object results in an argument structure with no overt case marking. The system proposed by Aissen seems to work well for the case marking patterns in Dyirbal transitive clauses and according to her this system can be adjusted to describe patterns found in other Australian languages.

### 3.2.3.4 Direction

Direction marking is the third category discussed by Aissen through which the semantic markedness of a configuration can be expressed morphologically. According to Aissen, direction systems are based on the same markedness relations as split ergative systems, but they express this markedness not through dependent marking, i.e. morphological marking on the arguments, but through head marking, i.e. marking on the predicate.

The markedness of a configuration in a direction marking language like Nocte is expressed by an overt mark on the predicate. Aissen’s idea is that the

constraints used for the description of split ergative systems can also be used for direction systems. The difference, however, is that in the distribution of the categories direct and inverse in Nocte, reference is required to both object and subject properties as is shown in (42)

- (42) *Distribution of Direction Marking in Nocte:*  
 a. direct: su – oj: 1-2, 1-3, 2-3, 3-3  
 b. inverse : su – oj: 2-1, 3-1, 3-2

We see that the inverse form is used in the most marked clauses, i.e. sentences in which the subject is lower on the scale in (10) above than the object. This distribution can be modelled in Aissen's system by making a local conjunction of the constraint hierarchies in (18a) and (18b) above.

- (43) a. \*Su/3 >> \*Su/Loc  
 b. \*Oj/Loc >> \*Oj/3  
 c. \*Su/3 & Oj/Loc >> {Su/3 & \*Oj/3, \*Su/Loc & \*Oj/Loc} >>  
 \*Su/Loc & \*Oj/3

This hierarchy in its turn can be conjoined with the constraint 'Star Zero' (with the subscript 'D' for direction marking), resulting in (44).

- (44) \*Su/3 & Oj/Loc & \*Ø<sub>D</sub> >> {Su/3 & \*Oj/3 & \*Ø<sub>D</sub>, \*Su/Loc & \*Oj/Loc & \*Ø<sub>D</sub>} >> \*Su/Loc & \*Oj/3 & \*Ø<sub>D</sub>

As we saw before, the expression of a morphological category can be described in terms of an interaction between the constraints 'Star Zero' and 'Star Structure'. We can describe the distribution of direction marking in Nocte by interpolating \*STRUC<sub>D</sub> in the constraint hierarchies in (44) resulting in the constraint ranking in (45) below.

- (45) {\*Su/3 & Oj/Loc & \*Ø<sub>D</sub>, \*Su/2 & Oj/1 & \*Ø<sub>D</sub>} >> \*STRUC<sub>D</sub> >>  
 \*GR/Pers & \*Ø<sub>D</sub>

Up to now, I have given an objective overview of Aissen's system and shown on which formalisms it rests and which constraints are used. In the last part of this chapter I address some of the problems Aissen's system is opposed with.

### 3.3 Discussion

Just as was the case with Aissen's model of differential object marking, her model of formalizing phenomena involved in subject marking is appealing

because of its simplicity and straightforwardness. Nevertheless, again there are some problems with this analysis which I will discuss in the remainder of this chapter.

Let me start by saying that the matters involved in subject marking are likely to be (far) more complicated than the facts discussed earlier with regard to the marking of direct objects. In the discussion, I will therefore not concentrate on phenomena such as topicalization, focus and intonational patterns, phenomena Aissen did not attempt to describe, but I will rather restrict myself to the role of case marking in relation to subject arguments: case marking, after all, being the main topic of this thesis.

### 3.3.1 Local Conjunction of $*\emptyset_c$

As pointed out in the discussion of Aissen's system of differential object marking, theory internal motivation for the local conjunction of  $*\emptyset_c$  is lacking. This problem is observed by Aissen herself and will not be discussed here any further. For a discussion I refer to Aissen (1999), section 2.3.1 of the previous chapter, and to the first section of the next chapter.

### 3.3.2 Differential Subject Marking in Transitive Constructions

In this section I want to discuss some case marking phenomena on subjects that might form a problem for the analyses Aissen proposed. I start with an overview of split ergativity related problems and then extend the discussion to case alternations on subjects in general.

As is shown in the previous sections, Aissen's system is able to describe split ergative systems in which the split is based on semantic features, such as in the case of Dyrbal. Dixon (1979), however, has pointed out that there are also split systems based on the semantic nature of the verb and splits that depend on the aspect and/or tense of the predicate or sentence. The first type of split is found in languages generally referred to as active/stative languages, such as Bats, Eastern Pomo and Guaraní. This kind of split only occurs with intransitive predicates and I discuss them in the next section.

The second type of split, those in which subjects receive different case marking depending on the tense or aspect of the sentences, does appear in transitive constructions and will be discussed here in some more detail.

A famous example of a language, which is thought to have a tense governed split, is Hindi. In this language "a correlation holds between ergative case marking on the one hand and the form of the main verb in simple past and perfective aspect on the other." (Mohan 1990: 92). Thus, what we find in Hindi is that subjects receive ergative case in perfective aspect and nominative in non-perfective aspect, as can be seen from the examples in (46) and (47).

- (46) HINDI [Indo-Aryan; Mohanan 1990]
- a. raam-ne      ravii-ko      piitaa  
 Ram.ERG      Ravi.ACC      beat-PERF  
 ‘Ram beat Ravi.’
- b. raam      ravii-ko      piitegaa  
 Ram.NOM      Ravi.ACC      beat-FUT  
 ‘Ram will beat Ravi.’
- (47) HINDI [Indo-Aryan; Mohanan 1990]
- a. raam-ne      ravii-ko      piitaa      hai  
 Ram.ERG      Ravi.ACC      beat-PERF      be-PRES  
 ‘Ram has beaten Ravi.’
- b. raam      ravii-ko      piittaa      hai  
 Ram.NOM      Ravi.ACC      beat-HAB      be-PRES  
 ‘Ram beats Ravi.’

A similar but more complex system of a tense split ergative language is found in Georgian (Harris 1981).

- (48) GEORGIAN [Caucasian; Harris 1981]
- a. glexi      tesavs      siminds  
 peasant.NOM      he-sows-it-I-I      corn.DAT  
 ‘The peasant is sowing the corn.’ [non-perfect]
- b. glexma      datesa      simindi  
 peasant.ERG      he-sowed-it-II-I      corn.NOM  
 ‘The peasant sowed corn.’ [aorist]
- c. glexs      dautesavs      simindi  
 peasant.DAT      he-sowed-it-III-I      corn.NOM  
 ‘The peasant has sown corn.’ [perfect]

Where in Hindi the split is determined by perfective aspect, in Georgian it depends on the tense class of the verb. There are three tense classes in Georgian, which can roughly be equated with non-perfect, aorist and perfect tense and which mark subjects with nominative, ergative and dative respectively.

This kind of tense split systems in which the split is governed by tense and/or aspect oppose a real problem to Aissen's model of subject marking, in which only splits depending on the semantic features of the subject argument can be described. The Hindi and Georgian data make clear that subjects receive different case marking even though their semantic features remain constant.

This brings us to a more general problem of case alternations on subjects. As was pointed out with respect to Aissen's model of differential object marking, the

system can only distinguish between marking objects or not, but it cannot distinguish the different kinds of marking an object may receive. The same problem holds for her model of subject choice, this system neither can make a distinction between the different case markings a subject may receive. We do, nevertheless, find languages in which one and the same argument shows alternation in the case marking it receives, as is illustrated by the examples in (49) and (50) below.

(49) LEZGIAN [Caucasian; Polinskaja and Nedjalkov 1987]

- a. juldas-di    zi    balklan    k'ena  
 'The friend.ERG killed my horse.' [on purpose]  
 b. juldas-di-wai    zi    balklan    k'ena  
 'The friend.ADEL killed my horse.' [accidentally]

(50) HINDI [Indo-Aryan; Butt and King (in press)]

- a. nadya-ne    zu    ja-na    hai  
 Nadya.ERG    zoo.OBL    go    be-PRES  
 'Nadya wants to go to the zoo.'  
 b. nadya-ko    zu    ja-na    hai  
 Nadya.DAT    zoo.OBL    go    be-PRES  
 'Nadya has to go to the zoo.'

The examples show both in Lezgian and in Hindi an alternation between ergative and some other case with a concomitant alternation in interpretation. This kind of alternation facts must be accounted for in a model that wants to describe differential subject marking across languages. Aissen's system in the present form seems incapable of doing so.

### 3.3.3 Differential Subject Marking in Intransitive Constructions

In the previous section we have concentrated on split systems in transitive constructions, but we mentioned that there are also split systems in intransitive constructions. The main type of split is the so-called active/stative split, which is determined by the semantic properties of the verb (Mithun 1990, Van Valin 1992). Traditionally these active/stative languages are divided into two subgroups (Dixon 1979, 1994), one are the Split-S systems, in which the set of intransitive predicates is divided into two groups, one with ergative marking on the subject and the other with nominative marking.

The second subgroup of active/stative languages is formed by the Fluid-S languages, in which an alternation exists in the marking of the subject of a predicate. Depending on the control the subject argument has over the action denoted by the predicate, the subject argument receives absolutive or ergative

marking. Bats, or Tsuva-Tush, is an example of a language that is labelled as Fluid-S (Holisky 1987). In the example in (51) we see that the subject of one and the same predicate is marked differently depending on whether it has control over the action of 'drowning'.

(51) BATS [Caucasian; Polinskaja and Nedjalkov 1987]

- a. as           waxi  
 I.ERG       drowned  
 'I drowned myself.' [on purpose]
- b. so           waxi  
 I.ABS       drowned  
 'I got drowned.' [accidentally, involuntarily]

We find similar case marking patterns in intransitive sentences of languages that are not considered to belong to the group of languages with an active/stative system. Both Tibetan and Hindi, for instance, show differential case marking on the subjects of a small group of verbs as illustrated for the verb 'cough' in Hindi and 'sneeze' in Tibetan. The examples are given in (52) and (53) respectively.

(52) HINDI [Indo-Aryan; Butt and King (in press)]

- a. ram           k<sup>h</sup>asa  
 Ram.NOM   coughed  
 'Ram coughed.' [accidentally]
- b. ram-ne       k<sup>h</sup>asa  
 Ram.ERG   coughed  
 'Ram coughed.' [on purpose]

(53) LHASA TIBETAN [Tibeto-Burman; DeLancey 1985]

- a. na    habdri   cig   rgyab-byun  
 I.ABS sneeze   a    throw-PERF  
 'I sneezed.' [accidentally]
- b. na-s   habdri   cig   rgyab-pa-yin  
 I.ERG sneeze   a    throw-PERF/VOL  
 'I sneezed, I mimicked a sneeze.' [on purpose]

These kinds of case alternations fall beyond the scope of Aissen's model that primarily was meant for case marking patterns in transitive sentences, but still if we want to develop a model for case marking on subjects, these facts should be included.

### 3.4 Concluding Remarks

In this chapter we looked at phenomena involved in the marking of subjects in the world's languages. We saw that languages have many different ways of encoding their subjects among which we find case marking, direction marking and voice alternations. Judith Aissen (1999) developed a model to formalize these three ways of marking subjects of transitive sentences. I reviewed her model and discussed some of the problems her formalization is opposed with. As with her model of differential subject marking, her subject choice model has difficulties with handling languages in which the differential marking is not triggered by semantic features of the arguments.

In the next chapter I will develop an alternative analysis for the facts we saw in the last two chapters in order to describe the case alternations on subject and objects in a uniform way. Besides alternations triggered by the semantic configuration of the arguments, this model also tries to capture alternation based on other semantic features.

## CHAPTER 4

# Modelling Differential Case Marking

In the previous two chapters I reviewed two formal models that try to describe the phenomena involved in subject and object coding. I also discussed some of the shortcomings of the two models, some of which will be discussed in this chapter again.

In this chapter I take a closer look at the semantics and morphosyntax of differential case marking. I focus on the markedness of meaning and form and how they are related.

I introduce the notion of Minimal Semantic Distinctness as one of the main triggers for differential case marking. This principle of semantic distinctness forms the basis for a bidirectional Optimality Theoretic analysis of differential case marking. In this new approach markedness of form is linked to markedness of meaning in a natural way.

### 4.1 Interactions of Aissen's models

#### 4.1.1 The implicit models in Aissen's frameworks

In the previous two chapters we saw two models that describe phenomena involved in the morphological and syntactic realization of transitive sentences. One model was concerned with the encoding of subjects and the other with the encoding of objects. In transitive constructions, however, both the subject and the object are realized and in order to describe these kinds of constructions, we need a model that deals with the marking of both subject and object. This raises the question whether it is possible to integrate the two distinct models Aissen developed in order to describe the facts involved in transitive constructions.

As we have seen in the discussion of the two models, both systems use the same mechanisms to derive constraints for describing the facts under discussion. We could say that the conception of subject and object marking is quite similar in both models: both rely on the alignment of certain semantic features with grammatical function in order to arrive at a conception of notions such as '(un)marked object' and '(un)marked subject'. The models, nevertheless, differ in which semantic features are thought to be relevant in determining the

markedness of subjects and objects. In (1) and (2) below the, in Aissen's view, relevant semantic features for subjects and objects are repeated.

- (1) Subject: - person  
 - semantic role  
 - discourse prominence
- (2) Object: - animacy  
 - definiteness

We see that in determining what is the unmarked configuration for subjects more features are thought to be relevant than in the case of objects. This observation is not totally accurate, because the derivation of constraints is done through alignment of these features with the so-called relational scale repeated in (3) below.

- (3) *Relational Scale:*  
 Subject > Object

Recall from the first chapter, where the operation Harmonic Alignment was introduced, that through the alignment of two scales we derive constraints for all combinations of elements on the two scales. In the case of, for example, the alignment of the person scale in (4) with the relational scale in (3), we will not only derive the constraints used in Aissen's model of subject choice, repeated in (5), but also the extra set of constraints in (6) dealing with object configurations.

- (4) *Person Scale:*  
 Local > 3<sup>rd</sup>
- (5) *Subject Constraints:*  
 \*Su/3<sup>rd</sup> >> \*Su/Loc
- (6) *Object Constraints:*  
 \*Oj/Loc >> \*Oj/3<sup>rd</sup>

Something similar holds when we derive constraints in the object model through, for instance, alignment of the definiteness scale in (7) and the relational scale in (3). Not only do we derive constraints on object configurations, shown in (8), but also on subject configurations as can be seen in (9).

(7) *Definiteness Scale:*

Pronoun > Proper Noun > Definite > Indefinite Specific >  
Indefinite Nonspecific

(8) *Object Constraints:*

\*Oj/Pro >> \*Oj/PN >> \*Oj/Def >> \*Oj/Indef Spec >>  
\*Oj/Indef Nspec

(9) *Subject Constraints:*

\*Su/Indef Nspec >> \*Su/Indef Spec >> \*Su/Def >> \* Su/PN >>  
\*Su/Pro

In other words, an implicit model of object marking emerges in the formalization of subject choice patterns and in her differential object marking model Aissen generates an implicit model of subject choice. The problem with these implicit models is that they are not equivalent to the actual models Aissen has developed to describe these phenomena. The object model that is implicit in her model of subject marking uses more and different features than her actual model for object marking and the subject model implicit in the differential object marking system uses less and still different features than Aissen's subject system we saw in chapter 3.

Thus, instead of developing two models, one for object marking and one for subject marking, Judith Aissen developed two pairs of models with different predictions made by the two models within each pair. For instance, the object model implicit in Aissen subject choice model uses semantic features, which are not taken into account in her differential object model. The question is whether the implicit models are capable at all of making the right predictions about the phenomena involved, being so different themselves from the models explicitly developed by Aissen (1999, 2000) that proved to be relatively successful.

One could question whether the constraints of these implicit models are a problem at all. Of course, the constraints are a by-product of the operation of Harmonic Alignment, but this does not mean that they are important constraints. One could argue that they are present in every language, but are ranked very low, below the constraints derived in the actual model and therefore they are inactive.

This argument, however, does not take away the problem that it is very uneconomical to have two sets of constraints of which only one set active. We should rather aim at a model that formalizes the marking of subjects and objects in a uniform way.

#### 4.1.2 Subject - Object Dependencies

In her analysis of differential object marking systems as discussed in chapter 2, Judith Aissen relies heavily on the observation in Comrie (1989) about the most natural kind of transitive constructions.<sup>7</sup> As we saw in chapter 2, according to Comrie, the following generalization seems to hold:

“... the most natural kind of transitive construction is one where the A is high in animacy and definiteness, and the P lower in animacy and definiteness; and any deviation from this pattern leads to a more marked construction.”

Aissen attempts to formalize this generalization by deriving constraints that morphologically mark objects that have drifted away from what is thought to be the prototypical configuration for direct objects, that is, low degree of both animacy and definiteness. Aissen’s notion of typical object is based on the notion of markedness reversal, which states that what is unmarked for subjects is marked for objects and vice versa. In her paper on differential object marking (Aissen 2000), Aissen derives the typical configuration of direct objects, i.e. inanimate and indefinite, from the following quote from Comrie (1979):

“In natural languages, certain grammatical relations tend to be characterized by certain features, in particular [that] subjects tend to be definite, animate, and topic (thematic); while direct objects tend to be indefinite, inanimate and rhematic” (Comrie 1979: 19, quoted in Aissen 2000)

The tendency for objects to be indefinite, inanimate and rhematic as noted by Comrie (1979) has been reformulated by Aissen into the typical configuration for direct objects. Comrie, however, also claimed that:

“In particular, as noted by DeLancey, and also by Hopper & Thompson (1980), it is misleading to claim that Ps are typically inanimate/indefinite, rather than just less animate/definite than As.”  
(Comrie 1989: 136)

In formalizing Comrie’s generalization, Aissen thus uses a notion of typical object which is different from Comrie’s own notion. Where in Comrie’s view

---

<sup>7</sup> In her discussion of subject choice, Aissen also implicitly assumes Comrie’s notion of natural transitive construction.

objects are lower in animacy and definiteness than subjects, i.e. objects tend to be inanimate and indefinite, in Aissen's framework the unmarked configuration for direct objects is to be inanimate and indefinite.

With this notion of typical object in mind, Aissen formalizes Comrie's generalization of the natural transitive construction in such a way that only deviations from the prototypical configuration of object features results in the expected extra marking of the structure. The Spanish sentence in (10) is an example of a direct object that deviates from the typical configuration in its animacy and definiteness features.

(10) SPANISH [Romance; Hopper and Thompson 1980]

Busco a mi amigo  
 seek.1SG to my friend  
 'I am looking for my friend.'

In Aissen's framework the direct object *mi amigo* receives the object marker *a* because it deviates from the typical inanimate and indefinite object. When we would leave the object in (10) unmarked, this would violate the high-ranked constraint \*Oj/Hum-Def & \*Ø<sub>c</sub>. This constraint tells us to case mark an object that has deviated from its typical configuration.

As the reader might recall from chapter 2, not only a deviation in object features results in differential object marking, but also a deviation from the prototypical subject features, i.e. definite and animate, can result in a morphological mark of the object. The examples in (11) show how this works in Malayalam.

(11) MALAYALAM [Dravidian; Asher and Kumari 1997]

a. avan pustakam vaayiccu  
 he book read-PAST  
 'He read the book.'

b. kappal tiramaalakaḷe bheediccu  
 ship wave-PL.ACC split-PAST  
 'The ship broke through the waves.'

In the example in (11a) we have both a prototypical subject and prototypical object and we find no marking of the object. In the example in (11b), however, we have a non-prototypical subject that is inanimate and a prototypical object that is also inanimate. In terms of Comrie's generalization we can say that this configuration is deviating from the natural transitive configuration, because the object is not lower in animacy than the subject. This results in a more marked structure, hence the accusative marking on the object.

In Aissen's framework, however, we cannot account for the morphological marking on the object in (11b). If we were to say that the marking in (11b) is the result of the violation of the constraint  $*Oj/Inan$  &  $*\emptyset_C$ , we would have trouble explaining why the object in (11a), which also violates this constraint, does not receive accusative case. This inconsistency in the model is due to the fact that as a result of the local conjunction of 'Star Zero' with the object hierarchy the system is in a way too explicit about where and due to what reason the morphological marking should occur. As Comrie's generalization states a deviation from the pattern that the object is lower in animacy and definiteness than the subject leads to a more marked construction. In terms of Aissen's prototypical object en subject, this means that both a deviation from the object towards the subject as well as a deviation from the subject towards the object can lead to a marked construction. In Aissen's framework, nevertheless, only a situation in which the object moves towards the subject results in the extra marking of the structure. This is, on the one hand, the result of the fact that her system only uses constraints on object configurations and, on the other hand, the result of the local conjunction of the constraint 'Star Zero' with these object constraints. Due to these two factors only deviations in the prototypical configuration of the object results in the extra marking of the structure.

In order to truly formalize Comrie's generalization, we need constraints on the configuration of both subjects and objects and we need to separate the constraint that forces extra morphological marking on the structure from the constraints on the semantic configurations of both objects and subjects.

Thus, we need a model which evaluates both subject and object properties, and which, on the basis of this evaluation, decides to assign morphological marking to the construction or not.

## 4.2 Transitivity and the Unmarked Object

In the discussion of Aissen's model for differential object marking at the end of chapter 2 we already touched upon the contradiction in the views on prototypical transitivity as advocated by Aissen and Comrie on the one hand and the view of high transitivity put forward by Hopper and Thompson (1980) on the other hand. In the previous section I discussed Comrie's natural transitive construction. In this section I will discuss Hopper and Thompson's Transitivity Model and I examine whether the two views are really that different.

### 4.2.1 The Transitivity Parameters of Hopper and Thompson

After having studied the grammars of many different languages, Hopper and Thompson (1980) stated that the facts involved in the marking of the degree of transitivity could be captured in ten parameters, which are listed in (12) below.

(12) *Hopper and Thompson's Transitivity Parameters*

		<b>High</b>	<b>Low</b>
A	participants	two or more	one
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

The individuation of the object is characterized by features such as definiteness, animacy and referentiality, as is shown in (13).

(13) *Individuation of the object: Hopper and Thompson (1980)*

<b>Individuated</b>	<b>Non-individuated</b>
proper	common
human, animate	inanimate
concrete	abstract
singular	plural
count	mass
referential	non-referential

In Hopper and Thompson's view a high transitive construction is a structure with a definite and animate object, a conception totally opposite to Comrie's notion of a natural transitive construction. According to Comrie's view a natural transitive construction is characterized by objects that are lower in animacy and definiteness than subjects and he claims that in general one could say that objects tend to be inanimate and indefinite.

The interaction between the transitivity parameters in (12) results in what is called 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 [12]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)

So what Hopper and Thompson state is essentially the view that a clause, which is high in transitivity is more likely to receive extra marking of transitivity, either morphosyntactic or semantic, than a clause lower in transitivity. Again this is not in line with the statement Comrie (1989) made on the markedness of structure, that is, a configuration which deviates from the natural transitive construction is more marked than the configuration that resembles the natural situation.

#### 4.2.2 Transitive Constructions

With two conceptions of transitivity which are so divergent, the question arises which of them is more successful in describing the linguistic data from which these two conceptions emerged. This section will concentrate on the discussion of two pairs of linguistic structures and their treatment in Hopper and Thompson's model on the one hand and Comrie's model on the other.

First consider a minimal pair of sentences from Spanish in (14) below.

- (14) SPANISH [Romance; Hopper and Thompson 1980]
- a. Celia quiere mirar un bailarín  
Celia wants watch.INF a ballet dancer  
'Celia wants to watch a ballet dancer.' (nonspecific)
  - b. Celia quiere mirar a un bailarín  
Celia wants watch.INF to a ballet dancer  
'Celia wants to watch a ballet dancer.' (specific)

On the morphosyntactic level the two sentences differ in the absence and presence of the object marker *a*. On the semantic level this morphosyntactic difference is accompanied by a difference in the referentiality of the object *bailarín*: in the a-example Celia just wants to watch some ballet dancer, whereas in (14b) she wants to watch a specific ballet dancer.

According to Hopper and Thompson the presence of the object marker *a* in (14b) is a reflection of the fact that (14b) has a higher degree of transitivity. This higher degree of transitivity is due to the fact that *bailarín* in this sentence is referential and therefore can be considered having a higher degree of individuation, resulting in higher transitivity than the sentence with the non-referential object in (14a). Comrie would state the opposite, saying that (14b) deviates from the prototypical configuration because of the referentiality of the

object in (14b). The specific reading of both the object and the object makes that the object is no longer lower in specificity than the subject. This deviation of the natural transitive configuration found in (14b) results in more a marked structure reflected in the use of *a*. Both views thus have an explanation for the structural differences in (14), although they crucially differ.

This, however, does not seem to hold for the Chukchee examples in (15).

(15) CHUKCHEE [Paleo-Siberian; Hopper and Thompson 1980]

- a. Tumg-e      na-ntəwat-ən      kupre-n  
 friends.ERG   set-TRANS      net.ABS  
 ‘The friends set the net.’
- b. Tumg-ət      kopra-ntəwat-gʔat  
 friends.NOM   net-set-INTR  
 ‘The friends set nets.’

Again Hopper and Thompson state that the high transitive construction, i.e. example (15a) with the referential object, is accompanied by overt transitive marking. The non-referential counterpart in (15b), on the other hand, cannot be considered a transitive construction formally because of the presence of the intransitivizing suffix *gʔat* and the incorporation of the object into the verb. Again we see a relation between high transitivity and morphosyntactic marking.

Recall from the discussion at the end of chapter 2, that Comrie's approach has difficulty in describing such noun-incorporation data as presented in (15b). According to Comrie the sentences in (15) both resemble the natural transitive configuration, but one, (15a), is analyzed as formally transitive and the other, (15b), as formally intransitive. There is no way in which this approach can account for the difference in structure unless we claim that the intransitive construction is formally less marked than the transitive construction in (15a).

As we will see in the next section this is the point where we can begin to align Hopper and Thompson's Transitivity Model with Comrie's natural transitive configuration.

#### 4.2.3 Markedness of Structure

As pointed out in the previous section, this section is concerned with aligning Hopper and Thompson (1980) and Comrie (1989). Again the discussion will focus on the two sets of examples we saw in the previous section.

When discussing the two Chukchee examples we saw in (15) above, Hopper and Thompson (1980) note that one of the four morphosyntactic signals of the high transitivity of the a-example is the fact that V and O are marked as separate words. In contrast, the low transitive b-example is morphologically less marked through the incorporation of O into V. In other words, the b-example is

morphologically less marked than the a-example. This is a view that is advocated by Comrie (1989) as well. So it seems that Hopper and Thompson and Comrie are more in line with each other than one might think at first sight. In the remainder of this section I will develop this view further.

#### 4.2.3.1 Semantic Transitivity

The main hypothesis I will defend is that the Spanish structures in (14) and the Chukchee ones in (15) are essentially the same if we consider them to be language particular markedness reflections of an abstract semantic transitive predicate structure.

Let us first consider the Spanish and Chukchee examples (14a) and (15b), repeated below for convenience as (16) and (17).

- (16) SPANISH [Romance; Hopper and Thompson 1980]  
 Celia quiere mirar un bailarín  
 Celia wants to-watch a ballet dancer  
 ‘Celia wants to watch a ballet dancer.’ (nonspecific)

- (17) CHUKCHEE [Paleo-Siberian; Hopper and Thompson 1980]  
 Tʉm-g-ət kɔpɾa-ntəwat-gʔat  
 friends.NOM net-set-INTR  
 ‘The friends set nets.’

Both examples have a specific subject and a nonspecific object. We could therefore say that both sentences are morphological realizations of the same abstract predicate structure given in (18).<sup>8</sup>

- (18)  $P(\alpha_{\text{SPEC}}, \beta_{\text{NSPEC}})$

If we adopt Comrie’s view of a natural transitive configuration, then the semantic transitive predicate structure in (18) is a close approximation of this transitive prototype. We would expect a semantic predicate structure that deviates from the one in (18) to result in a more marked structure.

Let us now look at the two other Spanish and Chukchee examples we already saw in (14b) and (15a) above, repeated here in (19) and (20).

- (19) SPANISH [Romance; Hopper and Thompson 1980]  
 Celia quiere mirar a un bailarín  
 Celia wants to-watch to a ballet dancer

---

<sup>8</sup> I leave animacy features out of the discussion because they are not relevant here.

'Celia wants to watch a ballet dancer.' (specific)

- (20) CHUKCHEE [Paleo-Siberian; Hopper and Thompson 1980]  
 Tumg-e        na-ntəwat-ən    kupre-n  
 friends.ERG set-TRANS        net.ABS  
 'The friends set the net.'

The sentences in (19) and (20) also have a specific subject but differ with respect to the examples in (16) and (17) in that they have a specific object. The two morphological structures in (19) and (20) can be said to be realizations of the semantic transitive predicate structure in (21) below.

- (21)  $P(\alpha_{SPEC}, \beta_{SPEC})$

The predicate structure in (21) does not satisfy Comrie's natural transitive configuration, because the subject and the object have the same degree of specificity. If we then take Comrie's view to be correct, the structures in (19) and (20) must be more marked than the ones in (16) and (17). The question then arises what we consider to be a marked structure and what an unmarked one. Let us adopt the notion of Markedness of Structure as stated in (22).

- (22) MARKEDNESS OF STRUCTURE: A structure (a) is marked with respect to a structure (b) if (a) exposes more morphosyntactic structure than (b).

With this notion of markedness as our guide let us see whether the morphosyntactic realizations (19) and (20) of the deviating semantic structure in (21) are indeed more marked than their counterparts in (16) and (17). For the difference between (16) and (19) it is quite easy to decide that (19) is more marked than (16) due to the presence of the object marker *a*. So Spanish indeed realizes a structure that is morphosyntactically more marked when the semantic structure is more marked.

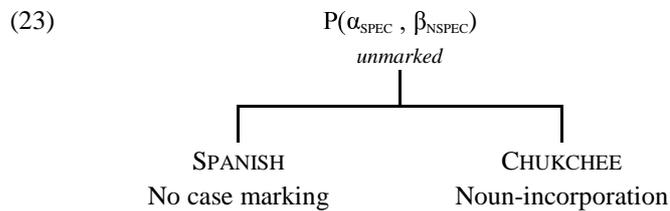
It is more difficult to assess this for the Chukchee data. Nevertheless, Hopper and Thompson provide a clue by stating that the high transitive structure in (20) receives more marking due to the fact that it realizes V and O as separate words. The opposite seems to hold for the low transitive structure, i.e. the noun incorporated structure in (17), which is thought to be a less marked configuration than its counterpart with a separate object, due to the fact that in (20) O and V are realized as a single morphosyntactic unit. The Chukchee examples thus also constitute evidence for Comrie's claim that an unmarked semantic structure is paralleled by an unmarked morphosyntactic structure. The consequence of this claim is, however, that we accept a morphosyntactically intransitive structure to

be a realization of a semantically transitive configuration. As I will show in the next section this should not be considered a problem at all.

#### 4.2.4 Language Particular Markedness

If we want to be able to describe the case marking distributions discussed in the preceding part of this thesis, we must start by stating what semantic structures form the basis for the morphosyntactic structures we study. I think the most promising view is one in which deviations in semantic structures are taken as the basis for morphological alternations. In order to do so we must first determine how the relation between the so-called transitive semantic prototype and the morphological patterns in a specific language is established.

If we take Comrie's viewpoint to be correct, the semantic predicate structure in (18) above resembles the prototypical unmarked transitive configuration. The figure in (23) shows how this semantic structure is realized in Spanish and Chukchee.



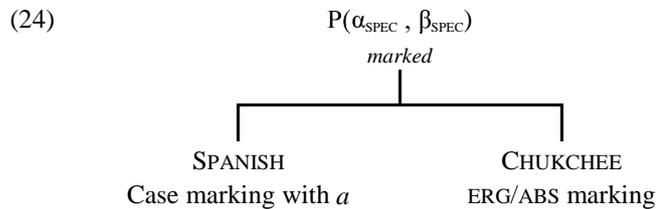
The figure in (23) shows that the structures in (16) and (17) above, although different as they are at first sight, are similar on a more abstract level, i.e. what is realized as a structure without case marking in Spanish is equivalent to a noun-incorporating structure in Chukchee. They both are the language specific unmarked structures to represent the unmarked transitive configuration in (18). Thus, we could say that noun incorporation is a specific instantiation of differential object marking: some languages differentiate between their direct objects through means of case marking whereas others employ noun incorporation to do the same thing.

The consequence of this view is that we consider constructions that are formally intransitive, as example (17) shows for Chukchee, to be realizations of a semantically transitive configuration. In this light, let us consider a quote from Baker (1988) on the transitive status of noun incorporated structures:

"Hence, verbs with incorporated objects in Mohawk and Southern Tiwa continue to be morphologically transitive, whereas those in Eskimo are morphologically (although not semantically or syntactically) intransitive." (Baker 1988: 126)

Baker (1988) thus also claims that noun incorporating structures, although they may be morphologically marked as intransitives, are still transitive on the semantic level. I will follow this viewpoint in the remainder of this thesis.

If we extend the view of language particular marking strategies to the realization of the semantic predicate structure in (21), we can represent the two language specific realizations as in (24).



In both languages we see that a marked semantic structure results in a marked morphological realization. The idea of semantic predicate structures that project into language specific markedness structures will prove to be a fruitful starting point for a model of differential case marking.

In this section I have tried to align Comrie's and Hopper and Thompson's ideas on transitivity by showing that both have the same descriptive power for the data examined. If we adopt the views put forward in this section, then Comrie's conception is after all able to describe noun-incorporation facts. Although both approaches seem to have the same predictive power, they start from a totally different conception of what is a transitive construction. As I mentioned before, I follow Comrie's conception of prototypical transitive construction essentially because it is an iconic approach to the data: a semantically marked structure is signalled by a morphologically marked realization. Hopper and Thompson's conception, by contrast, can be characterized as an anti-iconic view because the unmarked high transitive configuration is realized by a marked morphological structure. As we will see, however, we need the insights reached by Hopper and Thompson to develop a model that can describe case alternation data adequately.

#### 4.3 Semantic Distinctness as a Trigger for Case Marking

In this section I develop a view on what functions as a trigger for differential case marking by using Comrie's notion of natural transitive construction and filling it in with parameters used by Hopper and Thompson (1980). The reason why I only look at differential case marking systems is that in these systems semantic features are clearly determining factors whereas in systems, which

assign case to all arguments, the assignment of case seems to be fully determined by the semantic role of the arguments with no influence from semantic features such as animacy and definiteness. Latin is a language in which the distribution of case is determined by the semantic roles of the arguments. The examples in (25) show how the Latin system works: nominative is always assigned to the subject, accusative to the direct object, dative to the indirect object.<sup>9</sup>

- (25) LATIN [Indo-European; Rotteveel-Mansveld & Waleson 1968]
- a. Pater epistulam scribit  
 father.NOM letter.ACC write.3SG  
 ‘Father writes a letter.’
- b. Regina ius et libertatem civibus  
 queen.NOM law.ACC and freedom.ACC citizens.DAT  
 dare debet  
 give.INF must.3SG  
 ‘A queen should give law and freedom to her citizens.’
- c. Aestate sol iam ante meridiem calidus est  
 summer.ABL sun.NOM already before noon.ACC hot is  
 ‘In summer the sun is already hot before noon.’

In the remainder of this thesis I only look at languages in which case marking is determined by semantic features other than semantic role. Central to the view developed here is the notion of minimal semantic distinctness which I will define first.

#### 4.3.1 Minimal Semantic Distinctness

In chapter 2 we saw that the Dravidian language Malayalam normally employs case marking both to objects that are animate and to inanimate objects of worship. However, we also saw that it is possible to assign accusative case to inanimate objects if the subject is inanimate too, as is the case in (26).

- (26) a. kappal tiramaalaka|e bheediccu  
 ship wave-PL.ACC split-PAST  
 ‘The ship broke through the waves.’
- b. tiramaalaka| kappaline bheediccu  
 wave-PL ship.ACC split-PAST  
 ‘The waves split the ship.’

---

<sup>9</sup> There are also examples of structures that deviate from these standard patterns. The use of a dative subject with gerundivum constructions is an example of this.

These kinds of case patterns lead us to the conclusion that not only when the object resembles the subject case marking is employed, but also when the subject resembles the object too much. In other words, case marking seems to be used when the two arguments of a transitive predicate are not distinguishable any longer because of the semantic features they share. My claim is that the two arguments of a transitive semantic predicate must be at some minimal semantic distance from each other and if this distance is in danger, this is signalled by an overt morphosyntactic marking. I call this principle ‘Minimal Semantic Distinctness’.

MINIMAL SEMANTIC DISTINCTNESS: the two arguments of a semantic transitive predicate must be minimally distinct. If they are not minimally distinct this must be marked in the realized structure.

We can see this principle of minimal distinctness as a trigger for case marking, for if two arguments resemble each other to a greater extent the chance of a potential ambiguity arises and this potential ambiguity can be solved through the overt marking of the subject and/or object argument.

Two things must be noted with respect to the notion of Minimal Semantic Distinctness. First, languages differ in the semantic dimensions through which the minimal semantic distinctness is assessed: some languages only use one dimension, whereas other languages use three dimensions. We must also stress that languages differ in the size of the minimal distance they allow on the relevant dimensions. In the next section we will clarify which dimensions play a role in determining the minimal distinctness in the different languages of the world.

Second, languages also have different means to mark a violation of the Minimality-Principle. We already saw in the previous sections that some languages use differential case marking, where others may use noun incorporation and even other languages have other means of marking the violation of minimal semantic distinctness.

Furthermore, before we turn to the semantic features that play a role in determining semantic distinctness, we first need to point out the importance of the notion of *minimality* in our definition of semantic distinctness. I want to stress here that *minimal* is an essential part of this definition and that it should not be replaced by *maximal* because in this way wrong predictions will be created. For, if we were to say that the two arguments should be maximally semantic distinct, we would predict that languages would keep on marking structures that have not reached the state of maximal distinctness. This is, however, not what we find in languages, instead, what we see is that languages

invoke marking on a structure when the two arguments are no longer sufficiently distinct.

The last point of this section is that the reader has to bear in mind that I only make claims on the morphosyntactic realizations of configurations that are transitive at the semantic level. At this stage I abstract away from semantically intransitive constructions.

#### 4.3.2 Properties of the Arguments

When we state that languages employ case marking when the two arguments of a transitive relation are no longer minimally distinct, the question arises how we determine the distinctness of arguments. I argue that this is done on the basis of one or more of the semantic feature dimensions listed in (27).<sup>10</sup>

(27)	<b><math>\alpha</math></b> <i>agent</i>	<b><math>\beta</math></b> <i>patient</i>
animacy	animate	inanimate
definiteness	definite	indefinite
specificity	specific	non-specific
number	singular	plural
volitionality	volitional	non-volitional
discourse status	high prominence	low prominence
topicality	topic	comment

As one may notice, some of the features were already present in Comrie's system and others are taken from the transitivity parameters of Hopper and Thompson (1980). However, where in Hopper and Thompson's framework these parameters were features of high or low transitive constructions, in my view these features are aligned with the semantic functions of agent and patient for the  $\alpha$  and  $\beta$  column, respectively. Thus, when we think of the semantic predicate structure we saw previously and which is repeated in (28) below, we can state that the  $\alpha$ -argument tends to have the left column of (27) as its configuration and  $\beta$ -argument the right column.

(28) P( $\alpha$ ,  $\beta$ )

We must view the figure in (27) and the dimensions in it in the light of Comrie's generalization of the natural transitive configuration. In my view the semantic features in (27) are the relevant dimensions on which the subject must

---

<sup>10</sup> This list does not intend to be exhaustive. Other dimensions might be relevant in determining the semantic distinctness of two arguments.

outrank the object in order to avoid extra marking of structure. In the figure in (27), however, I also give the semantic configurations that are likely to be associated with the  $\alpha$ - and  $\beta$ -argument. It is important to note that these configurations express the tendencies of subjects and objects to have the features listed in the columns. This tendency is supported by statistical facts found in several corpus studies. In the SAMTAL corpus, a collection of everyday conversation in Swedish, Zeevat and Jäger (2002) found a strong correlations between definiteness and animacy, on the one hand, and grammatical function on the other hand. The table in (29) below shows the results of this study.

(29) *Frequencies in the SAMTAL corpus* (adopted from Jäger 2003)

P(subj   + def)	= 62.9%	P(subj   - def)	= 3.9%
P(obj   + def)	= 27.1%	P(obj   - def)	= 96.1%
P(subj   + pron)	= 66.4%	P(subj   - pron)	= 9.2%
P(obj   + pron)	= 33.6%	P(obj   - pron)	= 90.8%
P(subj   + anim)	= 90.3%	P(subj   - anim)	= 6.7%
P(obj   + anim)	= 9.7%	P(obj   - animf)	= 93.3%

The results in the table should be interpreted in the following way:

"If the attention is restricted to simple transitive clauses, the chance that an arbitrarily picked NP is a subject is (of course) exactly 50%, as high as the chance that it is a direct object. However, if an NP is picked at random and it turns out to be definite, the likelihood that it is a subject increases up to 62.9%. On the other hand, if it turns out to be indefinite, the probability that it is a subject is as low as 3.9%." (Jäger 2003)

The results from the corpus study conducted by Zeevat and Jäger (2002) seems to support the configurations presented in (27) for the features of definiteness and animacy. Jäger (2003) reports corpus studies with similar results for spoken and written English and spoken Japanese.

Lee (2003) reports a corpus study on the use and ellipsis of overt case marking in Korean. According to her there seems to be a correlation between the use of overt case marking and markedness of the semantic configurations of the argument, with the tendency for marked semantic configurations to be realized as case marked forms and unmarked semantic configurations to be realized as unmarked forms.

"In sum, the relative frequency of the choice of unmarked forms over case-marked forms in the C[all]F[riend]K[orean] data increases with subjects high in person, animacy and definiteness and objects low in





- (35) a.  $P(\alpha, \beta)$   
           P = write            $\alpha$  = businessman    $\beta$  = letter  
           Telic               human               inanimate  
                               definite               indefinite
- b. P = write            $\alpha$  = businessman    $\beta$  = letter  
           atelic             human               inanimate  
                               definite               indefinite

We see no difference in the features of the  $\alpha$ - and  $\beta$ -arguments and still there is a difference in structure, accusative versus partitive case on the  $\beta$ -argument. We do see, nevertheless, a difference in the feature specification of the predicate and I claim, following Hopper and Thompson (1980), that this functions as a trigger for the case alternation. So besides the feature configuration of the two arguments, the configuration of the predicate also plays a role in the realization of the semantic predicate structure. I adopt some of the features proposed by Hopper and Thompson (1980) to be relevant.

- (36) aspect: telic, atelic  
       tense: present, past, future  
       punctuality: punctual, non-punctual  
       affirmation: affirmative, negative, imperative, question  
       mode: realis, irrealis

In the case of differences between predicate features we cannot use the principle of Minimal Semantic Distinctness because this requires two elements to be compared with each other and the predicate consists of only one element. We can, however, use the notion semantic distinctness by comparing two predicate structures, let us say (35a) and (35b), and their realization, i.e. (34a) and (34b), and state that a difference in feature specification must be expressed morphosyntactically.

AVOID PREDICATE AMBIGUITY: if two predicate specifications (a) and (b) differ in one of the features in (36), this difference should be expressed morphosyntactically.

It is, of course, a language specific matter which semantic specification is used to compel marking on the realized structure and what and how many

---

<sup>14</sup> We do not consider the third argument 'valiokunalle', because it does not contribute in any means to the discussion here.

morphosyntactic mechanisms are used. Finnish, for instance, chooses to mark, for some verbs, the difference between telicity and atelicity through means of case marking. Other languages choose to express this difference in the morphology of the verb. Ancient Greek is an example of such a language.

(37) ANCIENT GREEK [Indo-European; Mastronarde 1993]

- a. apothnèiskō  
die-PRES  
'I am dying.'
- b. tethnèka  
die-PERF  
'I have died.'

#### 4.3.4 Other Properties

Earlier in this thesis we already came across some examples that cannot be explained by the principles of Minimal Semantic Distinctness nor by Avoid Predicate Ambiguity. One of these examples is repeated in (38) below.

(38) MALAYALAM [Dravidian; Asher and Kumari 1997]

- |          |         |              |
|----------|---------|--------------|
| tiiyyə   | kuṭil   | naḷippiccu   |
| fire.NOM | hut.NOM | destroy-PAST |
- 'Fire destroyed the hut.'

In the Malayalam example above we would have expected accusative case marking on the object *kuṭil* due to Minimal Semantic Distinctness: both arguments share the feature of inanimacy.<sup>15</sup> In chapter two I already claimed that the absence of case marking can be explained by 'world knowledge' or lexical information which tells us that fires are more likely to destroy huts than the other way around. Furthermore, lexical properties of the verb also seem to play a role in languages where some arguments are always assigned some specific case independent of their semantic features (e.g. Hindi). Therefore, if we want to make a model of differential case marking, we also need to take lexical information and encyclopaedic knowledge into account as relevant dimensions.

#### 4.3.5 Differential Case Marking and Semantic Distinctness in Hindi

In the previous sections I outlined a new approach to differential case marking and showed some examples of how this approach describes data from different languages. In this section I conduct a more detailed study of differential

---

<sup>15</sup> The principle of Avoid Predicate Ambiguity is not relevant in this example, because Malayalam marks predicate features on the verb only and not on the arguments.

case marking in Hindi. It is, however, not a full survey of the case system of Hindi, which is very complex, but I focus on the use of ergative, nominative and accusative case on subjects and objects.

#### 4.3.5.1 Tense Split and Subject Marking

As we saw earlier in this thesis (section 3.3.2), Hindi marks its subjects with ergative or nominative case depending on the tense features of the verb.

- (39) HINDI [Indo-Aryan; Mohanan 1990]
- a. Raam-ne ravii-ko piitaa  
 Ram.ERG Ravi.ACC beat-PAST  
 ‘Ram beat Ravi.’
- b. Raam ravii-ko piiteгаа  
 Ram Ravi.ACC beat-FUT  
 ‘Ram will beat Ravi.’

Past tense correlates with ergative subjects and nonpast tense with nominative in most dialects, while ergative case is absent in some dialects (Mohanan 1990). In the dialects that do have the ergative alternation, this does not occur on all verbs. Rather, we can distinguish three classes of verbs as Mohanan (1990: 92) puts it “those that, given the required aspectual conditions, take (i) only nominative subjects, (ii) only ERG subject, and (iii) either NOM or ERG subjects”. Of these classes the second contains the most transitive verbs and we will focus on these verbs in this section.<sup>16</sup>

The ergative case marking of these verbs does not coincide with the meaning of ‘volitional agent’ that connotes the use of the ergative case on subjects of intransitive verbs coming from the third class. An example of such a verb is given in (40).

- (40) HINDI [Indo-Aryan; Butt and King (in press)]
- a. Raam k<sup>h</sup>aasa  
 Ram.NOM coughed  
 ‘Ram coughed.’
- b. Raam-ne k<sup>h</sup>aasa  
 Ram.ERG coughed  
 ‘Ram coughed (purposefully).’

This leads me to the hypothesis that the ergative case marking on the subjects of perfective predicates is not motivated by the semantic features of the subject

---

<sup>16</sup> See Davidson (1999) for a list of which verbs take which kinds of subjects.

argument but rather by the predicate itself. Stated differently, I consider the ergative-nominative alternation as we see it in (39) as a reflection of the principle of Avoid Predicate Ambiguity. In (41) I show how the different transitive predicate structures result in the case alternation we find.

(41)	a.	P( $\alpha$ , $\beta$ )		
		P = beat	$\alpha$ = Ram	$\beta$ = Ravi
		past	human	human
			definite	definite
	b.	P = beat	$\alpha$ = Ram	$\beta$ = Ravi
		future	human	human
			definite	definite

This leads me to the conclusion that Hindi has two means of marking aspect: (i) on the verb itself; (ii) by means of case marking.

#### 4.3.5.2 Object Marking

Up to now I have not explained how the case marking of objects is triggered. The object marking pattern in Hindi is very complex and is instantiated by the patterns in (42). The semantic features that determine these alternations are quite difficult to pin down.

(42)	<i>Subject - Object:</i>	
	Nom – Nom	Erg – Nom
	Nom – Acc	Erg – Acc

Mohanani (1990) claims that two important factors in determining whether or not an object in Hindi should receive case marking are animacy and definiteness. According to Mohanani (1990) the generalization holds that in the absence of a determiner animate objects receive accusative irrespective of their definiteness. In other words, when we mark an animate object with accusative, it can be interpreted as definite or indefinite. When an animate object occurs in nominative case this results in an ungrammatical sentence. This is shown in (43) for the noun 'child'.

(43)	HINDI [Indo-Aryan; Mohanani 1990]	ilaa-ne	bacce-ko / *baccaa
		ut <sup>h</sup> ayaa	
	Ila.ERG	child.ACC/child.NOM	lift-PERF
	'Ila lifted the/a child.'		

An indefinite interpretation can be obtained by placing an indefinite determiner in front of the accusative marked animate, as is shown in (44).

- (44) HINDI [Indo-Aryan; Mohanan 1990]  
 ilaa-ne ek bacce-ko /\*baccaa ut<sup>h</sup>aayaa  
 Ila.ERG one child.ACC /child.NOM lift-PERF  
 ‘Ila lifted a child.’

In the absence of a determiner, inanimate nouns, on the other hand, are marked nominative irrespective of their definiteness. Thus, a nominative case marked inanimate can be interpreted as definite or indefinite, as is shown in (45).

- (45) HINDI [Indo-Aryan; Mohanan 1990]  
 ilaa-ne haar ut<sup>h</sup>aayaa  
 Ila.ERG necklace.NOM lift-PERF  
 ‘Ila lifted a/the necklace.’

We can force an indefinite interpretation on inanimate nouns by using an indefinite determiner. In this case, the inanimate noun is still marked with nominative.

- (46) HINDI [Indo-Aryan; Mohanan 1990]  
 ilaa-ne ek haar /\*haar-ko ut<sup>h</sup>aayaa  
 Ila.ERG one necklace.NOM /necklace.ACC lift-PERF  
 ‘Ila lifted a necklace.’

Definiteness of an inanimate noun is expressed by using accusative case. This is shown for the noun ‘necklace’ in (47) below.

- (47) HINDI [Indo-Aryan; Mohanan 1990]  
 ilaa-ne haar-ko ut<sup>h</sup>aayaa  
 Ila.ERG necklace.ACC lift-PERF  
 ‘Ila lifted the/\*a necklace.’

Until now the system seems straightforward, but as Mohanan (1990:105 fn34) and Butt (1993) note specificity is also involved to complicate matters. The examples in (48) are from Butt (1993) and show that a nonspecific animate receives nominative and a specific animate accusative case.

- (48) HINDI [Indo-Aryan; Butt 1993]
- a. xansaame-ne bazaar-se muryii xariid-ii  
 cook.ERG market.INST chicken.NOM buy-PERF  
 ‘The cook bought a chicken at the market.’
- b. xansaame-ne bazaar-se muryii-ko xariid-aa  
 cook.ERG market.INST chicken.ACC buy-PERF  
 ‘The cook bought a particular/the chicken at the market.’

Instead of animacy and definiteness, the Hindi system of differential object marking seems to rely first of all on the dimension of specificity. The figure in (49) shows how specificity plays a role in assigning case to direct objects.

- (49) [+SPEC] → ACC  
 [-SPEC] → NOM  
 [+/- SPEC, -ANIM] → NOM  
 [+/- SPEC, +ANIM] → ACC

As (49) shows, specificity indeed plays an important role in the distribution of case. If an argument is specific it will always receive accusative case; if it is marked negatively for specificity it will receive nominative case. With arguments that are not marked for specificity we find alternations in the employment of case. In these cases animacy seems to play to most important role with animate referents receiving accusative case and inanimate objects nominative case.

Just as we saw with the marking on subjects, the marking of objects can also be explained by their semantic structures: case marking is employed on objects that resemble subjects too much. Subjects tend to be specific due to the fact that subjects are normally topics and topics are represented by fixed referents, which are specific. The question why especially specific objects receive case marking in Hindi can be answered in terms of the principle of minimal semantic distance. The minimal semantic distinctness between subjects, that tend to be specific, and objects that have specific reference is violated and the need for disambiguation emerges. This results in the employment of case marking on the object.

Besides minimal semantic distinctness, there are also lexical constraints involved in assigning case to direct objects as can be seen in (50).

- (50) HINDI [Indo-Aryan; Mohanan 1990]  
 ilaa-ne yah k<sup>h</sup>at /\*is \*k<sup>h</sup>at-ko lik<sup>h</sup>aa  
 Ila.ERG this.NOM letter.NOM this.NNOM letter.ACC write-PERF  
 ‘Ila wrote this letter.’

Recall from (49) that objects, which are [+specific] should receive accusative case. In example (50) this does not seem to hold. According to Mohanan (1990: 105/106) this can be explained, because “a verb by virtue of its meaning may either require that its object be animate, or that it be inanimate. It may also be neutral to animacy. The choice between ACC and NOM is available only to the objects of those verbs that are neutral to the animacy of their objects. Thus, in contrast to the verb *u<sup>h</sup>aa* ‘lift’, the verb *lik<sup>h</sup>* ‘write’, can only take inanimate objects, and does not allow ACC objects even when they are definite.” This seems similar to the Malayalam example we saw in (38) above. Again world knowledge seems to be involved because of which extra marking in order to avoid a potential ambiguity seems unnecessary.

The discussion of the distribution of ergative, nominative and accusative case on subject and object arguments in Hindi shows the influence of the principles presented in the previous sections on this distribution of case. Minimal semantic distinctness explains the alternation between nominative and accusative case on objects. Avoid predicate ambiguity explains why subjects are assigned nominative or ergative case on the basis of the tense specification of the predicate. Finally, we saw that also encyclopaedic knowledge plays a role in the use of case marking on direct objects in Hindi.

#### 4.3.6 Summary

In the previous section I gave an overview of which ingredients are needed for a model that is able to describe differential case marking patterns in a satisfying way. First of all, we should recognize that differential case marking of arguments is triggered both by the fact that objects resemble subjects too much and by the opposite situation, i.e. subjects resembling objects too much.

Furthermore, it is important to note that the situation in which one argument resembles the other argument too much is not necessarily marked on the argument, which deviates from the prototypical configuration, but that this can also be marked elsewhere in the structure, cf. the Malayalam example in (11) above. The principle of Minimal Semantic Distinctness states that the two arguments of a transitive predicate should be at a minimal distance of each other. A violation of this minimality principle results in an overt morphosyntactic marking of the structure. The different ways in which languages mark this

violation of Minimal Semantic Distinctness are called language particular markedness structures.

Thirdly, we should note that these so-called language particular markedness structures are not necessarily reflections of the violation of the semantic distinctness of the arguments but can also signal the differentiating semantic features of the predicate.

The last point I should mention and which should be present in a model of differential case marking is the influence of lexical information and encyclopaedic knowledge, which can cancel the morphosyntactic markedness structures, expected on the basis of the violation of the principles of minimal semantic distinctness or avoid predicate ambiguity.

In the next section I present an Optimality Theoretic formalization of the principles discussed so far. I develop a formal model of differential case marking, using Blutner's notion of bidirectionality (Blutner 2000).

#### 4.4 Case as a Mirror

Central in Comrie's generalization of the natural transitive configuration is the correlation between markedness of meaning and markedness of form. In the models developed by Aissen (1999, 2000) this correlation is formalized by the local conjunction of constraints on form and constraints on meaning. As noted in the discussion at the end of chapter 2 and 3, this local conjunction cannot be motivated theory internally and therefore stays a stipulation of Aissen's system.

This section concentrates on a new formalization of differential case systems by using Bidirectional Optimality Theory as developed in Blutner (2000). Within this new approach the correlation between markedness of form and markedness of meaning follows automatically from the way in which the constraints are derived. Bidirectional Optimality Theory takes both the production and the interpretation perspective and relates markedness in form to markedness in meaning. Differential case marking, in this view, can be said to mirror production and interpretation by mapping markedness of form to markedness of meaning.

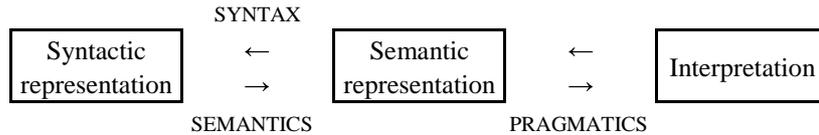
##### 4.4.1 Bidirectional Optimality Theory: Blutner (2000)

In Optimality Theory a distinction is made between Optimality Theoretic syntax and semantics. The first system takes the speaker's point of view, or the production perspective, where the second system takes the hearer's point of view, or the interpretation perspective. Blutner (2000) shows that for some phenomena, he discusses blocking effects and anaphora resolution, "the simplest explanation (...) is a bidirectional Optimality Theory that takes into account the production perspective. An expression is blocked with regard to a certain

interpretation if this interpretation can be generated more economically by an alternative expression."

In other words, to resolve (some) linguistic problems we need both Optimality Theoretic syntax and semantics. Bidirectional Optimality Theory meets this requirement by taking the output of Optimality Theoretic syntax as the input for Optimality Theoretic semantics and vice versa. As the figure in (51) shows, Blutner assumes an architecture with two modes of bidirection because we must make a distinction between semantic representation and interpretation.

(51) *An architecture for Bidirectional Optimality Theory*



After having presented his architecture for a bidirectional Optimality Theory, Blutner tries to integrate optimal interpretation and optimal production by using the pragmatic conversational maxims developed by Grice. On the basis of these maxims, Blutner distinguishes the notions of speaker's economy and hearer's economy. According to him, these are two opposing economies that are in extreme conflict with each other. Blutner finds the solution for this conflict in the two principles presented in (52) which were formulated by Levinson and Horn and correspond to the maxims as formulated by Grice.

- (52) Q-principle: Say as much as you can (given I) (Horn 1984: 13)  
Do not provide a statement that is informationally weaker than your knowledge of the world allows, unless providing a stronger statement would contravene the I-principle (Levinson 1987: 401).
- I-principle: Say no more than you must (given Q) (Horn 1984: 13)  
Say as little as necessary, i.e. produce the minimal linguistic information sufficient to achieve your communicational ends (bearing the Q-principle in mind) (Levinson 1987: 402).  
Read as much into an utterance as is consistent with what you know about the world (Levinson 1983: 146-147).

When we use a slightly different formulation we can say that the I principle seeks to select the most coherent interpretation, and the Q principle acts as a

blocking mechanism and blocks all the outputs that can be derived more economically from an alternative linguistic input. "In this way we can understand Grice's maxims in a bidirectional framework which integrates production and comprehension optimality" (Blutner 2000: 198).

With the Gricean maxims as the EVALUATOR component of the bidirectional OT-grammar, Blutner now sets off to determine the status of the GENERATOR.<sup>17</sup> He defines GEN from a dynamic semantics' point of view in which the semantic form A updates the current context  $\sigma$  to make the new context  $\tau$ . Thus, Blutner views GEN to be identified with the set of input-output (form-interpretation) pairs  $\langle A, \tau \rangle$  such that  $\tau$  is a potential result of updating  $\sigma$  with A.

The Gricean maxims in the EVALUATOR function as principles that constrain the updating of  $\sigma$  to  $\tau$  by A, and according to Blutner this constraining function of the maxims can be best formulated in a bidirectional Optimality Theory as is described in (53).

(53) *Bidirectional OT* (weak version):

- (Q)  $\langle A, \tau \rangle$  satisfies the Q-principle iff  $\langle A, \tau \rangle \in \text{GEN}_\sigma$  and there is no other pair  $\langle A', \tau' \rangle$  satisfying the I-principle such that  $\langle A', \tau' \rangle \gg \langle A, \tau \rangle$ .
  - (I)  $\langle A, \tau \rangle$  satisfies the I-principle iff  $\langle A, \tau \rangle \in \text{GEN}_\sigma$  and there is no other pair  $\langle A, \tau' \rangle$  satisfying the Q-principle such that  $\langle A, \tau' \rangle \gg \langle A, \tau \rangle$ .
- $\langle A, \tau \rangle$  is called super-optimal iff it satisfies both the Q-principle and the I-principle.

Using the table in (54) we can show that the structures that compete in one perspective of optimization, Optimality Theory syntax, are constrained by the outcome of the other perspectives, Optimality Theory semantics and vice versa.

(54) *A Bidirectional OT Tableau*

Forms		F	C		F	C
A <sub>1</sub>	☞					*
A <sub>2</sub>		*		☞	*	*
Interpretations		$\tau_1$			$\tau_2$	

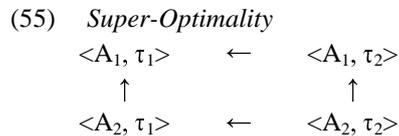
In table (54) '☞' indicates the optimal candidate from a production perspective and '☞' from a comprehension perspective. The constraint F is a

<sup>17</sup> See chapter 1 for the explanation of the notions EVALUATOR and GENERATOR.

constraint on form and C a constraint on meaning. Let us now see what this table tells us. We take the comprehension perspective first, starting with the form  $A_1$ . The interpretations that compete are  $\tau_1$  and  $\tau_2$  and only  $\tau_2$  violates the constraint C. So the '»' indicates that  $\tau_1$  is the optimal candidate from a hearer's perspective.

If we subsequently take  $\tau_1$  as a starting point of the production perspective with the competing outputs  $A_1$  and  $A_2$ , we see that '☞' selects  $A_1$  because this form does not violate the form constraint F as  $A_2$  does. We can now say that the pair  $\langle A_1, \tau_1 \rangle$  is super-optimal because it is both production and comprehension optimal. What about  $A_2$  and  $\tau_2$ ? Let us now consider the comprehension perspective starting with the form  $A_2$ . Only the interpretation  $\tau_2$  is in competition because the form  $A_1$  blocks  $\tau_1$ , therefore '»' selects  $\tau_2$  as optimal. Now if we start from a production perspective with  $\tau_2$ , we find that only  $A_2$  is in competition because  $A_1$  is blocked by  $\tau_1$ . Our hand '☞' selects  $A_2$  as the optimal form for  $\tau_2$ . We see that the pair  $\langle A_2, \tau_2 \rangle$  is also super-optimal from both the production and comprehension perspective.

The super-optimality of form-meaning pairs can also be made visual by using the table in (55) below.



If we assume the same forms and interpretations as in (54), we can see that super-optimal form/interpretation pairs are indicated by two arrows, which either move towards or away from the form/interpretation pair. A single arrow moves from a less harmonic pair to a more harmonic pair. So,  $\langle A_1, \tau_1 \rangle$  is more harmonic with respect to both  $\langle A_1, \tau_2 \rangle$  and  $\langle A_2, \tau_1 \rangle$ . Both  $\langle A_2, \tau_1 \rangle$  and  $\langle A_1, \tau_2 \rangle$  are more harmonic with respect to  $\langle A_2, \tau_2 \rangle$  but both pairs are blocked by  $\langle A_1, \tau_1 \rangle$  in this way resulting in the super-optimality of  $\langle A_2, \tau_2 \rangle$ . The super-optimal pairs are thus located in the top left corner and the bottom right corner of (55).

The form  $A_1$  in (55) can be seen as the unmarked form in the form pair  $A_1/A_2$  and the interpretation  $\tau_1$  as the unmarked interpretation in the pair  $\tau_1/\tau_2$ . In this view of bidirectionality, we can thus "account for the good old idea that unmarked forms tend to be used for unmarked situations, and marked forms for marked situations" as Blutner puts it. As we have seen, this is exactly what we want to formalize; situations in which an unmarked semantic transitive predicate is realized with an unmarked morphosyntactic structure and a marked semantic configuration is realized as a marked morphosyntactic structure.

#### 4.4.2 The Constraints

If we want to describe differential case marking patterns in terms of the association between markedness of form and markedness of meaning, we must derive constraints that either say something about markedness of form or that say something about markedness of meaning. This section concentrates on the derivation of such constraints.

#### 4.4.2.1 Constraints on Form

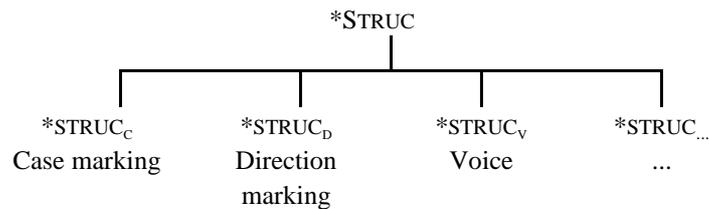
On the formal side we need constraints that differentiate between the presence of case marking and the absence of it. I propose to use the constraint family of 'star structure' constraints, also used by Judith Aissen.

(56) 'Star Structure': \*STRUC: penalize morphosyntactic structure

The constraint in (56) is an economy constraint on form and expresses that a language should use as little marking as possible, i.e. a language should use formally unmarked constructions.

We can divide this constraint 'star structure' into subconstraints which specify the precise morphosyntactic structure we are dealing with. In our case, this would be \*STRUC<sub>C</sub> with 'C' for case. The figure in (57) shows some other possibilities.

(57) *Some members of the \*STRUC constraint family*



#### 4.4.2.2 Constraints on Meaning

In section 4.3 above, I proposed that the use of case marking is triggered by at least the three principles Minimal Semantic Distinctness, Avoid Predicate Ambiguity and Lexical Information. In this section I only concentrate on the formulation of the constraint Minimal Semantic Distinctness. Other constraints on meaning will be introduced when needed later on in the discussion of some examples.

In section 4.3.1 I defined the principle of minimal semantic distinctness. This definition is repeated in (58) below.

- (58) MINIMAL SEMANTIC DISTINCTNESS: the two arguments of a semantic transitive predicate must be minimally distinct.

With this principle I want to formalize Comrie's generalization, repeated below:

“... the most natural kind of transitive construction is one where the A is high in animacy and definiteness, and the P lower in animacy and definiteness; and any deviation from this pattern leads to a more marked construction.”

In order to do this I propose to use the constraint of minimal semantic distinctness as formulated in (59) below.

- (59) MINIMAL SEMANTIC DISTINCTNESS: the  $\alpha$ -argument should minimally outrank the  $\beta$ -argument.

This constraint takes into account the relation between the features of the two arguments as expressed in Comrie’s generalization. In the examples below I focus on animacy, definiteness and specificity as the semantic dimensions on which the semantic distinctness of arguments is assessed. Other relevant dimensions are given in (27) above.

#### 4.4.3 Language Particular Constraint Rankings

As said at the beginning of this section, the relation between markedness of form and markedness of meaning is important in describing differential case marking systems. In Aissen’s model this relation is stipulated through the local conjunction of constraints on form and meaning. In the bidirectional approach that I take this relation follows from the principles of Bidirectional OT, as shown above.

In this section, I illustrate the bidirectional system of differential case marking on the basis of some examples from different languages. In this illustration I focus on the constraints Minimal Semantic Distinctness and \*STRUC.

##### 4.4.3.1 Spanish

As discussed earlier in this thesis, Spanish has a differential object marking system based on the features of animacy and specificity. The examples in (60) show that a human object with specific reference receives marking with *a* and a human object with nonspecific reference does not receive this object marker.

- (60) SPANISH [Romance; Hopper and Thompson 1980]  
 a. Celia quiere mirar un bailarín  
 Celia want.3SG watch.INF a ballet dancer  
 ‘Celia wants to watch a ballet dancer.’ (nonspecific)

- b. Celia quiere mirar a un bailarín  
 Celia want.3SG watch.INF to a ballet dancer  
 'Celia wants to watch a ballet dancer.' (specific)

The tableau in (61) below gives an evaluation of the two examples in (60). The forms without the object marker and the form with the object marker are represented by  $A_1$  and  $A_2$  respectively and the nonspecific and specific interpretations by  $\tau_1$  and  $\tau_2$ .

- (61)  $A_1$  = 60a  
 $A_2$  = 60b  
 $\tau_1$  = nonspecific  
 $\tau_2$  = specific  
 F = \*STRUC  
 C = MINIMAL SEMANTIC DISTINCTNESS

Forms		F	C		F	C
$A_1$	☞		*			**
$A_2$		*	*	☞	*	**
Interpretations		$\tau_1$			$\tau_2$	

In the tableau, we can see that only the form with the object marker *a* violates the constraint \*STRUC and that the specific interpretation violates the constraint minimal semantic distinctness twice, one time for the dimension of animacy and once for the dimension of specificity. The nonspecific reading only violates the constraint minimal semantic distinctness on the dimension of animacy. We see, thus, that  $A_2$  is the marked form and  $\tau_2$  the marked interpretation.  $A_1$ , on the other hand, is the unmarked form and  $\tau_1$  the unmarked interpretation. From the tableau we see that the unmarked form is linked to the unmarked interpretation and vice versa, resulting in the super-optimal pairs  $\langle A_1, \tau_1 \rangle$  and  $\langle A_2, \tau_2 \rangle$ .

A similar explanation holds for the examples in (62) below.

- (62) SPANISH [Romance; De Jong 1996]  
 a. El entusiasmo vence (a) la dificultad  
 the enthusiasm conquer.3SG to the difficulty  
 'Enthusiasm conquers difficulties.'  
 b. A la dificultad vence el entusiasmo  
 to the difficulty conquer.3SG the enthusiasm  
 'Enthusiasm conquers difficulties.'

The first example in (62) has optionality in the use of the object marker *a*, some speakers use the object marker others do not use it. In the second example, the use of *a* is obligatory in order to distinguish object from subject. With respect to the two constraints, we could say that the b-example violates the form constraint twice, once because of the object marker and once because of the preposed object position. The constraint on interpretation is also violated twice, once on the dimension of animacy, the two arguments share the degree of animacy, and once on the dimension of topicality, because of the topic status of the object. The a-example, on the other hand, violates both constraints once. The form constraint is of course only violated when one uses the object marker, but the interpretation constraint is violated because both arguments have the same degree of animacy, i.e. they are both inanimate. The tableau in (63) shows the evaluation of the examples in (62).

- (63) A<sub>1</sub> = 62a  
 A<sub>2</sub> = 62b  
 τ<sub>1</sub> = comment reading of object  
 τ<sub>2</sub> = topic reading of object  
 F = \*STRUC  
 C = MINIMAL SEMANTIC DISTINCTNESS

<i>Forms</i>		F	C		F	C
A <sub>1</sub>	☞	(*)	*		(*)	**
A <sub>2</sub>		**	*	☞	**	**
<i>Interpretations</i>		τ <sub>1</sub>			τ <sub>2</sub>	

Again we see that two super-optimal pairs exist, one with the unmarked form and unmarked meaning and one with the marked form and the marked meaning. The bidirectional approach to differential case marking seems to be able to capture differential object marking in Spanish.

#### 4.4.3.2 Malayalam

I discussed the differential case marking system of Malayalam earlier on in section 2.1. Recall that animate objects normally receive accusative case and inanimate objects nominative case. This is illustrated in the examples in (64).

- (64) MALAYALAM [Dravidian; Asher and Kumari 1997]  
 a. naan teeɳɳa vaarɳi  
 I coconut buy-PAST  
 ‘I bought some coconut.’

- b. avan oru paḷuvine vaḷḷi  
 he a cow.ACC buy-PAST  
 ‘He bought a cow.’

The tableau in (65) shows how we can account for the distribution of case in the examples in (64) in a bidirectional framework. The a-example with an inanimate object does violate neither Minimal Semantic Distinctness nor \*STRUC. The b-example with the animate object, on the other hand, violates both constraints. Again the marked form is linked to the marked meaning and vice versa.

- (65) A<sub>1</sub> = 64a  
 A<sub>2</sub> = 64b  
 τ<sub>1</sub> = inanimate object  
 τ<sub>2</sub> = animate object  
 F = \*STRUC  
 C = MINIMAL SEMANTIC DISTINCTNESS

<i>Forms</i>		F	C		F	C
A <sub>1</sub>	☞					*
A <sub>2</sub>		*		☞	*	*
<i>Interpretations</i>		τ <sub>1</sub>			τ <sub>2</sub>	

Example (66b) below shows that inanimate objects can receive accusative case, when the subject argument is also inanimate. This marking is the result of the fact that the two arguments are no longer minimally distinct. The b-example thus violates both the constraints on meaning and form and the a-example satisfies both.

- (66) MALAYALAM [Dravidian; Asher and Kumari 1997]  
 a. avan pustakam vaayiccu  
 he book read-PAST  
 ‘He read the book.’  
 b. kappal tiramaalakaḷe bheediccu  
 ship wave-PL.ACC split-PAST  
 ‘The ship broke through the waves.’

The examples in (66) do not form a minimal pair as the other examples discussed up to now. In the evaluation in (67) below we will, therefore, only look at the interpretation of the subject and object NPs with respect to animacy. We will evaluate the semantic input at an abstract level, separated from the semantic content of the sentences.

- (67)  $A_1 = 66a$
- $A_2 = 66b$
- $\tau_1 =$  inanimate object
- $\tau_2 =$  both inanimate subject and object
- F = \*STRUC
- C = MINIMAL SEMANTIC DISTINCTNESS

Forms		F	C		F	C
$A_1$	☞					*
$A_2$		*		☞	*	*
Interpretations		$\tau_1$			$\tau_2$	

In example (68) we would expect accusative marking on the object 'hut', but as noted earlier our encyclopaedic knowledge tells us that fires are more likely to destroy huts than vice versa. In this example two constraints on meaning are working, one is Minimal Semantic Distinctness and the other is Lexical Information, which says that we must obey our lexical and world knowledge.<sup>18</sup> This last constraint is thus violated when we would have an interpretation that the hut destroys the fire and not the other way round.

- (68) MALAYALAM [Dravidian; Asher and Kumari 1997]
- tiyyə kuṭil naḷippiccu
- fire.NOM hut.NOM destroy-PAST
- 'Fire destroyed the hut.'

The tableau in (69) shows that both interpretations of the sentence in (68) violate the constraint Minimal Semantic Distinctness. The constraint Lexical Information is only violated by the interpretation that the hut destroys the fire, in which case we would expect accusative marking on the object. Interpretation  $\tau_1$  violates only one constraint on meaning and is therefore less marked than interpretation  $\tau_2$ .

- (69)  $A_1 = 68$
- $A_2 =$  case marked object 'fire'
- $\tau_1 =$  'fire' is subject, 'hut' is object
- $\tau_2 =$  'hut' is subject, 'fire' is object
- F = \*STRUC
- $C_1 =$  LEXICAL INFORMATION
- $C_2 =$  MINIMAL SEMANTIC DISTINCTNESS

---

<sup>18</sup> This constraint was satisfied in the previous examples from Malayalam.

<i>Forms</i>		F	C <sub>1</sub>	C <sub>2</sub>		F	C <sub>1</sub>	C <sub>2</sub>
A <sub>1</sub>	☞			*			*	*
A <sub>2</sub>		*		*	☞	*	*	*
<i>Interpretations</i>		τ <sub>1</sub>				τ <sub>2</sub>		

The examples and tableaux in this section have shown that the Malayalam differential case marking system can be described in the proposed bidirectional approach. In contrast to Spanish, Malayalam uses two constraints to determine the markedness of interpretations.

Concluding, we can say that the bidirectional Optimality Theoretic approach to differential case marking taken in the last chapter can account for the relation between markedness of form and markedness of meaning in a natural way. From the principles of bidirectionality it follows that marked forms are associated with marked meanings and unmarked forms with unmarked meanings. As shown in this last chapter this is exactly what we find in differential case marking systems.

## Conclusions

In this thesis I looked at the phenomenon of differential case marking of subjects and objects. First, I discussed the differential marking of objects and showed which factors are involved. We saw that languages differ in which features they use to determine which objects receive case marking and which do not. The dimensions of animacy and definiteness are used widely in the languages of the world and form the basis for the Optimality Theoretic formalization by Judith Aissen (2000). She formalizes the patterns found in differential object marking systems using the notion of markedness reversal, which states that what is marked for the object is unmarked for the subject and vice versa. With this notion and Comrie's generalization of the natural transitive construction, she derives constraints which penalize associations of direct objects with a high degree of definiteness and animacy. With these constraints Aissen is able to describe a large part of the languages that expose differential object marking. I also highlighted some case alternations which her system is not able to describe. These are mainly alternations triggered by different dimensions than animacy and definiteness or systems that alternate between two overt case marked forms for their direct objects.

Secondly, we saw that also subjects are treated in different ways in the languages of the world. Features as semantic role, person and discourse prominence govern the differential marking of subjects which is expressed through different morphological categories such as case marking, direction marking and voice. The three morphological categories mentioned are formalized by Aissen (1999) on the basis of differences in the features of semantic role, person and discourse prominence of subject arguments. Again Aissen derives constraints which penalize marked configurations for subject arguments of transitive clauses. With these constraints Aissen can again formalize a great deal of data, but again there are problems with her analysis. The problems signalled for her analysis of differential object marking seem also to be problematic for her account of differential subject marking. Subject marking often is triggered by other semantic features than the features of the arguments and Aissen's system has nothing to say about these other features, such as tense and aspect.

Finally, I looked at how these two models are related to each other and whether it is possible to combine them into one single model. I showed that if we want to develop a model to describe transitive sentences, we must make reference to features of the subject, the object, and the predicate. Combining the two models of Aissen results in an uneconomical model that makes wrong predictions. These predictions are the result of her conception and formalization of Comrie's generalization of the natural transitive configuration. Aissen's models only make reference to either features of the subject or features of the object. In order to make a right formalization we must, at the same time, make reference to both subject and object features. Furthermore, in Aissen's model the linking of markedness of form to markedness of meaning is a stipulation. The local conjunction of her constraints on semantic configuration with the constraint on morphological form is not motivated within the framework of Optimality Theory.

I showed that in order to formalize Comrie's generalization correctly we need a system with a constraint that makes reference to both subject and object features and from which the relation between markedness of form and markedness of meaning follows naturally. I introduced the constraint of *minimal semantic distinctness* which states that the two arguments of a transitive predicate must be minimally distinct, i.e. the subject must outrank the object on the relevant semantic dimension(s). A violation of this constraint is signalled morphologically by the use of case marking. I formalized this relation between minimal semantic distinctness and case marking using Bidirectional Optimality Theory. This bidirectional approach to case marking links in a natural way markedness of meaning to markedness of form.

Case marking thus mirrors interpretation and production by signalling markedness of meaning by markedness of form.

## References

- AISSEN, J. (1999). 'Markedness and Subject Choice in Optimality Theory'. *Natural Language and Linguistic Theory* 17, 673-711 (reprinted in Legendre, G., Grimshaw, J. and Vikner, S. (eds.) (2001). *Optimality Theoretic Syntax*, 61-96. MIT Press, Cambridge Ma.).
- AISSEN, J. (2000). *Differential Object Marking: Iconicity vs. Economy*. Manuscript University of California, Santa Cruz. To appear in *Natural Language and Linguistic Theory*.
- ASHER, R.E. and KUMARI, T.C. (1997). *Malayalam*. London/New York: Routledge.
- BAKER, M. (1988). *Incorporation: a theory of grammatical function changing*. Chicago: The university of Chicago Press.
- BARDDAL, J. (2001). *Case in Icelandic – A Synchronic, Diachronic and Comparative Approach*. *Lundastudier I Nordisk Språkvetenskap A 57*.
- BATTISTELLA, E. (1990). *Markedness: The Evaluative Superstructure of Language*. Albany: State University of New York Press.
- BLUTNER, R. (2000). 'Some Aspects of Optimality in Natural Language Interpretation.' *Journal of Semantics* 17, pp. 189 – 216.
- BUTT, M. (1993). 'Object Specificity and Agreement in Hindi/Urdu.' In K. Beats, G. Cooke, D. Kathman, S. Kita, K. McCullough, D. Testen (eds.) *Papers from the 29<sup>th</sup> Regional Meeting of the Chicago Linguistic Society. Volume 1: The Main Session*, pp. 89 – 104.
- BUTT, M. and T. KING (in press). 'The Status of Case.' In. V. Dayal and A. Mahajan (eds.) *Clause Structure in South Asian Languages*. Dordrecht: Kluwer Academic Publishers.
- BOWE, H. (1990). *Categories, constituents and constituent order in Pitjantjatjara*. London: Routledge.
- COMRIE, B. (1979). 'Definite and animate direct objects: A natural class.' *Linguistica Silesiana* 3, pp. 13-21.
- COMRIE, B. (1989). *Language Universals and Linguistic Typology*. Chicago: University of Chicago Press.

- CROFT, W. (1988). 'Agreement vs. Case Marking and Direct Objects.' In Barlow, M. and Ferguson, C.A. (eds.). *Agreement in Natural Language: Approaches, Theories, Descriptions*, pp. 159-180. Stanford: CSLI.
- DANON, G. (2001). 'Syntactic Definiteness in the grammar of Modern Hebrew.' *Linguistics* 39, pp. 1071-1116.
- DAVIDSON, A. (1999). 'Ergativity: Functional and Formal Issues.' In M. Darnell, E. Moravcsik, F. Newmeyer, M. Noonan and K. Wheatley (eds.) *Functionalism and Formalism in Linguistics. Volume 1: General Papers*, pp. 177 – 208. Amsterdam: John Benjamins.
- DIXON, R.M.W. (1972). *The Dyirbal Language of North Queensland*. Cambridge: Cambridge University Press.
- DIXON, R.M.W. (1979). 'Ergativity.' *Language* 55, pp. 59 – 138.
- DIXON, R.M.W. (1994). *Ergativity*. Cambridge: Cambridge University Press.
- DELANCEY, S. (1985). 'Agentivity and Syntax.' In W. Eilfort, P., Kroeber, K. Peterson (eds.) *Papers from the Parasession on Causatives and Agentivity at the 21<sup>st</sup> Regional Meeting*. Chicago Linguistic Society 21 (2), pp. 1 – 12.
- ENÇ, M. (1991). 'The Semantics of Specificity.' *Linguistics Inquiry* 22, pp. 1-25.
- FARKAS, D. (1978). 'Direct and Indirect Object Reduplication in Romanian.' In *Papers from the fourteenth Regional Meeting of the Chicago Linguistics Society*. Chicago: Chicago Linguistics Society, pp. 88-97.
- GILBERS, D. and H. DE HOOP (1998). 'Conflicting Constraints: An introduction to Optimality Theory.' *Lingua* 104, 1-12.
- HARRIS, A. (1981). *Georgian Syntax: a study in relational Grammar*. Cambridge: Cambridge University Press.
- HOLISKY, D.(1987). 'The Case of the Intransitive Subject in Tsova-Tush (Batsbi).' *Lingua* 71, pp. 103-132.
- DE HOOP, H. (1996). 'Optimality Theory: Achtergronden en Toepassingen.' *Tabu* 26, 103 – 127.
- HOPPER, P. and THOMPSON, S. (1980). 'Transitivity in Grammar and Discourse.' *Language* 56, pp. 251-299.
- HORN, L.R. (1984). 'Toward a new taxonomy for pragmatic inference: Q-based and R-based implicatures.' In D. Schiffrin (ed.) *Meaning, Form and Use in Context*, pp. 11 - 42. Washington: Georgetown University Press.
- JÄGER, G. (2003). 'Learning constraint sub-hierarchies. The Bidirectional Gradual Learning Algorithm.' To appear in R. Blutner & H. Zeevat (eds.), *Pragmatics in OT*.
- JELINEK, E and R. DEEMERS (1983). 'The Agent Hierarchy and Voice in Some Coast Salish Languages.' *International Journal of American Linguistics* 49, pp. 167 – 185.
- JONES, M. (1995). 'The Prepositional accusative in Sardinian: its distribution and syntactic repercussions.' In Smith, J. and Maiden, M. (eds.). *Linguistic*

- Theory and the Romance Languages*, pp. 37 – 76. Amsterdam/Philadelphia: John Benjamins Publishing Company.
- DE JONG, J.J. (1996). *The Case of Bound Pronouns in Peripheral Romance*. Groningen Dissertations in Linguistics 16.
- KAGER, R. (1999). *Optimality Theory*. Cambridge University Press, Cambridge.
- KIPARSKY, P. (1998). 'Partitive Case and Aspect.' In Butt, M. and W. Geuder (eds.) *The Projection of Arguments: Lexical and Compositional Factors*, pp. 265 - 307. Stanford: CSLI Publications.
- LEGENDRE, G. (2001). 'An Introduction to Optimality Theory in Syntax.' In G. Legendre, J. Grimshaw and S. Vikner (eds.), *Optimality-Theoretic Syntax*, 1-27. MIT Press, Cambridge Massachusetts.
- LEE, H. (2003). 'Parallel Optimization in Case Systems.' In Butt, M. and T. King (eds.) *Nominals: Inside and Out*. Stanford: CSLI Publications.
- LEVINSON, S. (1983). *Pragmatics*. Cambridge: Cambridge University Press.
- LEVINSON, S. (1987). 'Pragmatics and the grammar of anaphora.' *Journal of Linguistics* 29, pp. 379 – 434.
- LUSTIG, A. (2002). *Zaiwa Grammar*. Doctoral Dissertation, University of Leiden.
- MASTRONARDE, D. (1993) *Introduction to Attic Greek*. Berkeley: University of California Press.
- MITHUN, M. (1984). 'The evolution of Noun Incorporation.' *Language* 60, pp. 847-894.
- MITHUN, M. (1991). 'Active/Agentive Case Marking and its Motivations.' *Language* 67, pp. 510 – 546.
- MOHANAN, T. (1990). *Arguments in Hindi*. Stanford Dissertation.
- MORAVCSIK, E. (1978). 'On the Case Marking of Objects.' Greenberg, J. (ed.). *Universals of Human Language; Volume 4: Syntax*, pp. 249-290. Stanford: Stanford University Press.
- NÆSS, Å. (to appear). *What Markedness Marks: The Markedness Problem with Direct Objects*. to appear in *Lingua*.
- PRINCE, A. and P. SMOLENSKY (1993). *Optimality Theory. Constraint Interaction in Generative Grammar*. ROA Version 8/2002. [<http://roa.rutgers.edu/>, nr. 537-0802]
- POLINSKAJA, M and V. NEDJALKOV (1987). 'Constrasting the Absolutive in Chukchee: Syntax, Semantics and Pragmatics.' *Lingua* 71, pp. 239-269.
- ROTTEVEEL-MANSVELD, F. and R. WALESON. (1968). *Latijnse Leergang II Oefenboek*. Groningen: Wolters-Noordhoff.
- SILVERSTEIN, M. (1976). 'Hierarchy of Features and Ergativity.' In R.M.W. Dixon (ed.) *Grammatical Categories in Australian Languages*, pp. 112 – 171. Canberra: Australian Institute of Aboriginal Studies.

- SMOLENSKY, P. (1995). *On the Internal Structure of the Constraint Component CON of UG*. Handout of talk UCLA, April 7, 1995. [<http://roa.rutgers.edu/>, nr. 86-0000]
- VAN VALIN, R. (1990). 'Semantic Parameters of Split Intransitivity.' *Language* 66, pp. 221 – 260.
- WOOLFORD, E. (1995). 'Object Agreement in Palauan: specificity, humanness, economy and optimality.' In Beckman, J.N., Dickey, L.W. and Urbanczyk, S. (eds.). *Papers in Optimality Theory*. University of Massachusetts Occasional Papers, 18; Amherst: GLSA, University of Massachusetts, Amherst, pp. 655-700.
- ZEEVAT, H. and G. JÄGER (2002). 'A reinterpretation of syntactic alignment.' In De Jongh, D. and H. Zeevat (eds.) *Proceedings of the Fourth International Tbilisi Symposium on Language, Logic and Computation*. Amsterdam: University of Amsterdam.