Adpositional Case

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<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>first person</td>
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<tr>
<td>2</td>
<td>second person</td>
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<td>3</td>
<td>third person</td>
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<tr>
<td>ABL</td>
<td>ablative case</td>
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<td>ABS</td>
<td>absolutive case</td>
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<td>ACC</td>
<td>accusative case</td>
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<td>ALL</td>
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<td>AOR</td>
<td>aorist</td>
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<td>AUX</td>
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<td>noun class I</td>
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<td>Cl-II</td>
<td>noun class II</td>
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<td>CP</td>
<td>complement phrase</td>
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<td>DAT</td>
<td>dative case</td>
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<td>DegP</td>
<td>degree phrase</td>
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<td>directional phrase</td>
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<td>determiner phrase</td>
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<td>case phrase</td>
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<td>M</td>
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<td>MID</td>
<td>middle voice</td>
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<td>N/A</td>
<td>nominative or accusative</td>
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<td>NEG</td>
<td>negation marker</td>
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<td>Verb phrase</td>
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Chapter 1

Introduction

Languages may vary in the way they assign case to their adpositional objects. They can have a single oblique case to combine with all adpositions, have distinct categories of adpositions categorically combining with the same case, or have a set of adpositions that allow for case variation. The latter will be the topic of this thesis.

I will discuss the way case and adposition team up to express spatial meaning. I will only consider those cases in which an adposition may take different morphological cases. In particular, I will focus on those cases in which one of these cases is accusative. Consider for example the sentences from Polish in (1), in which the preposition na may take either locative or accusative case (Brooks 1975):

(1) a. Pracuję na poczcie
    Work:1SG NA post.office.LOC
    'I work at the post office'

b. Idę na pocztę
    Go:1SG NA post.office.ACC
    'I'm going to the post office'

As one can see, the combination with accusative case conveys a different meaning from the one with locative case, the former having a goal reading, the latter a locative one.

At first sight, this might seem a small and fairly uninteresting part of spatial language. However, it is precisely in this context that we can see a nice semantic process going on. In a nutshell, I will argue that spatial meaning has some correspondence to the notions of transitivity (Hopper
and Thompson 1980) and that of Proto-Patient (Dowty 1991). The same parameters with which the transitivity of an event or the Proto-Patient-likelihood of an object is determined can be applied to the adpositional domain. I will show how route and goal adpositions like *through* and *to* can thus be analyzed as higher in transitivity than source and locative adpositions like *from* and *at*, and how the objects of goal and route adpositions can be said to be more Proto-Patient-like than the objects of source and locative adpositions. As accusative case could be said to have inherent patient meaning (cf. Luraghi 2003; Vainikka and Maling 1996; de Hoop and Malchukov 2006b), I will argue that objects of case alternating adpositions are inherently assigned accusative case to express route or goal meaning.

I will use a bidirectional Optimality Theory approach to account for the adpositional case alternation. Weak Bidirectional OT is preeminently suited to deal with those cases in which two related meanings are combined with two forms. This is precisely what we find in adpositional case alternations, as the adpositions of interest combine with two different morphological cases to express two different spatial meanings.
Chapter 2

Space and Case

2.1 Introduction

In this chapter, I will briefly show how languages in the world may deal differently with spatial meaning. I will mainly be concerned with the notion of case. Although a clear definition of case is rather problematic, a number of things can be said fortunately. I will show how cases are primarily used for the marking of verb arguments and how languages may apply their case system for many more functions. Also, I will discuss some of the problems one faces in the cross-linguistic characterization of case. I will try to give a coherent overview of a number of proposals that have been made to categorize cases. Most importantly, I will introduce the phenomenon of case alternation, and try to motivate my view on adpositional case alternation as being of the fluid type.

In Section 2.2, I will first show how languages in the world may deal differently with spatial meaning. In Section 2.3, I will introduce the notion of case. In the next section I will discuss the standard use of case for marking the argument structure. I will explain why cases are hard to characterize cross-linguistically in Section 2.5. In the next two sections I will show what kind of case distinctions can be made and discuss the difference between split and fluid case marking. I will end with conclusions in Section 2.8.
2.2 Spatial Meaning

According to Jackendoff (1990), language is the representation of our conceptualization of the world. It does not represent proper facts, but the way we perceive them. "A level of mental representation called conceptual structure is seen as the form in which speakers encode their construal of the world." (Jackendoff 1990: 12). As we cannot coin everything we encounter in the world around us with a proper name, we have to categorize and generalize over our conceptualizations (Jäger and van Rooij to appear). This too holds for spatial meaning. Every instantiation of ON is unique, but we lump them together in English anyhow. Compare the paper is on the table in which the complete surface of the paper is adjacent to the surface of the table with the table is on the ground in which only the four legs of the table are in direct contact with the ground, or, with the house on the river in which the two objects are in horizontal relation. Over the past decades, people have claimed that the most simple spatial notions are topological and universal, directly coded into spatial language. Spatial adpositions in this view reflect language specific projections of universal semantic notions. Indeed, looking at IN and ON only, Bowerman and Pederson (2003) find a contiguous categorization of spatial scenes, suggesting spatial meaning is convex and internally ordered. In their view, when learning a language a child maps pre-linguistic universal spatial meaning to pre- and postpositions.

Languages are found to conceptualize space in different ways (Feist 2004, Majid et al. 2004, Levinson et al. 2003). What English heaps together under on may be separated into several adpositions in other languages (Bowerman and Pederson 2003). Levinson et al. (2003) show that languages differ in the distinctions they make in spatial topological meaning. Spatial scenes that are ascribed the same adposition in a number languages can be seen as more similar to each other than scenes that are ascribed different adpositions. The total dissimilarity of two spatial notions for all languages is translated to an accumulative distance on a map, on which the spatial scenes are found to cluster, instead of

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1 The dissimilarity was computed as follows: D(issimilarity) = (total adpositions – adpositions that treat scene 1 and scene 2 alike) / total
being randomly distributed. From this, Levinson et al. conclude that there are at least cross-linguistic tendencies in the generalization of spatial scenes, although particular languages may treat the categorization of space idiosyncratically. The generated classes cluster round the notions Attachment, Superadjacency, Full containment, Subadjacency, and Proximity.

Historically, non-spatial meaning is often said to be derived from concrete, spatial meaning. With respect to the mental representation of meaning, however, views differ on what is derived from what. Fong (2001) analyzes directional PPs and locatives as abstract ordered structures, which can interpreted either spatially or temporally (Fong 2001: 3). She shows how the abstract property Left vs. Right Bound accounts for the use of specific morphological cases in Finnish event predicates. This view is opposed to the idea that is upheld in cognitive linguistics, in which meaning domains are often metaphorically derived from a spatial core meaning.

However spatial meaning is conceptualized, two often used options that languages in the world address to formally express spatial meaning are the case and the adpositional system. These systems, and the way they deal with space, will be the topics of the next sections.

2.3 Case: A Definition

Historically, cases originate from verbs and nouns generally, via an intermediate adpositional stage. The meaning of some frequently used lexical item bleaches because of the high frequency of its use, becoming an adposition or semantically almost empty serial verb. Eventually, from freely occurring the morpheme is turned to a bound affix (Blake 1994; Grimm 2005; Kulikov to appear). This process can be illustrated by Chinese .ba. Chinese  ba is a case marker used for scrambled objects, originating from the verb  ba 'to grasp'. At the same time, it can still be used in its original function as a verb. According to some verbal adpositions. The accumulative value was the sum of the dissimilarity for all languages.
categorization diagnostics, however, *ba* as a marker can no longer be said to be a verb. For example, almost any verb in Chinese can be used in so-called *A-not-A* question-answer pairs. In such pairs, a question is answered by repeating the verb (with an optional negation):

(1) Q: *Ni*  he  *bu*  he  *cha* ?
    you  drink  not  drink  tea
    ‘Will you drink tea?’
A: *He*
    drink
    ‘Yes’

*Ba* as a case marker however, can no longer be used in this construction, as is clear from the ungrammaticality of the following sentence:

(2) Q: *Ni*  *ba*  *bu*  *ba*  *pingguo*  *chiwan* ?
    you  BA  not  BA  apple  eat-finish
    ‘Will you finish the apple?’
A: * *Ba
    BA
    ‘Yes’

Of course, not any verb or noun can just be recruited to become any case marker. The meaning of the item has to be general enough to extend its uses even further, and the functional hole the new case would fill has to be communicatively interesting enough to be developed at all (see for a more elaborated discussion on recruitment Zeevat 2006). Although the eventual function of some case may be a far extension of the item’s source meaning, its origin could sometimes still be found to influence its distribution (Grimm 2005)

Case is a morphological marking on (dependent) nouns. Both adpositions and case express a relation of “their” noun to the predicate, but unlike free-standing adpositions case fuses with the noun it attaches to. The distinction between fusing and freestanding morphemes is not made easily, however, and often only motivated by the preference of the
researcher. Some researchers simply do not make a distinction at all, and treat both categories as one and the same (cf. Blake 1994; Anderson 1971).

Actually, a clear definition of case in only syntactic terms is rather problematic. Blake (1994: 1) defines case as

[…] a system of marking dependent nouns for the type of relationship they bear to their heads. Traditionally the term refers to inflectional marking, and, typically, case marks the relationship of a noun to a verb at the clause level or of a noun to a preposition, postposition or another noun at the phrase level.

According to Van Riemsdijk (1983) there is some hierarchy in this assignment of case. The higher in this hierarchy a part of speech is, the more likely it is to assign case; the lower, the more likely it is to receive case.

(3) Van Riemsdijk (1983): Case Assignment Hierarchy

Verb > preposition > adjective > noun

Other options of dependency marking for languages of the world are for example head marking, word order, and possessive adjectives. An illustration of two of these options is the interpretation of arguments in German vs. English. Take the following examples:

(4) a. John hit Peter vs. Peter hit John
‘John hit Peter’ ‘Peter hit John’

b. Den Jan schlägt Peter vs. Peter schlägt den Jan
‘Peter hit Jan’ ‘Peter hit Jan’

Whereas in English argument structure is disambiguated by a rigid word order in which the subject is always preverbal, in German the argument order may change as the grammatical functions of the arguments is clear
from their case marking. Therefore, the different word order in (4) changes the meaning, whereas no different interpretation arises in (5).

The problem with this syntactic definition, however, is that cases also express semantic meaning apart from any simple dependency motivations. It is not only used to express syntactic dependency, but used independently from syntactic motivations as well. The instrumental case may serve as an example of such a semantic use, marking the noun it attaches to as an instrument in some event. An example Blake notes is that of the vocative and nominative case. The person addressed has no syntactic dependency relation to any constituent in the sentence, still the proper name is marked with vocative case. Also, nominative case simply denotes an entity and not a relation between an entity and a predicate (Blake 1994: 32). Therefore, de Hoop and Malchukov (2006a) say that case marking in general attributes to the interpretation and helps to avoid ambiguity. Formulating it thus, they include semantic use of case in their definition.

### 2.4 Argument Marking

Still, marking the argument structure is the primary function of any case system. If a language has case, it will at least use it to mark the argument structure. All semantic functions the case system may take up in addition are secondary (Grimm 2005). The function of marking the argument structure implies distinguishing between the two core arguments (subject and object) of a transitive clause. In a two-place predicate $R(x,y)$ it is important to keep the agent $x$ apart from the patient $y$. Obviously, marking only one of the arguments is sufficient for that purpose, and for intransitive predicates (with only one argument by definition) this function does not apply at all. This economy motivation leads to two general patterns of core case marking. Languages can choose to highlight either the object argument (O) or the transitive subject (A), by marking it differently from the intransitive subject (S). This is illustrated in the following figures:
Most languages (around 70% (Grimm 2005)) choose the accusative strategy, in which the object of a transitive verb is marked differently (that is, with accusative case) from the subject of both a transitive and intransitive verb which are assigned nominative case. This is the pattern given in (5) we are familiar with in languages like German, English and Dutch.

(5) The accusative pattern: English

Intransitive: \( I \) walk, \( He \) walks

Transitive: \( I \) hit him, \( He \) hits me

In languages that adopt the ergative strategy, the object of the transitive verb is marked the same as the subject of an intransitive clause; the subject of a transitive clause, however, is marked differently. This is illustrated in the following example from Dyirbal (Dixon 1972: 59):

(6) The ergative pattern: Dyirbal

Intransitive: \( Bayi \) yaça (/balan dugumbil) banigu

Cl-I man Cl-II woman come

‘Man (/woman) is coming’

Transitive: \( Balan \) dugumbil bangul yaqangu balgan

Cl-II woman Cl-II.ERG man.ERG hit

‘Man is hitting woman’

\( Bayi \) yaça bangun dugumbiçu balgan

Cl-I man Cl-II.ERG woman.ERG hit

‘Woman is hitting man’
In ergative languages, the object (of a transitive clause) and subject of an intransitive clause get absolutive case, the subject of a transitive clause is assigned ergative case. There is a lot more to say about both patterns, but for the present purpose this will do.

2.5 The Characterization of Case

It is very hard to characterize cases cross-linguistically. After all, specific cases are nothing but labels attached to suffixes, often on the basis of a (far-fetched) analogy to Proto-Indo-European, Latin, or Ancient Greek cases. Only when case systems get more elaborate in languages, cases may become virtually semantically homogeneous (Blake 1994), meaning they have a clear 1-to-1 meaning correspondence. An example of such a case is the Finnish abessive that exclusively means ‘without’. Traditionally, cases are described as having a number of functions or different meanings. But typically, according to Blake (1994), the rationale for separating these meanings and functions is not made explicit. Case systems are not isomorphic across languages, meaning that languages do not have the same set of cases in which each case in a language precisely matches the functional extension of the corresponding cases in all other languages. The number of cases a language has differs, and so do the functions of a particular case in different languages. Because of this lack of isomorphy one needs to be very careful applying case labels (Blake 1994). Although cases with the same labels may cross-linguistically express rather different notions, still, they are thought to share a core meaning that makes researchers coin them as a dative or instrumental. Apparently, there is a universal categorization in case meaning, that is, at least in its category core, shared by languages of the world.

Over time, case meaning may change. Several cases can merge, a process called case syncretism (cf. Luraghi 2003; Blake 1994; Kulikov to appear), or a single case can break up in two (cf. Aristar 1997; Kulikov to appear). Phonological and semantic factors play a role in both processes. Often, case syncretism can account to a great extent for the combination of functions some case has. The Greek genitive case for example has
merged with the ablative case, only after which the genitive case came to express source meaning (the basic meaning of ablative case). The question with regard to these cases is, when we should give up talking about two cases with the same form, and start talking about one case with some additional functions.

Also, the semantics of a particular case may extend due to the nouns that are assigned that case. Besides the proper meaning of a case, the lexical meaning of the NPs that occur with it is often crucial to the understanding of the semantic function expressed. A certain lexical feature may be said to ‘activate’ a specific meaning of the relevant grammatical form, which is polysemous in isolation. For example, dependent on the abstractness of the complement, with may express manner or instrument: *I cut the salami with care* vs. *I cut the salami with a knife* (Luraghi 2003). Janda (1993: 14-15) in this respect notes that metaphor is often necessarily invoked when the noun’s lexical meaning does not correspond to the concrete meanings of the case. Ultimately this process of metaphorization can lead to a whole new case (cf. Aristar 1997).

### 2.6 Case Distinctions

A often used distinction within case systems is that between semantic vs. structural case. Blake (1994: 33) notes, that if this distinction were to be clear-cut, “the grammatical cases would encode only purely syntactic relations and the semantic cases would encode only homogeneous semantic relations such as location or source.” However, syntactic cases are often found to encode a semantic relation or role outside of any syntactic relation it might express. Svenonius (2002a) defines structural case as “assigned in a particular structural configuration without regard to θ-role”. Semantic case on the other hand is not sensitive to the structural environment. It is assigned to an argument together with a thematic role by a predicate. Within semantic case a further category of idiosyncratic or lexical case is sometimes discerned. Idiosyncratic case is an idiosyncratic property of a lexical item, assigned by a verb, preposition
or adjective. It is presumably associated with a specific thematic role, and is assigned before thematic roles are assigned with grammatical functions (Zaenen et al. 1985). Woolford (2006) (cf. also Chomsky 1986) has a very similar view on case, with a slightly more transparent terminology. Case can first be divided into structural and non-structural case, the latter can then be subdivided into lexical and inherent case (cf. Figure (3)).

Figure 3. Classification of case

```
Case
   / \
Structural  Non-structural
   / \       / \  
Lexical Case  Inherent Case
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Structural and non-structural cases can be discerned by diagnostic tests as case preservation under A/NP-movement. As non-structural case is assigned because of some semantic property that is independent of the surface structure, it will not change due to a surface operation like passivization. Structural case on the other hand is sensitive to such operations. The object becomes a subject and therefore gets differently marked, as illustrated in the following example:

(7) *I hit him* vs. *He is hit*

Lexical and inherent case can, for example, be discerned by their predictability. Inherent cases are rather predictable and inherently associated with θ-marking (Woolford 2006), whereas lexical cases are dependent on the idiosyncratic behavior of their lexical head.

The class to which some particular case belongs, structural or non-structural, may seem easy to determine. Still, determining it can be problematic and lead to a lot of discussion. One example of such a problematic case is Finnish partitive. Vainikka and Maling (1996) argue that Finnish accusative case for object position is associated with resultative aspect, and may only occur when it is assigned by a verb with
the feature [+COMPLETED]. Partitive case on the other hand, is said to be the default in a number of other constructions, in which the accusative is impossible. Crucially, inherent case can only be assigned in connection with theta-role assignment. Therefore, based on the fact that accusative may only be used in one construction with a specific semantic feature, whereas partitive case may occur in various constructions, Vainikka and Maling (1996) argue that Finnish partitive case is the default structural case of complements whereas accusative case is said to be inherent, as it only occurs by virtue of a specific semantic feature. Their view is opposed to that of Belletti (1988) who argues that it should be the other way around, the partitive having special semantics and therefore not being structural but inherent.

There are two more distinctions that I want to discuss. Following functional-typological insights (e.g. Song 2001), De Hoop and Malchukov (2006a, 2006b) argue for a functional distinction between an identifying and a distinguishing function of case. The former encodes specific semantic and/or pragmatic information about the nominal argument in question, the latter is only used to distinguish between predicate arguments. Non-structural cases are clear examples of this identifying strategy, but structural cases may identify semantic properties to a certain degree as well. For example, according to de Hoop and Malchukov, accusative case in direct object position can be argued to identify patienthood.

The last option I will discuss, is argued for by Marantz (1991). He proposes a distinction in lexical, default, and dependent case. The latter is assigned in dependence of the presence of another core argument in the clause. In his framework, absolutive and nominative are default cases, and ergative and accusative are dependent cases. This corresponds to the identifying vs. distinguishing functions of de Hoop and Malchukov to some extent. The main differences are, that Marantz (1991) treats nominative and absolutive as default case, whereas de Hoop and Malchukov (2006b) argue that nominative and absolutive case are in fact the absence of case often, and that a dependent case is not necessarily distinguishing. The latter point can be illustrated by the next examples from Tibetan (De Hoop and Malchukov 2006b):
In (8), ergative case is used to express volitionality, rather than to keep it distinct from the object. This is illustrated by the counterexample in (9), in which the same subject and object are used, but where the subject is non-volitional and therefore not marked with ergative case. Marantz (1991) would have to assume an additional non-distinguishing ergative case here, next to the distinguishing one. De Hoop and Malchukov (2006b) however, can account for this finding by saying that ergative case has an identifying function.

2.7 Split and Fluid Case Marking

A noun can bear different cases. Of course, this may be due to the different functions it has in a sentence, a third person singular as a subject being differently marked than as an object (cf. example (7) above). But also, nouns that occur in the same structural position may be differentially case marked. Aissen (2003) extensively discusses such differential marking for objects (DOM). She argues that two competing constraints (one penalizing all case marking, the other case-marking objects that are atypical qua object with respect to prominence) determine the morphological case marking of direct objects. As it is atypical for an object to be high in prominence, i.e. being definite or animate, it is assigned case. When the object is prototypical, case-marking is not allowed. In the following examples from Hebrew (Aissen 2003) this is illustrated:
Sentence (10) would be ungrammatical without the accusative case marker ‘et on the definite object the war. Example (11) on the other hand, with an indefinite object, is prohibited to have this marker, as it is typical for objects to be indefinite.

This kind of differential case marking is also called the split type. Depending on the type of the noun (i.e. its animacy or definiteness) or the verb (i.e. its verb class or tense) case marking is assigned in a specific linguistic context. Case marking is always in complementary distribution for this type. De Hoop and Malchukov (2006b) discuss what they dub fluid differential case marking after Dixon (1994). Fluid differential case marking differs from the split type by the fact that the same argument may alternatively have two case markers in the same linguistic context. This alternation results in a specific meaning difference. De Hoop and Malchukov argue that no fixed meaning can be attached to any type of case. The meaning of a case may differ among different contexts in dependence of markedness considerations. In a fluid system, the meaning differs usually in one aspect only (for example with respect to the volitionality of the subject in differential subject marking), whereas the difference between the two forms in a split system is often less clear. Split systems do not allow free alternation of different forms in the same linguistic context. The important point of their paper is about the context specific rather than general markedness of some case. Compare the following examples of ergative case marking:
Batsbi (Holisky 1987, in de Hoop and Malchukov 2006b)

(12) (As)  dah*  japx-jail-n-as  
     I.ERG  PVB  undress-AOR-1SG-ERG

'I got undressed'

Verbs like ‘get undressed’ usually take a volitional subject. The nominative case would express that the person got undressed somehow mindlessly or unintentionally (Holisky 1987, in de Hoop and Malchukov 2006b). Therefore, according to de Hoop and Malchukov, ergative case does not carry a specific volitional meaning, although it will convey this by default in this case. Nominative case is the marked option, as it expresses the non-standard situation.

In the context of undressing in (12), ergative case can be said to express the unmarked meaning, as undressing is always a volitional act. In the context of sneezing however, ergative case is found to express the marked meaning, as sneezing is often not done on purpose. This is illustrated in the following example from Hindi:

(13) a. Raam-ne  chIIkaa
     Raam-ERG  sneezed
     ‘Raam sneezed (volitionally)’

b. Raam  chIIkaa.
     Raam  sneezed
     ‘Raam sneezed’

The case alternation I will discuss in the next chapters is of this fluid type: The adpositions of concern exhibit a case alternation in the same linguistic context. The motivation for the choice of the first case the adposition combines with is not important: It may be motivated idiosyncratically, meaning that it is lexical case, inherent, or even structural. The second option is of importance, however. Here, I will argue that the accusative (which always is the other option in the alternation following from my selection) is inherent case. De Hoop and Malchukov (2006b) argue that case cannot be assigned a specific
meaning. Indeed, I will argue that the inherent meaning of the accusative case can be overruled by its structural use.

2.8 Conclusion

Case is a morphological marking on nouns that encodes specific semantic and/or pragmatic information about the nominal argument in question, or that is used to distinguish a noun from the other predicate arguments. There are several ways to classify cases, the most well-known of which is that into structural vs. non-structural case. The former is dependent on structural position, the latter is semantically motivated. When cases may alter in the very same linguistic context, this is dubbed fluid case marking. A concomitant meaning difference is found for such alternations, often concerning one meaning aspect only. The adpositional case alternation I discuss in this thesis is of this fluid type.
Chapter 3
Spatial Adpositions

3.1 Introduction

Adpositions are small indeclinable parts of speech that denote a relation between two constituents. “Adposition” is the cover term for pre- and postpositions like in, on, through, towards, etc. They could be said to mark a relation of a dependent noun to the verbal head just like case. Thus, adpositions could be considered the analytic counterparts of synthetic case markers suffixes (Blake 1994). In this chapter, I will discuss the notion of adpositions and show how a case and adpositional system may interact in order to convey spatial meaning. Also, I will deal with the problems one faces when trying to analyze their interaction. I will discuss an earlier account on adpositional case alternation proposed by Den Dikken (2003), and argue that he cannot account for this phenomenon satisfactorily.

I will introduce the notion of adpositions in Section 3.2. In Section 3.3, I will discuss the interaction between cases and adpositions. Before I come to conclusions, I will discuss Den Dikken’s (2003) account on adpositional case alternation.

3.2 Adpositions

3.2.1 The Origin of Adpositions
Adpositions are the result of grammaticalization processes. Di Meola (2000) discerns four sources of this process in German: adverbs (abseits, gegenüber), adjectives (weit, gleich), verbs (nachgebend, mitgerechnet),
and nouns (Feind, Zeit). In this process, a form gets semantically bleached and takes up more and more properties of adpositions, to become a member of this functional category eventually. According to Di Meola (2000), these properties of prototypical German prepositions can be divided into morphological, semantic and syntactic properties. Morphologically, these are opacity and shortness, synchronic deviation of formal related structures, synchronic deviation of functional related structures, and invariability of the proper form of the preposition. Semantically it means that an adposition is polysemous: it may have a spatial, temporal, or abstract meaning. Syntactically, an adposition is, amongst others, prepositioned, i.e. put in front of the noun it governs, governs dative or accusative case, and has some semantic relevance if case alternation occurs.

Dryer (in press) argues that one of the primary diachronic sources of (spatial) adpositions is in fact head nouns in genitive constructions. Indeed, Heine, Claudi & Hünnefelder (1991, in DiMeola 2000: 16) show, how in more than one hundred African languages, words for ‘over’, ‘under’, ‘in’, ‘before’ are most often derived from words for body parts like head, belly, back, and the like. This would then explain both the cross-linguistic preference of adpositions for genitive case, and the language specific choice for either post- or prepositions. After the grammaticalization process, the case preference is maintained, and the original word order of the head noun and possessor remains unchanged. When a language has a head final (i.e., genitive-noun) possessor construction, the derived adpositional phrase will also be head final, and the other way around. Take for example English (in) front of, in the following examples:

(14)  the front of the car  
in front of the car

In the first, genitive construction, the possessor car is put after the possessed the front. After grammaticalization, this order remains unchanged for the adposition and in front of is used prepositionally (see Dryer in press).
3.2.2 The Meaning of Adpositions

In many languages, a small set of adpositions is used to cover spatial meaning. As space is an important topic of conversation, and arguably the basis for much metaphoric conceptualization (cf. Section 1.1), these adpositions are very frequently used. Following from this, the logic behind the adpositional system seems very simple and obvious to the native speaker (Feist 2004). Levinson et al. (2003), as an additional result of their semantic typology of topological adpositions discussed in Section 1.1 above, draw the following implicational scale of topological adpositional notions discriminated in languages:

Figure 4. Implicational scale of topological adpositional notions

\[ \text{AT < IN} \begin{cases} \text{ON} \end{cases} \begin{cases} \text{OVER} \\ \text{UNDER} \end{cases} \begin{cases} \text{ON-TOP} \end{cases} \begin{cases} \text{ATTACHED} \end{cases} \begin{cases} \text{INSIDE} \end{cases} \ldots \]

The scale should be read as follows: When a language has a specific IN adposition, it has one for AT too, when it has special ON or UNDER adpositions, it has one for IN as well, etc. Note that the meaning of the former adpositions changes when an extra adposition is added to the system. Just like the meaning of the members of the distinction SINGULAR-PLURAL changes when a third category DUAL is added in the number system (changing PLURAL from ‘>1’ to ‘>2’), the meaning of AT and IN changes (i.e., gets more restricted or specific) when the adpositions ON and UNDER are added. The dots in the uttermost part of the hierarchy indicate very specific spatial constellations. Meanings of adpositions at this stage are of the kind ‘in-water’ and ‘hanging from both sides’, both found in Tiriyó. Again, it is important to note that the hierarchy is only a tendency. Notable exceptions to this pattern are Tzeltal, a Mayan language, in which the foci ‘in’ and ‘on’ are conflated, and many Australian languages that conflate ‘in’ and ‘under’.
3.2.3 Svenonius: Cross-Linguistic Properties of Adpositions

Svenonius (to appear) looks at adpositions from a cross-linguistic perspective, arguing that P is a universal category just like nouns (N), verbs (V), and adjectives (A). Svenonius establishes the following list of six characteristics of adpositions:

(15) *Cross-linguistic qualities of adpositions*

Adpositions...

a. express binary relations between entities (including events);

b. form a syntactic constituent with a DP complement;

c. C-select properties of the complement;

d. S-select properties of the complement;

e. project XPs which function as predicate or sentential adjuncts, and

f. do not combine with tense or aspect morphology.

The entities mentioned in property a, are taken from Talmy (2001). Talmy uses the notions Figure and Ground from Gestalt psychology to describe a semantic event of motion or locative situation. The Figure is defined as a moving or conceptually movable entity whose path, site, or orientation is conceived as a variable. The particular value of this variable is the relevant issue. The Ground is a reference entity which has a stationary setting relative to some reference frame, with respect to which the Figure’s path, site, or orientation is characterized. Adpositions typically describe the relation between Figure and Ground, the Ground always being the object of the adposition. This latter point may be illustrated by the sentence *Put my nose around my finger* which can only mean that one holds his finger still, and moves his head such that he places his nose around the finger. When one wants to express an event in which the finger is the moving entity and the head the non-moving one, the sentence must be *I stick a finger in my nose* (example due to Svenonius to appear). According to Svenonius, this pattern is cross-linguistically very robust, and a reverse Figure-Ground situation simply cannot be expressed by adpositions.
Property \(b\), the syntactic constituency, is illustrated by the fact that in O’odham, a Uto-Aztecan language, the auxiliary must appear in second position, and the combination of \(P\) and its DP may occur before it (Svenonius to appear: 13):

\[
(16) \quad \text{‘Ali we:hejed ‘o kegcid g nalas g Husi} \\
\quad \text{child for AUX clean the orange the Joe} \\
\quad \text{‘Joe is cleaning the orange for the child’}
\]

A less exotic example would be Dutch, which is a verb-second language as well. Here too, the adpositional phrase may be put preverbally, as is clear from the following example:

(16) a.  *Ik kocht een boek in de winkel*  
‘I bought a book in the shop’

b.  *In de winkel kocht ik een boek*  
‘In the shop, I bought a book’

C-selection, property \(c\), denotes the syntactic conditions on a dependent, that is the assignment of case mainly.

The fourth property S-selection stands for semantic selection, and requires the object to have certain semantic characteristics, which can be illustrated by the presupposition of a container object for ‘in’. The XP projection in this definition has to be understood as an adpositional phrase (PP).

Property \(e\) simply states that an adposition may be built up into a PP that can be attached to a verb, noun, or adjective.

Finally, property \(f\) might be definitional rather than universal according to Svenonius, as we, by definition, call a part of speech that combines with tense or aspect a verb.

A problem for the identification of adpositions, and therefore for the claim on their universal status, is that adpositions often still have the same form as their source noun or verb. For example, the Chinese adposition *gěi* ‘to’ is the same as the verb *gěi* ‘to go’. In order to discriminate between the two, Svenonius proposes several discrimination
tests, such as sort of modifiers, use of morphology and aspect, diverging meaning, adjectival modifying, and conventionalization of use.

3.2.4 Adpositional Meaning Extension

Very comparable to case meaning, adpositional meaning extensions may arise due to the semantics of the noun an adposition combines with. According to Luraghi (2003) such extensions often start with the occurrence of abstract nouns with otherwise local prepositions. What starts as a metaphor may become part of the meaning eventually. Still, non-spatial adpositions are often easily analyzable as metaphorical (or temporal) extensions of spatial meaning (Svenonius, to appear). As an example of how the lexical meaning of the DP may trigger some special, non-spatial, meaning of the preposition, take the Dutch sentences (17a) and (17b):

(17) a.  *Ik loop weer door het bos*  
      ‘I walk through the woods again’

b.  *Ik loop weer door Jan*  
      ‘I walk again because of Jan’

In (17a), *door* combined with the inanimate, spatially spread out noun denotes a path. In (17b) however, in combination with an animate noun, *door* denotes a cause that makes the event of walking possible. Here, one could for example think of a context in which *Jan* removed a splinter from the foot of the speaker.

3.3 The Interaction between Adpositions and Case

3.3.1 Adpositions and Cases

Sometimes, the adpositional and case system occur together in a language. Whenever the two systems co-occur in the spatial domain, case denotes the more coarse and adpositions the more fine-grained distinctions in spatial meaning (Blake 1994). Case could more or less be said to correspond to the path function, i.e. the distinction between TO,
VIA, FROM, or the absence of such a notion. Adpositions then denote the place function, meaning the definition of a place or region in relation to the reference object (e.g. ‘in’, ‘on’, ‘under’). However, this distribution of labour is not entirely correct, as will be shown in the discussion of Zwarts (2005a) below.

Of course, the additional meaning of case can only occur when there is choice in (adpositional) case marking (cf. Blake 1994; Rijksharon et al. 2000). When one and the same case is assigned across the board, this will not be very telling. Examples of such patterns are Indo-Aryan languages in which adpositions (with few exceptions) assign some oblique case and English in which all prepositions govern accusative case (Blake 1994: 10). Here, case is simply redundant.

But, even when groups of adpositions assign different cases, the motivation for some option may not be very transparent, leading Svenonius (to appear) to the statement that there is a certain degree of arbitrariness in the assignment. For example, when comparing Russian with Icelandic Svenonius finds out of to pattern with without in Russian but not with towards (the first two both governing genitive case, whereas towards assigns dative). However, out of in Icelandic only patterns with towards, without behaving differently (the first two assigning dative case, whereas without governs genitive). As said, when there is no (fluid) case alternation, the choice for some case might be motivated idiosyncratically. For example, the combinations might be due to diachronic processes, as an adposition sometimes still assigns the same case as its original source noun or verb did. This may lead to unexpected synchronic patterns in the paradigm.

In some languages a particular adposition may govern several cases. The meaning of the prepositional phrase (PP) then depends on the combination of the preposition and the case of the object. For example, in Polish the preposition z governs three cases, all three combinations having a different meaning (Brooks 1975):
(18) a. *z* with genitive case indicates origin of place or time:
   *z wiosny* ‘since spring’; *ze szkoły* ‘from school’
   b. *z* with accusative case indicates an approximate period of time:
   *z rok czasu* ‘for about a year’
   c. *z* with instrumental case indicates the company of somebody:
   *z ojcem* ‘with my father’

In this thesis I will consider adpositions that exhibit (fluid) case alternation in which one of the cases is accusative only. An example of such an adposition is German *in*. Consider the following sentences:

(19)  *Paul geht in den Laden*  
P. walks IN the.DAT shop  
‘Paul walks (around) in the shop’

(20)  *Julia geht in den Laden*  
J. walks IN the.ACC shop  
‘Julia enters the shop’

With dative marking as in (19), the PP conveys a locative meaning, viz. the place in which some event takes place. However, with the accusative case, the PP denotes the goal of some motion event.

Before I will give more examples of such case alternations, I will look into the case of German adpositions in more detail.

### 3.3.2 Zwarts: The Case of German Adpositions

Zwarts (2005a) looks into the relation between German adpositions and the cases they govern. He starts out with the following table:
Table 2. German adpositions and their case

<table>
<thead>
<tr>
<th>Locative prepositions</th>
<th>Dative</th>
<th>Accusative</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Locative prepositions</strong></td>
<td>an ‘on (hanging)’</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>auf ‘on (standing)’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>bei ‘near’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>gegenüber ‘opposite’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>hinter ‘behind’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>in ‘in’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>mit ‘with’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>neben ‘beside’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>über ‘over, above’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>unter ‘under’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>vor ‘in front of’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>zwischen ‘between’</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Directional prepositions</th>
<th>Source</th>
<th>Route</th>
<th>Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Directional prepositions</strong></td>
<td>aus ‘out of’</td>
<td>durch ‘through’</td>
<td>entgegen ‘against’</td>
</tr>
<tr>
<td></td>
<td>von ‘from’</td>
<td>entlang ‘along’</td>
<td>nach ‘to’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>über ‘over’</td>
<td>zu ‘to’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>um ‘around’</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A first generalization about this pattern is that dative corresponds to the locative and source prepositions, and accusative to the route and goal ones.
In previous literature, it has been claimed that directional adpositions constitute of a path function over a place function to a thing (Jackendoff 1990). Two layers of meaning can thus be discerned in spatial meaning, a lower one of places and a higher level of paths. The first conclusion could now be reformulated to express this stratification. Then, dative case corresponds to the FROM function or to the absence of a path function, and accusative case corresponds to the TO and VIA function.

However, to be of value for the meaning, the path function has to be outside of the place function according to the compositionality principle (which says that the interpretation of a phrase is a function of the meaning of its parts and the way they are combined). This is illustrated by 'into', in which the path TO is a function of the place function IN (Jackendoff 1990):

\[
\text{(21)} \quad \text{[Path TO ([Place IN ([thing NP])])]}
\]

But then, according to Zwarts (2005a), case is not in the right place to make this path contribution in German. Case, corresponding to the path function, is governed by an adposition, which corresponds to the place function. This is illustrated in (22) in which case is analyzed as a functional head of its own:

\[
\text{(22)} \quad \text{in das Haus}
\]

\[
\text{[PP P [KP K [DP D [NP N ]]]]}
\]

\[
\text{in acc das Haus}
\]

Compositional interpretation: ‘in the region towards the house’

Actual meaning: ‘into the house’

As is clear from this example, by the principle of compositionality, one would arrive at the wrong interpretation when applying IN to TO, namely ‘in the region towards the house’. The correct interpretation is the result from the order given in (21), where TO is applied to IN.
Another problem Zwarts mentions with respect to the contributive meaning of case in the adpositions, is that case is often redundant. German *durch* is analyzed as VIA \* IN. Notwithstanding the fact that this adposition already expresses a path meaning, namely VIA, it still combines with an accusative case marked noun.

If, instead of applying a compositional analysis, adpositional case is seen as lexical, we would still run into problems. In this view, a case morpheme would be a marker of a relationship and the case marked object has the thematic role of the location (or source, etc.) of the case governing adposition. Indeed we could say that *dem Haus* is the location of *in in in dem Haus* ‘in the house’, and *das Haus* is the route of *durch* in *durch das Haus* ‘through the house’. Sometimes however, the object of the P is not the location itself, but rather the reference object of the region described by the PP. Take the following example:

\[(23) \quad \text{um das acc Haus} \]

‘around the house’

*Das Haus* does not have the thematic role of route itself: It functions as a reference object the neighborhood of which is of relevance. The route in (23) is the region around the house and not the house itself. Therefore, the lexical marking approach could be said to underestimate the way prepositions thematically relate to their objects. As we probably would not want to call the reference object of the region described by a PP a thematic role, we have to conclude that the case of a preposition sometimes does not mark the thematic role of its noun phrase object. The case a preposition combines with is thus found not to have an independent meaning. Rather, adpositions and case are interpreted together. Zwarts explains the fact that case and adpositions co-occur in German as a product of diachronic development. The new system of adpositions is built on top of the older case system. Instead of taking over, adpositions are accompanying cases.
3.4 Den Dikken: A Structural Account for Adpositional Case Alternations

As pointed out above, Jackendoff (1990) decomposes directional adpositions as a path function over a place function to a thing. This was illustrated by ‘into’, in which the path function TO is added to the place function IN:

\[(\text{Path TO} (\text{Place IN} (\text{Thing NP})))\]

Directional meaning, in the form of an additional Path level, is always an elaboration of locative meaning. This idea of a path function governing a place function is elaborated on in Koopman (1997), Den Dikken (2003), and Svenonius (2006). As usual in structural approaches, in these accounts tree structures are drawn that represent the linguistic structure of the category P. Functional heads are considered to be part of this representation. The structure of an adpositional phrase in the representation of Svenonius (2006) is given in Figure 5. The sentence might seem a little bit unnatural since, normally, not every final node has to be realized:

Figure 5. Directional adpositional phrase structure
Using the terminology of Svenonius (2006), \( K \) as the function of turning objects (DPs) to spaces, turning the palace from a building into a set of points in space. \( AxPart \) (axial part) has the function of introducing a perspective. It owes its name to the fact that it requires to identify some axes in the reference object. In this example \( AxPart \) introduces the perspective of the front of the KP the palace. \( Place \) then, maps the space presented by \( AxPart \) to a locational vector space, mapping the top perspective of the palace to the region described by the set of vectors pointing in this upper direction. \( Path \) maps places onto paths. Finally, particles (\( PrtPs \)), or \( DegPs \) (expressions of degree) in the terminology of Den Dikken (2003) and Koopman (1997), can be inserted to modify the directionality or length of the \( PathP \) and/or \( PlaceP \). In the above example \( back \) modifies the directionality of \( up \), and \( down \) modifies \( in \) \( front \) of.

In the approaches of Den Dikken and Svenonius, case assignment of adpositions is governed by either the place or the path head. Svenonius does not really go into detail, but takes the adpositional accusative-oblique alternation that is often found for directional PPs more or less for granted (Svenonius 2002b: 5). Den Dikken (2003), however, discusses this alternation in German extensively. The maximal structure of a directional PP is represented as follows:

\[
(25) \quad \left[ \begin{array}{l}
\text{CP}[\text{Path}] \\
\text{C}[\text{Path}] \\
\text{Deg}[\text{Path}] \\
\text{PathP} \\
\text{Path} \\
\text{PP} \text{P} \text{DIR} \\
\text{CP} \text{Place} \\
\text{C} \text{Place} \\
\text{Deg}[\text{Place}] \\
\text{Deg} \text{Place} \\
\text{PlaceP} \\
\text{Place} \\
\text{AgrP} \\
\text{Agr} \\
\text{PP} \text{P} \text{LOC} \\
\text{DP}\end{array}\right]
\]

There are two lexical P-heads in this representation, \( \text{P} \text{DIR} \) and \( \text{P} \text{LOC} \), each with their own extended projection, the Path domain and Place domain respectively. According to Den Dikken, structural case assignment is dependent on the presence of an aspectual head. For locative Ps, this means that \( \text{P} \text{LOC} \) may check dative case if and only if the aspectual projection \( \text{Place} \) is present in the structure (Den Dikken 2003: 23). \( \text{PathP} \) cannot take a DP as its direct complement. Accusative case can only be assigned in a directional PP, if \( \text{P} \text{DIR} \) selects \( \text{P} \text{LOC} \) directly, in stead of the full-fledged \( \text{CP} \text{Place} \) as in (25) above. Whenever the maximal structure is projected dative case must be checked due to the presence of \( \text{Place} \);
accusative case may only be assigned if the structure of the directional PP is as follows:

\[(26) \quad \text{[CP(Path) [C(Path) [DegP(Path) Deg(Path) [PathP [Path [PP P dir [PP P LOC DP]]]]]]]]}\]

In this representation PP_{LOC} is selected directly and, therefore, Place is not present. Now, Path may assign its case, viz. accusative. This accounts for the fact that sometimes dative case is assigned in directional PPs. Locative PPs in complement of a V always have a full-fledged projection, whence their dative case marking. Locative PPs in the complement of a directional P however may come in a short, that is (26), or long, that is (25), version, leading to accusative or dative case marking respectively.

Recapitulating, in Den Dikken’s account for the German adpositional case alternation, the functional Path head assigns accusative case on the prerequisite that the object of PlaceP (the DP \textit{the palace} in Figure 5 above) is not already assigned dative case by the functional Place head. In this view, adpositional case is structural, as it is assigned by virtue of some functional head (viz. Path or Place). A PathP may take as its complement a full-fledged CP_{place}, or a PlaceP directly, leading to dative or accusative case marking respectively. Accusative is a structural case governed by the functional head Path, dative is a structural case governed by the functional head Place.

There are a number of problems with the account of Den Dikken. Zwarts (2006b), in a discussion of Den Dikken (2003), wonders whether the absence of Place in some directional PPs may not lead to a problem of compositionality. Consider the following example:

\[(27) \quad \text{in das Zimmer} \quad \text{‘into the ACC room’}\]

In sentence (27), one would expect to have a Place function present, just like the Jackendoffian analysis in (24) would predict: The path function TO applies to the place function IN, to convey the meaning INTO. According to Den Dikken (2003) however, the accusative case marking by
definition shows that such a head is not present: Accusative is assigned on the prerequisite that the object of PlaceP is not already assigned dative case by the functional Place head.

Another problem for Den Dikken’s account is the opacity in the motivation of the assignment of accusative case (Zwarts 2006b). Directional source meaning in German always combines with dative case. This would mean that directional source adpositions by definition select for a full-fledged CP\textsubscript{place}, whereas directional goal and route adpositions may differ in their choice, sometimes going for a short PP\textsubscript{LOC} as well. There seems to be no rationale behind this pattern. Den Dikken (2003: 28) claims that there is "a lexical property of \textit{aus qua P} dir – it is lexically specified (via its \textit{subcategorisation frame}) to select an extended projection pf P\textsubscript{LOC} (not just a ‘bare’ PP\textsubscript{LOC})." This, however, misses the generalization that can be made from my data that source meaning never combines with accusative case (see Chapter 4 and the Appendix). In the analysis I propose in Chapter 5, I will present a semantic difference between the directional meanings \textsc{source}, \textsc{route}, and \textsc{goal} that can account for this finding.

Also, the assignment of structural dative case by virtue of the presence of Place does not seem to hold cross-linguistically. Some languages combine different cases with different locative adpositions, an example being Sorbian that uses locative case for \textit{Na} ‘on, at’, but instrumental case for \textit{Pod(e)} ‘under, beneath’.

In order to avoid the various problems that a purely structural approach such as Den Dikken’s meets, I will come up with a semantically motivated account.

3.5 Conclusion

In this chapter, I have given a short introduction into the adpositional system. Also, I have shown how case and adpositions can team up to express spatial meaning. I discussed some of the problems this interaction yields for a semantic analysis of German PPs, as shown in the work of Zwarts (2005a). Adpositional case may seem to be redundant
sometimes, and is difficult to class within the discussed case classifications in Chapter 2. Also, I discussed the structural account for PPs of Den Dikken (2003). I argued that the main problem of this account is its opacity in (the semantic motivation for) the assignment of a specific case and its lack of cross-linguistic generalizability. As far as I can see, Den Dikken (2003) cannot account for the case combination patterns I will discuss in the next chapter.
4.1 Introduction

Languages that have both case marking and an adpositional system often case mark the object of an adposition. Some of these languages allow for variation in the case marking of their adpositional objects, as was shown for German in Section 2.5.2. In this chapter, I discuss a number of other languages that exhibit an adpositional accusative-oblique case alternation in the spatial domain. After selection, I found Latin, Classical Greek, Polish, Sorbian, Russian and Czech to be relevant for this purpose. These languages all happen to be Indo-European: The non-Indo-European languages I have considered dropped out because they either did not exhibit adpositional case alternation in the spatial domain at all (e.g. Hungarian) or did not involve accusative case in this alternation (e.g. Finnish). I will show that the adpositional case alternation in the languages of my sample is driven by spatial meaning differences. The use of accusative case instead of some oblique case always results in a (different) path reading. Accusative case combines with goal or route meaning, whereas oblique case is used for locative meaning.

In Section 4.2, I will discuss Classical Greek and Latin. In the next section, I will discuss Polish and Sorbian. In Section 4.4, I will deal with Russian and Czech. In Section 4.5, I will end with conclusions.
4.2 Latin and Classical Greek

The case systems of Latin and Classical Greek are the result of the syncretism of the more elaborated Protoindo-European (Proto-IE) system. In Proto-IE, eight cases were used, viz. nominative, vocative, genitive, dative, ablative, locative, instrumental, accusative. In Latin this is reduced to nominative, genitive, dative, accusative, and ablative. Latin has three sets of prepositions: taking genitive, ablative, accusative case, or both ablative and accusative case. The use of genitive case is restricted to two prepositions with a more abstract meaning: *gratia* ‘for the sake of’ and *causa* ‘because of’. Both ablative and accusative case may express location, and have temporal or metaphorical meaning. Source meaning, however, is restricted to ablative case, whereas goal meaning is limited to the accusative. This latter pattern returns in the two case alternating prepositions *in* and *sub*:

Latin (Rotteveel Manseveld & Waleson 1970)

(1) a. *in urbe* vivere  
IN city.ABL to.live  
to live in the city’

b. *in aquam* cadere  
IN water.ACC to.fall  
to fall in the water’

(2) a. *sub moenibus* castra habere  
SUB wall.pl.ABL camp to.have  
to have a camp at the foot of the walls’

b. *sub moenia* venire  
SUB wall.pl.ACC to.come  
to come to the foot of the walls’

Case variation is driven by a distinction in spatial meaning, here. Both *in* and *sub* could be said to be underspecified for a path or location reading. In combination with accusative case a path (goal or trajectory) reading is obtained, in combination with ablative case a locative one. This very
much resembles the pattern found for case alternating adpositions in German, described in Section 3.3.2.

Just like in Latin, cases in Classical Greek are the product of syncretism of the Proto-IE case system. However, where Latin still has a separate ablative, the source meaning of this case is incorporated in the genitive case in Greek. Greek adpositions can be divided into proper and improper adpositions, the latter never occurring in compound verbs. For example, *katá* ‘down’ may occur in a compound verb like *kataphainein* ‘to declare’ and therefore is a proper preposition (Luraghi 2003: 75). Genitive case seems to be the standard case for adpositions in Greek. It may combine with virtually any meaning (i.e. locative, source, route, goal, temporal and metaphorical meaning) and is governed by almost all improper prepositions. The use of dative and accusative is more restricted, as dative case does not express directional meaning and accusative may express anything but source meaning. Temporal meaning is mostly covered by accusative case. Dative case may not express source and route meaning, but is restricted to locative meaning in the spatial domain. All source meanings are combined with genitive case, and almost all goal and route meanings with accusative case. This does not hold the other way around, however. It is not the case that genitive always expresses source meaning, or accusative only goal meaning. Sometimes, accusative case does express a locative meaning in an alternation. This is the case for *kata*. However, the locative meaning ‘at the level of’ the accusative combines with seems less or even unrelated to the other meanings of *kata* ‘below’, ‘from … downwards’ (both combining with genitive) and ‘along’ (combining with accusative).

Greek prepositions can be divided into three classes. The first takes only one case (genitive, dative, or accusative), the second class can take both genitive and accusative, the third exhibits a three-way alternation. According to Luraghi (2003), the prepositions of the first class mostly only reinforce a meaning the accompanying case could express by itself already. An example of this is *ek/ex* ‘out of’ combining with genitive case. Consider the following examples:
The ablative value the proper genitive has in (3a), is expressed by *ek* - in (3b) as well. Therefore, the attributive meaning value of genitive case in (3b) could be said to consist only of the reinforcement of the meaning of *ek*. The meaning of the case in the second and third class is sometimes hard to discern. Some alternations do show a easily separable additive meaning of the cases. Consider the following examples of *para*. Used as a free adverb, *para* means ‘nearby’. As a preposition it can govern genitive, dative, or accusative case:

Greek (Iliad 1.26, taken from Luraghi 2003: 76)
(4) a. *mē se, géron, kollēsín*

  NEG 2SG.ACC old.man.VOC hollow.DAT.PL.F
  
  *egō para nēusi kikheíō*

  1SG.NOM PARA ship.DAT.PL.F find.SUBJ.PRS.1SG
  
  ‘let me not find you, old man, by the hollow ships’

(Iliad 2.596, taken from Luraghi 2003: 76)

b. *iónta par’ Eurútou*

  come.PART.PRS.ACC PARA E.GEN
  
  ‘coming from Eurytos’

(Iliad 18.143, taken from Luraghi 2003)

c. *eîmi par’ Héphaiston*

  go.FUT.1Sg PARA H.ACC
  
  ‘I will go to Hephaestos’
In the first example, *para* with dative case combines with locative meaning. In the second example, *para* with genitive combines with a source dimension. Since Homer this use is virtually restricted to animate grounds (Luraghi 2003: 140). Just like we saw in Latin, accusative seems to add a goal dimension (example (4c)). However, this goal dimension needs to be defined more specifically, as only animate goals receive accusative case. Goal meaning with inanimate objects is expressed with dative case:

(Odyssey 7.153-4, taken from Luraghi: 133)

(5) \[\text{k}\acute{a}t’ \ ‘\acute{a}r’ \ ‘h\acute{e}zet’ \ \text{ep’ eskh\acute{a}r\acute{e}i \ en} \]

KATA Prt sit.IMP.M/P.3SG EPI fireplace.DAT.F EN
koníēsi pàr purí
ash.DAT.PL.F PARA fire.DAT
‘he sat down on the hearth in the ashes by the fire’

With genitive case, *dia* means ‘(straight) through’ and can have a locational meaning ‘among’ as well. In combination with the accusative case, *dia* does not express a straight line through some ground, but a more complex, random path inside it. Compare examples (6) and (7):

(Iliad 4.481-2, taken from Luraghi 2003: 168)

(6) \[\text{di’ ōmou khālkeon } \ \text{égkhos } \text{élten} \]

DIA shoulder.GEN bronze.N/A spear.N/A go.AOR.3SG
‘the spear of bronze went through his shoulder’

(Iliad 17.283, taken from Luraghi 2003: 171)

(7) \[\text{helixámenos } \ \text{dù } \ \text{bēssas} \]

turn.PART.AOR.MID.NOM DIA glen.ACC.PL.F
‘turning around through the glens’

Again, when the proper object of the adposition is more involved in the action, rather than just denoting the scene, it gets accusative marking. The spatial properties, that is, the way the object extends in space, become important.
There are a number of other prepositions that exhibit alternation. *Ana* as a particle means ‘upwards’. With genitive case it is only idiosyncratically used for ‘ship’, as in *to go on board of the ship.* Therefore, the alternation between dative and accusative probably is more interesting. Here, there is a difference in spatial meaning involved. Dative case stresses the locational meaning, or, in case of a directional meaning, focuses on the endpoint of the motion. Accusative on the other hand, profiles the route, sometimes extending it to ‘throughout’, or ‘all over’. Compare the following examples:

(Iliad 18.177, taken from Luraghi 2003: 189)

(8) \(\text{pêxai anà skolòpessi}\)
\(\text{fix.INF.AOR up stake.DAT.PL}\)
\(\text{'to fix it on the stakes'}\)

(Iliad 10.465-66, taken from Luraghi 2003: 189)

(9) \(\text{kaì apò héthen hupsòs' aeíras}\)
\(\text{and from 3SG.GEN on.high lift.PART.AOR.NOM}\)
\(\text{thêken anà muríken}\)
\(\text{set.AOR.3SG up tamarisk.ACC.F}\)
\(\text{‘and lifted from him [the spoils] on high, and set them on a tamarisk bush'}\)

According to Luraghi (2003) in (8) the PP is profiled as an endpoint of some motion, whereas in (9) the way the spoils traverse is highlighted. An alternative view on this alternation is that verbs like *fix* take a location rather than a goal.

*Kata* ‘downwards’ is very much like *ana*. It can govern both genitive and accusative case. With genitive it expresses a source, or the endpoint of a trajectory. With accusative case it expresses (directional) route or (locational) distribution. *Huper* ‘over’ with genitive means locational ‘above’ and ‘about’, with accusative it may be extended to directional route ‘over’ and distributional ‘all over’. *Hupo* ‘under’ is more problematic.

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2 In the discussion on Ancient Greek, I will restrict myself to data from Homer’s *Iliad* and *Odyssey*. Later uses are not taken into consideration.
for my analysis, as we shall see in Chapter 6. Both in combination with genitive and dative *hypo* may express location. Here, the combination with accusative implies a lack of contact between figure and ground, whereas with genitive and dative this contact often is established.

Recapitulating so far, we can say that the accusative-oblique alternation in adpositional case marking often corresponds to the addition of path meaning to a place meaning, as illustrated in the Latin examples (1) and (2). Sometimes, it corresponds to the different functions the adpositional object may have in the sentence. When denoting spatial extension rather than (abstract) place, accusative case is used (cf. *anu*). Also, animacy (cf. *kata*) and the complexity of the path (cf. *dia*) were shown to play a role in the assignment of case.

### 4.3 Polish and Sorbian

Adpositions in Polish can combine with instrumental, locative, genitive, and accusative case. Polish, very much like Latin, shows an accusative-instrumental and accusative-locative alternation, in which the goal reading combines with the accusative, whereas the locative meaning combines with the locative or the instrumental case. Consider the examples of *na* for locative case and *za* for the instrumental:

Polish (Bielec 1998)

(9) a. *pracuję na poczcie*
   work:1SG NA post.office:LOC
   'I work at the post office'  
   b. *idę na pocztę*
   go:1SG NA post.office:ACC
   'I’m going to the post office'

(10) a. *chomik jest za drzwiami*
   hamster be:3Sg ZA door:INSTR
   'the hamster is behind the door'
Three-way alternations in Polish cannot be described with spatial notions only, as at least one of the three combinations expresses a non-spatial meaning. However, if in these alternations some spatial meaning is covered, this is done by the same case: genitive for source, instrumental for location, and accusative for goal meaning. For example, in addition to the combinations in (10), *za* can combine with genitive case conveying a temporal meaning:

\[(11) \quad za \text{ króla Jana Sobieskiego} \]

‘during the reign of the king Jan Sobieski’

In Sorbian adpositions govern genitive, dative, locative, and accusative case. Case alternation are found between genitive and instrumental, accusative and locative and accusative and instrumental case (Schuster-Šewc 1999). Adpositions in Sorbian can be divided into basic and derived adpositions. The former occur as prepositions only, the latter still have their original syntactic or semantic function. Derived prepositions do not exhibit case alternation, and combine with genitive case mostly, with the exception of two dative taking ones.

Again, in an alternation, the accusative case expresses the directional (both route and goal) meaning, whereas locative and instrumental case express location. Basic adpositions that exhibit an instrumental-accusative alternation are *nad(e), pod(e), před*, and *za*; one that exhibits a locative-accusative alternation is *na*. There are more adpositions in this latter category, but for these it is not the case that both members express a spatial meaning. Consider the following examples from each category (Schuster-Šewc 1999):

\[(12) \quad a. \quad na \text{ džěto hić} \]

‘to go to work.ACC’
b. *być na dworje*
   'to be in the yard.LOC’

(13) a. *létadlo so pozbiňny nad mróčele*
   'The airplane rose above the clouds.ACC’
b. *wobraz wisa nad łożem*
   'a picture hangs over the bed.INSTR’

Both the combination with instrumental and locative case denotes a location, whereas the combination with accusative case conveys a goal (12a) or goal/route meaning (12b).

To sum up so far, we have attested the first observations in two additional languages. Cases combine with adpositions to convey a specific path function for which the adposition seems to be underspecified. In alternations, the accusative case always takes up the directional goal or route meaning. The two final languages of the sample we will turn to now are Russian and Czech.

### 4.4 Russian and Czech

Adpositions in Russian combine with locative, instrumental, dative, genitive and accusative case. Only for animate goals the preposition *k* ‘to’ in combination with dative case is used, for all other goals accusative is used. Accusative case may combine with all meanings. However, in all alternations in which it is involved, it combines with directional meaning. Consider the following example:

(Malchukov, p.c.)

(14) a. *Ja xodil v magazin*
   I went V shop.ACC
   'I went to the shop'
b. *Ja xodil v magazine*
   I went V shop.DAT
   'I was walking in the shop'
In (14) again, the locative meaning combines with the dative case, whereas the accusative combines with a directional meaning. Other adpositions from Russian that show a very similar pattern are:

(15) a. *na* with ACC: ‘onto’; with LOC: ‘on, at’
    b. *za* with ACC ‘to behind’; with LOC ‘behind’
    c. *pod* with ACC: ‘to under’; with INSTR ‘underneath’

In Czech, genitive, accusative, dative, locative and instrumental case may be used in combination with prepositions. The use of dative case is however severely restricted. In general it largely has two functions: it expresses the experiencer, or is used instead of nominative. In the latter case it expresses superiority and control of the subject. Dative case is only used in combination with the preposition *k*, expressing a human destination. For all other goal meanings, accusative case with some other preposition is used, or genitive case with *do*. (Janda and Townsend 2000).

Just like for all other languages considered above, when involved in an alternation, it is always accusative case that takes the goal meaning:

(16) a. *na* with ACC: ‘onto’; *na* with LOC ‘on’
    b. *o* with ACC: ‘against’; *o* with LOC: ‘leaning on’
    c. *po* with ACC: ‘up to’; *po* with LOC: ‘along’
    d. *v* with ACC: ‘in to’; *v* with LOC: ‘in’

A rather unexpected, and slightly problematic, as I shall show later, example of an alternation given the pattern in (16), is shown in (17). The adposition *po* can be used in combination with a locative and an accusative object:

Czech (Janda and Townsend 2000)

(17) a. *začervenala se až po uši*
    blush she PO ears.ACC
    ‘she blushed up to her ears’
b. \textit{po dešťí všichni chodí po lese}
\v{c}eský: \textit{po dešťí všichni chodí po lese}
after rain everybody walk PO forest.LOC
\textit{a hledají houby}
searching mushrooms

‘after a rain everyone walks around the forest and looks for mushrooms’

Here, apparently a distinction is made between goal and route meaning, where the route meaning ‘around in the forest’ combines with the locative case, and the goal meaning ‘up to her ears’ with accusative.

\textbf{4.5 Conclusion}

In the languages I presented here, some adpositions may combine with several cases. This case variation is mainly driven by spatial meaning differences. The adpositions that exhibit case alternation express, by and large, directional goal or route in combination with accusative case and locative meaning in combination with oblique case. However, there were some exceptions to this pattern, in which the alternation seemed to correspond to a difference in complexity of the path (Classical Greek), or where the distinction was made between route and goal meaning (Czech).

In the next chapter, I will account for these findings.
5.1 Introduction

In Chapter 4, I showed that accusative case is used in combination with directional route and goal meanings, whereas in combination with the locational and source meaning some oblique case is used. (Note that I will use the label *oblique* for any non-accusative case, be it genitive, dative, instrumental, or locative.) What could be the rationale behind this pattern? Why would the languages in my sample use accusative case so consistently for precisely these meanings? In this chapter, I connect directional with transitive meaning. I will discuss notions of proto-roles and transitivity, using the work of Dowty (1991) and Hopper and Thompson (1980). Using the analysis of spatial adpositions of Zwarts (2005b), I will show how directional goal and route meaning can be analyzed as higher in transitivity than locative or source meaning. From this analysis it follows that the object of a goal and route adposition is semantically more like a transitive object than the object of a locative or source adposition. This correspondence will be the basis for the OT account for the use of accusative case in the next chapter.

I will start with discussing Transitivity and Proto-Roles in Section 5.2. In the next section, I show how adpositional phrases can be analyzed. Before coming to conclusions, I will establish the correspondence between transitivity and adpositional meaning, in Section 5.4.
5.2 Transitivity and Proto-Roles

5.2.1 Hopper and Thompson: Transitivity

Hopper and Thompson (1980) discuss the notion of transitivity. They claim that “[T]ransitivity is a crucial relationship in language, having a number of universally predictable consequences in grammar, and […] that the defining properties of Transitivity are discourse determined.” Transitivity has to be understood as an “activity [that] is ’carried-over’ or ‘transferred’ from an agent to a patient”. Hopper and Thompson decompose this rather vague notion into a number of parameters with which the transitivity of a sentence can be determined:

**(1) Parameters of Transitivity**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>High</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. PARTICIPANTS</td>
<td>2 or more</td>
<td>1</td>
</tr>
<tr>
<td>B. KINESIS</td>
<td>action</td>
<td>non-action</td>
</tr>
<tr>
<td>C. ASPECT</td>
<td>telic</td>
<td>atelic</td>
</tr>
<tr>
<td>D. PUNCTUALITY</td>
<td>punctual</td>
<td>non-punctual</td>
</tr>
<tr>
<td>E. VOLITIONALITY</td>
<td>volitional</td>
<td>non-volitional</td>
</tr>
<tr>
<td>F. AFFIRMATION</td>
<td>affirmative</td>
<td>negative</td>
</tr>
<tr>
<td>G. MODE</td>
<td>reals</td>
<td>irrealis</td>
</tr>
<tr>
<td>H. AGENCY</td>
<td>A high in potency</td>
<td>A low in potency</td>
</tr>
<tr>
<td>I. AFFECTEDNESS OF O</td>
<td>O totally affected</td>
<td>O not affected</td>
</tr>
<tr>
<td>J. INDIVIDUATION OF O</td>
<td>O highly</td>
<td>O non-individuated</td>
</tr>
</tbody>
</table>

I will not discuss all parameters here, but restrict myself to the parameters of interest for my present purpose, i.e. parameters B, C, D, I, and J. These are precisely the properties Malchukov (to appear) categorizes as properties of the event and the object. Malchukov recasts Hopper and Thompson’s list into a Transitivity scale from subject via verb to object related properties. Doing so, he is able to predict the constituent on which a specific transitivity parameter preferably is encoded. For example, the volitionality parameter is typically a subject notion, and
therefore, any alternation in transitivity due to this parameter will probably be encoded on the subject. The properties that are considered irrelevant in this context, are the subject properties.

The property Kinesis distinguishes action from states, the former can be transferred from one participant to another, the latter cannot. In the first sentence below something actually happens to Sally, but this is not the case in the second sentence:

(2) Action: *I hugged Sally*
Non-action: *I like Sally*

The distinction in Aspect is between a telic action and an atelic action. The first is viewed from its endpoint, and hence, is more effectively transferred to the patient than an atelic one. This is illustrated in the following examples:

(3) Telic: *I ate it up*
Atelic: *I am eating*

Punctuality is about the difference between on-going actions and those that lack an obvious transitional phase between inception and completion. The latter have a more marked effect on their patients than actions that are inherently ongoing, as can be seen in the following sentences:

(4) Punctual: *I kicked the ball*
Non-punctual: *I carried the ball*

Affectedness, notoriously a vague notion, is about the degree to which an action is transferred to a patient. In fact, it may serve as a cover term for all other object and verb properties, as all distinctions made above could be explained along some dimension of affectedness. Hopper and Thompson connect affectedness to the notion Object Individuation, which is a cover term for a number of properties of the object. It constitutes both the distinctness of the patient from the agent, and the distinctness
from its own background. A prototypical individuated object is said to be a proper noun, human, concrete, singular, countable and referential and definite; a non-individuated object is prototypically a common noun, inanimate, abstract, plural, a mass noun and non-referential. The more individuated the object, the more effectively an action can be transferred to it, and hence, the more affected it is. This can be seen in the following example, in which only the (animate) definite object is marked with -koo:

Hindi (Hopper and Thompson 1980: 256)

(5) a. Machuuee-nee machlii pakRii
    fisherman-ERG fish caught
    ‘The fisherman caught a fish’
 b. Machuuee-nee machlii-KOO pakRaa
    Fisherman-ERG fish-DAT caught
    ‘The fisherman caught the fish’

In order to avoid vagueness, Grimm (2005) rather speaks of persistence in his definition of transitivity. Persistence denotes the extent to which the object remains unchanged either qualitatively or quantitatively. In a highly transitive clause the object has low persistence: it changes quantitatively or qualitatively; in a low transitive event, the object has high persistence: the object does not change at all.

The important thing noted by Hopper and Thompson (1980) is that transitivity is a gradable notion, with is determined by a combination of factors. Clauses can be characterized as more or less transitive. The more high transitive properties a clause has, the more transitive it is.

5.2.2 Dowty: Proto-Roles

Grammatical subject and object do not always cover the same class of participants in an event. The subject can be, and indeed often is, a real agent, in the sense of a volitional, active causer of the event, but sometimes the subject can be very patient-like as well. Compare the following examples:
(6) a. Suzanne kisses John  
   b. Suzanne underwent an operation

This mismatch between grammatical and semantic properties has led linguists to distinguish between grammatical and thematic roles. The latter express the semantic role a participant plays in an event. However, the lack of precise definitions and growing lists of thematic roles led to a sloppy use of this notion. Dowty (1991) proposes a new account of thematic roles introducing so-called Proto-Roles. Dowty argues that thematic roles are difficult to define because they are no discrete categories at all, but contextually modified instantiations of cluster concepts. Two Proto-Roles suffice to describe the argument selection of verbs, namely Proto-Agent and Proto-Patient. Dowty (1991: 572) "preliminarily" lists a number of semantically independent contributing properties for both roles:

(7) Contributing properties for the Agent Proto-Role

a. Volitional involvement in the event or state  
   b. Sentient (and/or perception)  
   c. Causing an event or change of state in another participant  
   d. Movement (relative to the position of another participant)  
   e. Exists independently of the event named by the verb

(8) Contributing properties for the Patient Proto-Role

a. Undergoes change of state  
   b. Incremental theme  
   c. (Causally effected)  
   d. Stationary relative to movement of another participant  
   e. Does not exist independently of the event, or not at all

For my present purpose, I will focus on the Proto-Patient properties only. The first property, Change of state, captures both coming into existence
and ceasing to exist, and both definite and indefinite change of state. This property of course connects with the transitivity notion of affectedness (or persistence): the higher in transitivity, the more affected the object, the bigger the change of state. The second property, Incremental theme, may need a little bit more explanation. An incremental theme is a new role category Dowty introduces. The aspect of telic predicates depends on their NP arguments. This is captured in the principle that the meaning of a telic predicate is a homomorphism from its (structured) theme argument denotations into a structured domain of events. A homomorphism in this context is a function from an argument NP to its governing verb, which preserves some structural relation determined for the NP in a similar relation determined for the verb. (Dowty 1991: 567)

This preserved relation can be illustrated for telic predicates by the part-of-relation. If $x$ is part of $y$ then a telic predicate that maps $y$ to some event $e$ maps $x$ to an event $e'$ which is part of $e$. The state of the Incremental theme thus is indicative for the aspect of the predicate: The proportion of John’s house that is red tells you something about the aspect of John paints his house. An Incremental Theme thus is an object at which the separate stages of the change caused on it by the event is actually distinguishable in separate stages (cf. also Vanden Wyngaerd 2001). The third and fifth property are not relevant for the present discussion on spatial meaning. Property $d$ does not need a lot of explanation: a non-moving argument is said to be a better patient than a moving one.

The Proto-Roles are of importance in argument selection in the way defined by the Argument Selection Principle (Dowty 1991: 576):

Argument Selection Principle: In predicates with grammatical subject and object, the argument for which the predicate entails the greatest number of Proto-Agent properties will be lexicalized as the subject of the predicate; the argument having the greatest number of Proto-Patient entailments will be lexicalized as the direct object.
An argument that is an incremental theme, that is changed, causally
effected, or stationary relative to another participant is more likely to be
marked as the (structural) direct object.

Obviously, the higher in transitivity a clause is in the definition of
Hopper and Thompson (1980), the more Proto properties the verb entails
for its arguments in the definition of Dowty (1991), and vice versa. In a
highly transitive clause, the two arguments are typically an agent and a
patient (rather than a beneficiary and an instrument, for example). Before
I connect these findings to adpositional meaning, I will introduce the
work of Zwarts (2005b) in the following section who provides tools for the
analysis of adpositions.

5.3 Zwarts: The Analysis of Adpositional Phrases

Zwarts (2005b) shows how directional prepositions can contribute to the
aspectual properties of a sentence. In the verbal domain, a distinction
can be made between telic and atelic verbs, that is between verbs that
have a natural endpoint and those that lack one. Telic verbs can combine
with a time adjunct with in, atelic verbs can combine with a time adjunct
with for. The verbs in the following examples are in principle atelic (cf.
walking/driving/running for an hour), but combined with directional PPs
a difference in aspect may result:

(11) a. Alex walked onto the platform/out of the hotel
       in/*for ten minutes

      b. Alex drove toward the mountains/along the river
         *in/for a day

      c. Alex ran around the lake/through the grass
         in/for one hour

In (a) the prepositions onto and out of lead to a telic aspect (shown by the
possibility to combine with in ten minutes, but the impossibility to
combine with for ten minutes). In (b) the prepositions along and toward
lead to an atelic reading, and in (c) the prepositions around and through
allow both readings. Adpositions conveying a telic reading can be said to be bounded, and adpositions conveying an atelic reading unbounded. This distinction can be motivated with the notion path, and will be made clear below.

Zwarts (2005b) defines a path as a directed stretch of space with a starting point, an end point, and points in between on which the path imposes a non-temporal ordering. A PP can be interpreted as sets of paths, and directional adpositions are functions that map objects to sets of paths. A path by itself is not telic or atelic. It depends on the view taken whether a path is directed into the kitchen, towards the fridge, or along the working top. Zwarts (2005b: 9) assumes paths are "continuous functions from the real unit interval [0,1] to positions in some model of space. [...] the starting point of a path p is p(0), the end point is p(1) and for any i ∈ [0,1] p(i) is the corresponding point of the path." A set of paths P can be ordered by a sub-path relation. A sub-path is part of a bigger path restricted to a part of its domain. Several paths p can form a set of paths P by the sum operation concatenation. When path p starting from A having an end point B, is concatenated with path q with starting point B and end point C, by concatenation the path p+q from A to C is formed (note that the p and q are necessarily sub-paths of p+q). Obviously, concatenation can only be applied when two paths are connected “head to tail”: the end point of p has to be the starting point of q (i.e., p(1)=q(0)).

Whether a path is bounded or not depends on the notion cumulativity (Zwarts 2005b: 12):

(12) A set of paths X is cumulative iff
(i) there are p, q ∈ X such that p+q exist and
(ii) for all p, q ∈ X, if p+q exists, then p+q ∈ X

If two paths are towards a Ground, their sum is as well, on the prerequisite that the sum exists (that is, if it is possible for the two paths to be connected head to tail). Bounded PPs such as to the house are not cumulative, as the set of paths P necessarily includes the path that actually reaches the house. Zwarts concludes:
(13) a. A PP is unbounded iff it has cumulative reference.
    b. A PP is bounded iff it does not have cumulative reference.

The aspect of directional PPs is thus represented in cumulativity properties. Atelic PPs are closed under concatenation, telic PPs are not. Zwarts (2005b) further shows how these PP properties by the thematic function TRACE can be linked to verbal denotations: If \( e \) is a motion event, the TRACE \( (e) \) is the path followed by the theme of \( e \). With this TRACE function Zwarts defines a compositional rule for the combination of a verb and a PP:

\[
(14) \quad [[ \text{V PP} ]] = \{ e \in [[ \text{V} ]]; \text{TRACE} (e) \in [[ \text{PP} ]] \}
\]

This rule states that the denotation of the verb is restricted to those events that have paths in the PP denotation as their trace. TRACE can be characterized as a homomorphism from events to paths (cf. Section 3.1.2): \( e < e' \) implies \( \text{TRACE} (e) \leq \text{TRACE} (e') \), and \( \text{TRACE} (e + e') = \text{TRACE} (e) + \text{TRACE} (e') \), if \( e + e' \) is defined.

Most important for the present study however, is the finding that adpositions can be defined as either cumulative or not.

### 5.4 Directionality and Transitivity

#### 5.4.1 The Correspondence

In the sections above, I showed that an event can be more or less transitive, that the prototypical Patient-argument of a transitive clause will be the direct object, and that accusative case typically marks the direct object. The path analysis of Zwarts (2005b) enables us to draw some parallels between spatial adpositions and transitivity or Proto-Patient properties. In what follows I will show how directional adpositions can be analyzed as more transitive-like, or the object of directional PPs as more Proto-Patient-like, than locative adpositions and locative PP objects respectively.
Recall the relevant notions of Hopper and Thompson, repeated below for convenience.

\[\begin{array}{ll}
\text{B. KINESIS} & \text{High} \quad \text{Low} \\
\text{C. ASPECT} & \text{action} \quad \text{non-action} \\
\text{D. PUNCTUALITY} & \text{telic} \quad \text{atelic} \\
\text{I. AFFECTEDNESS OF O} & \text{punctual} \quad \text{non-punctual} \\
\text{J. INDIVIDUATION OF O} & \text{O totally affected} \quad \text{O not affected} \\
\text{O highly} & \text{O not-} \\
\text{individuated} & \text{individuated}
\end{array}\]

The kinesis distinction in the verbal domain obviously has its parallel in the distinction between static and dynamic adpositions. This is illustrated in the following example.

\[\begin{array}{ll}
\text{High kinesis/dynamic: John is going to the shop} \\
\text{Low kinesis/static: John is at home}
\end{array}\]

A dynamic event by definition involves more action than a static one. The transitivity property high kinesis corresponds to a change of state implied by a directional meaning; non-action, on the other hand, is perfectly compatible with static meaning.

The aspectual distinction between telicity and atelicity clearly corresponds to the distinction cumulativity/non-cumulativity in the adpositional domain. Bounded adpositions are not closed under concatenation, and hence could be said to have some inherent endpoint, whereas unbounded adpositions are closed:

\[\begin{array}{ll}
\text{a. Telic/non-cumulative: into the house} \\
\text{b. Atelic/cumulative: towards the house}
\end{array}\]

The punctuality of a predicate concerns the difference between on-going actions and those that lack an obvious transitional phase between
inception and completion. Punctuality could be said to correspond to a combination of the property cumulativity and the opposition dynamic-static:

(18) a. Non-punctual/static: John is at home
   b. (Non-) Punctual/dynamic, cumulative: John walks through the forest
   c. Punctual/dynamic, non-cumulative: John is going into the shop

A punctual event corresponds to a non-cumulative, dynamic adposition. There is a clear distinction between the moment at which John is outside of the shop, and the moment he enters is. This can be illustrated by means of the following representation (also used in Fong 2001; Vanden Wyngaerd 2001; Zwarts 2006):

(19) Representation of into:
    ~P|P

The tilde is used to negate some predicate or relation P (x being in y, in the present example). The “|” indicates the transition moment from ~P to P.

Rehbein and Van Genabith (2006), in this respect, discuss an example from German in which an event of soaking the soil is perceived either as punctual (20) or non-punctual (21):

(20) sickert in die Erde ein
    soak.3.sg in Det.ACC soil Prt
    ‘soaks into the soil’

(21) sickert in der Erde ein
    soak.3.sg in Det.DAT soil Prt
    ‘soaks the soil’
The difference lies in the fact that in the first sentence, the rain water enters the region of the object, whereas in the second sentence, the rain water is already there and soaking through the region. Put into representations, the first sentence translates into the representation in (22a), the second into the one in (22b):

(22) a. ⬩⬩
    b. ⬩⬩

Dynamic, cumulative adpositions, like through, could either have a transitional phase or lack one, making the punctual or non-punctual respectively:

(23) Representations of through
    a. P
    b. ~P|P|~P

In (23a), one could have been walking through the forest all day (non-punctual); in (23b), one could have walked through the forest in an hour and be home again (punctual).

Thus, verb and object properties that contribute to the transitivity of an event can be translated into properties of adpositions and adpositional objects. These properties are shown to determine the difference between directional and locative adpositions.

Not every property that contributes to individuation of the object may be equally important for the determination of a “good” Ground. Object individuation constitutes both the distinctness of the patient from the agent, and the distinctness from its own background. Of course this hold for Grounds as well. Recall the definitions of Talmy in which a Figure was defined as a moving or conceptually movable entity, and the Ground as a reference entity which has a stationary setting relative to some reference frame. The relation between the Figure and Ground can only be described properly if the Ground is sufficiently different from both the Figure and its background. Likewise, object individuation requirements as being a proper noun, concrete, singular, countable and
referential and definite could be easily applied to Grounds. With respect to Individuation, there seems to be no difference between the objects of locative and directional adpositions. However, with respect to affectedness I think there is. The affectedness of the object can be compared to the extent to which the path covers the Ground. In this comparison, the Ground of a route adposition could be said to be more affected than the ground of a goal, since for the former the whole ground is part of the path, whereas for the object of a goal adposition, the spatial extension of the ground is irrelevant. Within route meaning, the ground can even be further affected/covered. We saw an example of this already for Ancient Greek in Chapter 4, repeated here for convenience:

(24) [Iliad 4.481-2, taken from Luraghi 2003: 168]
   a. di’ ómou khálkeon égkhos
dia: shoulder:GEN bronze:N/A spear:N/A
go:AOR.3SG
   ‘the spear of bronze went through his shoulder’
[Iliad 17.283, taken from Luraghi 2003: 171]
   b. helixámenos dià bessas
turn:PART.AOR.MID.NOM dia: glen:ACC.PL.F
   ‘turning around through the glens’

This difference can be illustrated by the following representations:

Figure 6. Representation of paths

a. Representation of (24a) b. Representation of (24b)

Clearly, the path covers the Ground in Figure 6b more extensively than in 6b. The more complex the path, the greater the part of the Ground that is covered by it. If we translate the degree to which a Ground is covered into
direct object terms, we could say that the Ground in 6b is more affected than in 6a.

With respect to the Proto-Patient properties of Dowty (1991), we can make a very similar comparison. Recall the relevant properties of the Proto-Patient:

(25) Relevant Proto-Patient properties

   a. Undergoes change of state
   b. Incremental theme
   d. Stationary relative to movement of another participant

Indeed, the constituent of a directional adposition is more patient-like than the constituent of a locative adposition. The former undergoes a change of state: it is either reached, entered, or traversed by a Figure. The Ground in a locative PP however does not change at all. In directional route meanings, the Ground is like an incremental theme: the different stages in which something is being ‘traversed’ can be distinguished, and this is telling for the extent to which the passing event is completed. Again, in locative PPs nothing happens with the Ground, and therefore it cannot be an Incremental theme. For both directional and locative meaning it holds, by Talmy’s definition, that the adpositional object itself is stationary. However, only in case of directional objects the stationarity could be formulated with respect to the movement of the other participant. Therefore, locative grounds are less patient-like, as they do not undergo a change of state, and are (hence) not like an Incremental theme.

The idea of a correspondence between transitivity and directional goal and route meaning is verified cross-linguistically. Take for example the meaning difference between English I swam the Channel vs. I swam in the Channel. In the first version the Channel is perceived as a physical object, as something that has to be overcome. It is no longer just the place where something happens, as in the second sentence: it is a route that is conceived as a real direct object. We find something similar going on in ergative languages. As explained in Chapter 1, the direct object of
transitive verbs is not marked separately in ergative languages. If there is indeed an analogy between transitivity and directional goal and route meaning, how would this become manifest in such languages? Increasing transitivity can be expressed with ergative marking on the subject of a transitive verb, that is, when the verb allows for some alternative case on its subject as well. In Basque, the transitive subject may sometimes bear absolutive case. Also, differences in transitivity can be expressed by means of specific auxiliaries. Motion and location verbs in Basque can give rise to a transitivity alternation that involves clear aspectual notions such as the affected status of an object (Hualdé and Ortiz de Urbina 2003: 369). In the alternation shown below, transitive structures are produced by changing the auxiliary from intransitive *izan ‘be’ to transitive *edun ‘have’. If the subject were expressed, its marking indeed would change from absolutive to ergative. This transitivity alternation may occur for route meanings. According to Hualdé and Ortiz de Urbina (2003: 369), in these cases the transitive alternate produces an “affected” reading, where the whole surface of the movement gets “used up”. Compare their following examples:

(26)  ibai hartatik igaro dira
      river that.ABL pass.by AUX.INTR
      ‘they went through that river’

(27)  ibai hura igaro dute
      river that.ABS pass.by AUX.TR
      ‘they crossed that river’

The ease with which the Ground of the route meaning ‘through’ of the first ablative construction in (26), is promoted to a direct object in (27), may serve as support for the correspondence between a route object and a transitive object. Contrastively, partity ‘depart’ and joan ‘go, leave’, both denoting source motion can only be used intransitively (Hualdé and Ortiz de Urbina 2003). I will account for this finding in Section 5.4.2.

Another piece of evidence for the correspondence between directional goal and route meaning and transitivity comes from so-called spray-load
alternations. These alternations are a well-known phenomenon in transitivity theories (Dowty 1991; Anderson 1971; Svenonius 2001, 2002). In these constructions some object is sprayed or loaded with some substance. Two alternative constructions can be chosen, that virtually have the same meaning. In the first construction the loaded or sprayed object is the direct object of the spray/load verb whereas the substance sprayed with is expressed in an adpositional phrase, in the other construction this is done the other way around. According to Dowty (1991) and Anderson (1971) however, spray-load pairs are not complete paraphrases. According to them, in the (a) sentences below the total supply of hay or paint is used, while the (b) sentences suggest that the wall is fully covered with paint, or the truck is completely filled with hay.

(28) a. Mary loaded the hay onto the truck  
    b. Mary loaded the truck with the hay

(29) a. Mary sprayed the paint onto the wall.  
    b. Mary sprayed the wall with the paint.

Whether the two constructions differ in meaning does not really matter here. What is important however, is that the objects of the directional goal adpositions, i.e. the goals, in the (a) examples are conceived as Proto-Patients to such an extent, that they can be put in direct object position in the (b) constructions.

5.4.2 Rice

In her dissertation on transitivity, Rice discusses the prepositional verb (VPP, verbs to which a preposition has coalesced grammatically and/or semantically) in English. Often, verbs that are intransitive on itself (like swing) get highly transitive with the addition of a preposition (swing at). According to Rice, some of these prepositions are highly transitive inherently, as will be made clear below.

The spatial meaning conveyed by prepositions is usually thought of as simple verbal modifying. According to Rice, this meaning serves as a lexical instantiation of the channel that the action must pass across as
its effect is carried from one participant to another. Examples she uses here are the suspect swung at the policeman, the muddy child climbed on the new couch, and that flea-bitten dog has slept in this bed again.

Rice argues that the prepositional object is more like a full-fledged participant in the action than only a spatial reference point. The prepositional object is not only capable of being affected by the action, but the NP of the PP behaves like a direct object complement with respect to passivization as well. One could easily passivize the above examples into the policeman was swung at, the couch was climbed on, the bed was slept in. However, this cannot be done across the board, as Rice shows. One cannot change sleep/exercise in the living room into the living room was exercised/slept in. One way or another, the object has to be “affected” in order to passivize it; the living room apparently is too big to suffer from the exercising or sleeping event.

In her corpus research, Rice looks at the percentage of VPPs that may passivize. She finds on, to, and at (qualified as goal oriented, and invoking a terminate path) highly transitivizing. The adpositions are in maximal contrast with non-transitive, source oriented prepositions which invoke an initiative path: off and from, which do not passivize:

\[ (30) \quad * \text{the bed was fallen off/tumbled off/ slipped off/slid off by} \]
\[ \quad \text{the child.} \]

Passivization is particularly possible when motion and manner are combined in the event description. In these cases, the object of an adposition can be thought of as a real participant. The verb go to in the example below is neutral with respect to manner, hence the ungrammaticality of its passivization. Transfer, according to Rice, requires both a medium and an address, while pure movement requires neither. The others verbs do combine motion and manner, and passivize without any problems:

\[ (30) \quad * \text{the bed was fallen off/tumbled off/ slipped off/slid off by} \]
\[ \quad \text{the child.} \]

---

3 This affectedness prerequisite does not hold for all verbs, as is illustrated by the passive the living room was used to sleep/exercise in.
The narrow footbridge was walked on/ tread on/ run on/ trampled on/ stumbled on/ wobbled on/ slid on/ slipped on/ *gone on by the kindergartners.

The properties of the object are also of importance. The more diffuse or spacious the endpoint is, the less likely it will serve as a participant of the action and the more likely it will be construed as a setting:

(32) John /* the countryside was rushed to by Mary

The effect on the passive participant, marking the successful carry-over of something, is considered the essence of transitivity. Channels, unlike paths, are transitive; also, a channel is more participant in the event than a path. The extent to which an arbitrary path becomes a (physic) channel determines the transitivity. This is something we saw already in the Channel examples above, in Section 5.4.1. According to Rice (1987) on, to, and at suggest a channel of transfer, whereas off and from suggest a path of movement.

In conclusion, Rice (1987), too, notes that adpositions can be analyzed in terms of transitivity. Her corpus results nicely show that complements of goal oriented adpositions can be passivized, whereas source oriented ones cannot. This means that, indeed, as outlined in the previous sections, there is a correspondence between directional goal and route meaning and transitivity. Also, what has become clear in this discussion, and what I have not discussed so far deliberately, is that source adpositions behave differently from other directional adpositions. But, why does not source meaning just behave like goal meaning?

5.4.3 The Thing with Source

Source meaning patterns differently from route and goal meaning. This obviously yields a problem: As the directional goal is transitive object-like, because of all characteristics mentioned above, then why is not source meaning? Consider the following representations:
All properties that make goal meaning more transitive-like, seem to hold to the same extent for source meaning. That is, the properties Kinesis, Aspect, Punctuality, being stationary with respect to some motion, and a change of state apply to source meaning as well. Still, source meaning is virtually never assigned accusative case. Rather, source meaning patterns with locative meaning, as for example in Sorbian (Schuster-Śewc 1999).

The explanation lies in the definition of transitivity. Recall the definition of transitivity of Hopper and Thompson (1980): Transitivity is an activity that is transferred from an agent to a patient. The spatial metaphor says it all: the “to the patient” is a goal, the “from an agent” a source. Source meaning is more like the agent than the patient: It is the participant from which the transferring event originates, which causes, or starts the event.

Indeed, Dowty (1991) argues that Source and Proto-Agent have a conceptual connection. In some events, like throwing something or handing an object to someone, the agent stays behind, while the object moves away from it. The Agent is the starting point for some action. Anderson (1971) too notes the parallels between ergative and ablative case. As an illustration, he mentions the superficially identical representation of the two roles in languages like Latin, in which a(b) both expresses ablative meaning, as well as the agent in passive constructions. Finally, also Rice (1987) claims that the failure to passivize is due to the direction of transfer from patient to agent.
5.5 Conclusion

In these sections I have shown that there is a correspondence between transitivity and directional goal and route meaning. By means of a number of Hopper and Thompson’s (1980) transitivity parameters, I have argued that both route and goal meaning can be analyzed as high transitive-like in comparison with locative meaning. Also, the objects of goal and route adpositions were shown to be more Proto-Patient-like than that of locative ones. Contrastively, adpositional phrases expressing source meaning were shown to resemble the agent.

In the next chapter, I will use this correspondence to account for the case alternation patterns described in Chapter 4. I will explain why accusative case combines with inherent notions of directional route and goal. By means of bidirectional Optimality Theory, I will show how accusative case is assigned to the goal and route object in analogy with the accusative case marking of the transitive object.
Chapter 6

A bidirectional OT account

6.1 Introduction

In Chapter 5, I have established a correspondence between directional goal and route meaning and transitivity. But, how can we explain that it is the structural accusative case that is repeatedly found with these notions of directional route and goal? How can it be that a structural case is applied to express these inherent meanings? In this Chapter, I will introduce Optimality Theory. By means of this theory, I can show how accusative case is assigned to the goal and route object in analogy with the accusative case marking of the transitive object, and, at the same time, account for the fact that inherent meaning of the accusative case is overruled by its structural use. In Optimality Theory, rules of grammar are violable constraints in a language particular ranking, that can get overruled by other constraints. Because of the idea of grammar as a ranked set of violable constraints, Optimality Theory is perfectly suitable to account for cross-linguistic tendencies.

I will account for the adpositional accusative-oblique case alternation by using three constraints: *COMPLEXITY, *ACC_PP and ACC/PROTO-P. The first constraint requires interpretation to be as simple as possible, that is, rather locative than directional. The second constraint *ACC_PP prefers an oblique case in combination with an adposition above accusative case. The last constraint ACC/PROTO-P dictates that an accusative case marked constituent should preferably be interpreted as a Proto-Patient. In Section 6.2, I will first introduce Bidirectional Optimality Theory. In Section 6.3, I will readdress the accusative case, in order to discern its inherent meaning. In Section 6.4, I will apply Bidirectional Optimality Theory to
the adpositional case alternation described in Chapter 4. Finally, I will come to conclusions in Section 6.5.

6.2 Bidirectional Optimality Theory

Optimality Theory is a model of the system of the linguistic knowledge a speaker of a language has (cf. Prince and Smolensky 1993/2002). The rules in this grammar are universal and violable constraints, which can be in conflict with each other. Weak constraints can be violated in order to satisfy stronger ones. Each language has its own specific constraint ranking, leading to cross-linguistic variation. In the following figure adapted from Blutner et al. (2006), the basic architecture of OT is represented:

In the Generator (GEN), an in principle infinite number of possible output candidates for some input is formed. These candidates are evaluated in the Evaluator (EVAL), a module which contains all constraints (CON) in their language particular ranking. The candidate that yields the least
serious violation of the constraints is the winner, i.e. the optimal output in OT terms. It is crucial to note that constraints in OT are violable. Constraints that are high ranked in one language, may easily get overruled in another. This makes OT pre-eminently suited to describe typological findings.

In OT Syntax, the input is a semantic structure. Possible syntactic structures to convey this meaning are evaluated by well-formedness constraints, after which the optimal candidate is selected. Thus, OT Syntax takes the point of view of the speaker. Contrastively, OT Semantics takes the hearer perspective. Some (well-formed) syntactic structure has been uttered and needs to be interpreted correctly and optimally. The constraints that play a role in OT can be phonological, syntactic, pragmatic or semantic in nature. Dependent on the direction of optimization - that is from meaning to form, or from form to meaning - they become of importance in the evaluation of a candidate (Hendriks and de Hoop 2001).

Bidirectional OT gives a general procedure of optimization of the relation of form and meaning, simultaneously optimizing in both directions, from meaning to form, and from form to meaning. Hence, BiOT evaluates form-meaning pairs (Blutner et al. 2006). In bidirectional OT a form-meaning pair is recursively defined as super-optimal if and only if there is no other super-optimal form-meaning pair with a different (i.e. less marked) form that expresses the same meaning better, and there is no other super-optimal form-meaning pair with a different meaning that is a better interpretation of that same form. This yields two super-optimal form-meaning pairs, namely the unmarked form with the unmarked meaning, and the marked form with the marked meaning. BiOT is ideal for dealing with meaning and form optionality in the same linguistic context in which there is a one-to-one correspondence of meaning and form (de Hoop and Malchukov 2006b). Therefore, BiOT seems to be suitable to deal with the variation described in Chapter 4.

OT evaluation processes are represented in so-called tableaux. In these tableaux, the constraints are ranked in the top row from left to right depending on their importance. Input candidates (form-meaning pairs in BiOT) are listed in the left column. The violations a candidate
yields are marked by an asterisk in the corresponding cell. Super-optimal pairs are indicated by the marker “#”.

The precise manner in which such a tableau representation works will be made clear during the argumentation of the following section, in which OT will be used to argue for an inherent meaning of the accusative case.

6.3 Accusative Case Revisited

In Section 2.2, a distinction was made between structural, idiosyncratic and inherent case. Accusative case is generally thought of as a structural case (cf. a.o. Chomsky 1981), which implies that it lacks inherent semantics. Svenonius (2001) in this respect mentions that cases such as nominative and accusative generally lack any association with semantic meaning. In generative grammar, they are taken to be the result of a purely syntactic licensing requirement on noun phrases. Without case, an NP cannot surface. However, in this section, I will argue that accusative case in fact does have its own meaning (cf. also a.o. Luraghi 2003, Malchukov 2006; Vainikka and Maling 1996). At the VP level, the inherent meaning of the accusative case normally gets overruled by its structural use. But, this is not always the case. Recall the discussion on the Finnish accusative case in Section 2.6. Vainikka and Maling (1996) argue that Finnish accusative case has some specific semantics. Accusative case for object position is associated with resultative aspect, and may only occur when it is assigned by a verb with the feature [+COMPLETED]. Based on the fact that accusative may only be used in one construction with a specific semantic feature, namely Definiteness, whereas partitive case may occur in various constructions, Vainikka and Maling (1996) argue that accusative case cannot be structural.

Keeping the required reservations with respect to cross-linguistic case characterizations in mind (cf. Section 2.2), I will start my attempt to classify the accusative as an inherent case with the definition of accusative case in the Routledge Dictionary of Language and Linguistics (Bussmann 1996):
Adpositional Case 71

**Accusative** [Lat. Accusare ‘to blame’; faulty translation of Grk (ptōsis) αἰτιάτική ‘(case) of that caused’] ([also objective])

Morphological case in nominative languages such as German or Latin. Noun phrases in the accusative case generally function syntactically as a direct object. (Ger. Er liest ein Buch ‘He is reading a book’). The accusative case can also serve to indicate adverbial functions and/or relations (Ger. Den ganzen Tag lachen ‘to laugh all day’), or predicative complements (Ger. Sie schimpft ihn einen Dummkopf ‘She calls him an idiot’). In addition, the accusative also occurs after certain prepositions (Ger. gegen ‘against’, Lat. ante ‘before’). There can also be cognate accusatives […] in which the semantic content of the verb is repeated by a nominal element in the accusative case (e.g. to dream a dream).

This definition does not seem too bad. Authors may differ in the way they deal with these functions: either they try to discern a Grundbedeutung of which other uses are (contextually) derived, or they just sum up the different functions of the accusative. Kurulowicz (1964: 181-3, in Blake 1994: 33) for example argues that expressing the direct object is the primary function of the accusative as all adverbial functions are determined by context. Hopper and Thompson (1980: 262) characterize accusative cross-linguistically as the case of the “totally affected Object”, without bothering too much about its non-structural functions. In what follows, I will look at the functions of the accusative per language, in order to see whether we can discern some inherent semantics.

For Classical Greek, Luraghi (2003) recognizes a separate meaning for the accusative. She acknowledges that first of all it is the case of the direct object, and that the marking of this grammatical relation often overrules semantic notions. However, there is variation in the case marking of direct objects in Ancient Greek, and choice in form implies a difference in meaning (Rijksebaron et al. 2000). Luraghi (2003: 53) indeed claims accusative case has “an autonomous semantic value”. Used as a direct object, accusative case most often marks the Patient. When the
direct object of a transitive verb is typically animate, no accusative case is used in Ancient Greek, but genitive or dative instead. (cf. Luraghi 2003: 53-55). Also, when the Patient is less Patient-like dative and genitive case are used, as for example with the verb boethēein ‘to help’:

(1) hēke ho Sardienos kêrux
comeAOR.3SG the.NOM Sardian.NOM Herald.NOM
deómenos Kroïsoi boethēein
entreat.PART.PRS.M/P.NOM C.DAT.M help.INF.PRS
‘the Sardian herald came to entreat their help for Croesus’

In (1), Croesus is marked with dative case, as he is not only rather a Beneficiary than a Patient, but also, the verb ‘to help’ typically takes an animate object.

Luraghi further shows that in combination with motion verbs, accusative case denotes direction, and in time expressions duration. Used adverbially, the accusative of respect denotes the domain in which some quality holds, as in example (2) adapted from Luraghi (2003: 57) and (3) below. This use of the accusative is dubbed Greek Accusative, but it can be found in other languages as well.

(2) Pódas ōkûs Akhilleûs
Foot:ACC.PL quick.NOM A.NOM
‘Achilles, swift qua feet’

(3) algein tous pódas
to.suffer the.ACC.PL foot.ACC.PL
‘to suffer from the feet’

The accusative of respect expresses the domain to which some act applies, or in which some quality holds. According to Luraghi, all other uses of the accusative as a non-obligatory argument are derived from this function. However, Rijksbaron et al. (2000) make a further distinction
here, discerning cognitive object (like *dream a dream*), accusative of respect, accusativus spatiī (indicating the space through which or the way along one goes or the distance one travels), accusative of time duration, accusative of direction (only in poetry), and the accusative as complement of the whole sentence (cf. also Bary and de Swart 2005).

In Latin (Rotteveel Mansveld and Waleson 1970), accusative case is used for the direct object of verbs, for the double object of verbs like *facere* ‘to make someone/something into something’ and *docere* ‘to teach something to someone’, and for objects of intransitive verbs, where the object and the verb are highly related (so-called *cognate objects*, cf. English *to live 80 years, to walk a mile, to fight a fight*). Just like in Greek, Accusative is used for a subject in *Accusativus cum Infinitivo* constructions [Rotteveel Mansveld and Waleson 1970]:

(4) pueros mentiri turpe est
    boy.ACC.PL lie.INF scandalous be.3Sg
    ‘that the boys lie is scandalous’

The case can further be used adverbially, and as “Greek Accusative”. Finally, accusative case functions as the goal of some motion, for which, in its bare form, the use is restricted to names of places and small islands; in all other cases the prepositions *ad* and *in* are necessary.

In Polish (Brooks 1975; Bielec 1998), again the main function of the accusative is to express the direct object of a transitive verb. Sometimes, accusative case is also used as adverbial modifier of duration of time. In combination with prepositions, accusative case expresses measurements, way and manner, and aim.

In (Contemporary Standard) Russian (Andrews 2001), the case is the standard form for the objects of transitive verbs. However, just like in Ancient Greek, accusative case is in alternation with genitive case in direct object position. Hopper and Thompson (1980: 279) argue that in Russian, objects of high transitive verbs are assigned accusative case, whereas those of low transitive ones get genitive. It is important to keep this kind of Differential Object Marking separate from the one described by Aissen (2003), and discussed above. Aissen argues that accusative
case is used to distinguish the core arguments of a transitive verb. Here, however, DOM seems to mark increasing transitivity. Indeed according to de Hoop (2006), differential object marking cannot exclusively be explained in terms of distinguishing the subject from the object; it may serve other purposes as well. The Russian accusative case further indicates directionality or extension. The case is highly correlated with motion to(wards) an object, and is used for those time expressions covering the smallest units of measured time to periods as large as weeks (Andrews 2001: 37-38).

Also in Sorbian (Schuster-Šewc 1999), accusative case in its primary function is assigned to the objects of transitive verbs, and it can be used as adverbial modifier, or as predicative attribute.

In Czech finally (Janda and Townsend 2000), accusative is the case of direct objects of verbs and destinations. It marks the entity that is arrived, or that someone goes through. Also, accusative is used in domains of time and purpose. The dimensional accusative signals distances or durations, and, sometimes, cost and weight.

Taken together, we have abundantly attested the use of accusative case denoting the direct object. However, in languages that exhibit a case alternation in the marking of the direct object (DOM), accusative case can be used for the objects of highly transitive verbs, whereas some other case (or, no case) is used for verbs that are lower in transitivity. Therefore, I claim that accusative case has inherent meaning, namely the meaning of a Proto-Patient (cf. Luraghi 2003; Malchukov 2005; Vainikka and Maling 1996). Most of the time, this meaning is overruled by the structural use of accusative case as object marking, but sometimes, under the right circumstances, this inherent meaning becomes manifest. Indeed, also in the adpositional domain, where no structural constraints of the VP apply, the inherent Proto-Patient meaning of the accusative can emerge. Consider the following sentences from Icelandic (Barðdal 2001, in Naess to appear) as an example:

(5) a. *Hann klóraði mig*  
he.NOM scratched me.ACC  
‘He scratched me.’ (painfully)
Alternations like these are often explained by assigning the non-accusative form a special meaning: either the event described by the verb is said to be not finished yet, or the object is less patient-like due to its prominence. This neglects the fact that the accusative form consequently marks the more patient-like object. Indeed, according to Naess (to appear), (5b) implies that the person being scratched had an itch and is actually benefiting from the event, whereas (5a) denotes an act of violence, causing the patient to feel pain. The accusative denotes a more Proto-Patient-like meaning. This might seem like a trivial way of describing the very same thing in other words, but I think it is not. Instead of disregarding any inherent meaning of the accusative by saying that it is the default other case, whereas the oblique case does have its own meaning; the accusative itself is assigned inherent meaning.

Consider the differential object marking in Russian again. In Russian, objects of high transitive verbs are assigned accusative case, whereas those of low transitive ones get genitive. This is illustrated in the following examples (Malchukov, p.c.):

(6) Ja bojusj mam-y
    I fear mam-GEN
    'I am afraid of (my) mother'

(7) Ja udaril (/obnjal) mam-u
    I hit (/embraced) mam-ACC
    'I hit (/embraced) (my) mother'

The verbs 'to hit' and 'to embrace' are higher in transitivity than 'to fear', hence the accusative case marking on the object in (7), but not in (6). It is important to keep this kind of Differential Object Marking separately from the one described by Aissen (2003) and discussed above. Aissen argues that accusative case is used to distinguish the core arguments of a
transitive verb. The case alternation was dependent on the properties of the DP proper. Here, however, DOM seems to mark increasing transitivity. If accusative case were used to discriminate between two arguments, there would be no reason for this function to apply in (7) but not in (6): The prominence relation of the two arguments I and my mother is the same in both sentences.

Preferences in interpretation can be phrased as violable constraints (cf. Hendriks and de Hoop 2001). I propose the following constraint that gives us the meaning of the accusative:

(8) **The Accusative meaning constraint**

\[ \text{ACC} \rightarrow \text{PROTO-P}: \text{Accusative case denotes Proto-Patient meaning} \]

In OT terms, the structural use of the accusative mentioned above would be motivated by a high ranked constraint – at least higher ranked than Acc/Proto-P - like the following:\(^4\)

(9) **The structural use constraint**

\[ \text{OBJ} \rightarrow \text{ACC}: \text{Mark the object with accusative case} \]

With the ranking OBJ/ACC >> ACC/PROTO-P illustrated in the tableau below, it is clear why Acc/Proto-P stays hidden in a language that does not allow for case variation on its direct object:\(^5\)

---

\(^4\) Of course, much more could be, and indeed has been, said about this structural use. I do not want to claim that these two constraints can account for all uses of the accusative case; I only want to show how Acc/Proto-P normally remains invisible.

\(^5\) Note that OT syntax will do here, as there is no optionality in form.
Tableau 1. OT syntax: the distribution of the accusative

<table>
<thead>
<tr>
<th>Input: non patient-like object</th>
<th>OBJ -&gt; ACC</th>
<th>ACC -&gt; PROTOL-P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acc</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any non-Acc</td>
<td>*!</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Input: patient-like object</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Acc</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any non-Acc</td>
<td>*!</td>
<td></td>
</tr>
</tbody>
</table>

As is clear from this tableau, accusative case is selected for any object (indicated by the marker “*”), independent of the thematic role, or contributing Proto-Role properties, of the argument. Any non-accusative form of the object leads to a violation of OBJ -> ACC, which is expressed by the asterisk in the corresponding cell. The violation of this constraint is decisive, as the accusative marked candidate is the only one left. This is indicated by the addition of an exclamation mark to the violation. Therefore, OBJ -> ACC is decisive for all inputs and ACC/PROTO-P does not become manifest in languages that do not exhibit Differential Object Marking.

Also, this ranking can account for DOM patterns like illustrated in Icelandic and Russian (exx. (5)-(7) above), where the less Proto-Patient-like object of a transitive clause is assigned oblique case. As we are dealing with fluid case alternation here – in the same linguistic context, two forms can be used leading to a meaning difference in one aspect only. I will describe this DOM pattern with a BiOT tableau. Consider the following tableau:

Tableau 2. BiOT: structural fluid case marking

<table>
<thead>
<tr>
<th>Input: &lt;form, meaning&gt;</th>
<th>OBJ -&gt; ACC</th>
<th>ACC -&gt; PROTO-P</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;Acc, Proto-P&gt;</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>&lt;Acc, non-Proto-P&gt;</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>&lt;Obl, Proto-P&gt;</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>&lt;Obl, non-Proto-P&gt;</td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>
In BiOT there are two rounds of optimization, as the second super-optimal pairs is determined by means of the first. In the first round of optimization, the combination of the accusative combined with the Proto-Patient meaning is found super-optimal as it does not yield a violation of any constraint. All other candidates violate one or more constraints. In the second round the combination of some oblique case with the less Proto-Patient-like meaning is found super-optimal, as all other candidates are blocked by the first super-optimal pair. The pair <ACC, non-Proto-P> is blocked as the first super-optimal candidate combines this form with the Proto-Patient meaning already; The pair <Obl, Proto-P> is blocked as the first super-optimal candidate combines this meaning with the accusative form already. The last form-meaning pair <Obl, non-Proto-P> is neither blocked due to its form, nor to its meaning, and therefore becomes the second super-optimal candidate.

In this section, I hope to have shown that accusative case could be said to have inherent Proto-Patient meaning. Now, let us return to the domain of adpositions, in order to account for the accusative-oblique case alternation found there.

6.4 A BiOT Account for the Accusative-Oblique Case Alternation

Recall from Section 5.4 that the object of a directional goal and route adposition is more Proto-Patient-like, than that of a locative adposition. Since we saw in the previous section that accusative case has inherent Proto-Patient meaning, we can now understand why some objects of goal and route adpositions are assigned accusative case.

In Chapter 2, I showed that a distinction can be made into locative and directional adpositions. The former could be said to be less spatially complex than the second, since directional meaning by definition implies a change in place (cf. Helmantel 1998; Jackendoff 1983). This difference in complexity is also reflected in the order of acquisition of spatial prepositions, as locatives are acquired before directionals (Bowerman and Choi 2001).
A spatial adposition, I argue, is preferably interpreted as simple as possible, meaning it is rather understood locative than directional if possible. This can be shown to follow from a number of markedness indicators (de Hoop et al 2003). First, the DEFAULT meaning of an ambiguous adposition is locative. Compare the following examples:

(10) a. *in de goal*  
    ‘in the goal’

    b. *de bal ligt in de goal*  
       ‘the ball lies in the goal’

    c. *de voetballer schiet de bal in de goal*  
       ‘the soccer player shoots the ball into the goal’

In (10a), where no further context is given, a locative reading is obtained. A stative context as in (10b), maintains this locative reading. However, a directional reading can be obtained by the right context as in (10c), where the motion verb *schieten* ‘to shoot’ enforces a goal reading.

Secondly, adpositions with locative meaning are syntactically, i.e. qua form, less complex (SYNTACTIC COMPLEXITY). In Dutch, the standard positions for an adposition is in front of its object. In this configuration, the PP can have both the preferred locative and a directional reading (in the right context, cf. 10c):

(11) *in het huis*  
    ‘in the house’ and: ‘into the house’

Used in a non-standard way, i.e. as a postposition, an adposition can only have one reading, the directional one:

(12) *het huis in*  
    ‘into the house’

Given Horn’s (1984) correspondence between markedness of meaning and markedness of form, we could say that since the more complex form is used for directional meaning this meaning apparently is more complex.
The third markedness indicator, morphological complexity, follows the same kind of reasoning. In English, a directional adposition is composed and longer than a locative adposition (into vs. in). The result of these findings can be stated in the following markedness constraint:

\[
\text{(12) The complexity constraint}
\]

*COMPLEXITY: avoid a complex interpretation if possible (i.e., interpret locative rather than directional).

Of course, the complexity constraint can only hold in cases where both a simple and a complex interpretation are in principle possible for a form. For into, by definition only the directional goal reading is allowed, therefore *COMPLEXITY cannot apply. For (Dutch) in the constraint can apply, as two readings are possible in principle.

The last constraint we need is one on the form of the adpositional object. Oblique cases could be considered the default option for adpositional objects, not the accusative case. The first Argument in favor of this is the case preference of newly derived or not completely grammaticalized adpositions. For example, in Greek, improper prepositions always combine with genitive case and in Sorbian, adpositions derived from adverbs or nouns never take accusative. Also, it is intuitively clear, that languages should not choose the same case that is already in use marking core arguments (viz. accusative) in order to avoid ambiguity. Another telling argument is that accusative case is used more often in case alternations than as the only option for an adposition. Also, Zwarts (2006a) and Bierwisch (1988) note that dative should be regarded as the unmarked case for adpositions in German and not accusative. This is illustrated by the fact that dative case, not accusative, is taking over the use of genitive case in combination with prepositions. Finally, a very notable fact is that if accusative case is used in the adpositional domain in the languages I have considered, it most often expresses directional goal meaning. Within case alternations this even holds almost exclusively. As oblique case has a wider range, it could be said to be less marked. Indeed, in my language sample, there were many more instances of adpositions combining with oblique case than with
accusative. Also, in German, accusative case is found less often in combination with adposition than oblique case. This is clear from a simple count of the cases assigned by German adpositions. Both in the table of Spatial adpositions of Zwarts (2005a) and in the table of most frequent adpositions of Volk (2003), accusative case is outnumbered by oblique cases. These findings imply that in the adpositional case hierarchy oblique case is preferred over accusative. Put into a markedness constraint would lead to:

\[(13) \quad \ast\text{ACC}_{\text{PP}}: \text{Avoid accusative case marking on the objects of adpositions.}\]

Such a constraint on form is an instantiation of Aissen’s (2003) \asterisk{\text{STRUC}C}, which penalizes the use of case. There is some cross-linguistic evidence for such an adpositional case hierarchy, since newly derived adpositions for example combine with dative or genitive, rather than with accusative. Also, derived adpositions in Sorbian take genitive and dative, Greek improper adpositions combine with genitive case only. Also, it seems to make sense for a language, if there is a choice, to keep accusative case reserved for marking the verbal object.

With these three constraints in hand, we can account for the bulk of the adpositional fluid differential case marking attested in Chapter 2. Consider the following tableau in which the general distribution is illustrated:

**Tableau 3. The general pattern**

<table>
<thead>
<tr>
<th>OBJ $\rightarrow$ ACC</th>
<th>ACC $\rightarrow$ PROTO-P</th>
<th>\textit{COMPLEXITY}</th>
<th>\textit{ACC}_{\text{PP}}</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\ast$ &lt;obl, loc&gt;</td>
<td></td>
<td>\ast</td>
<td></td>
</tr>
<tr>
<td>&lt;obl, dir&gt;</td>
<td></td>
<td>\ast</td>
<td></td>
</tr>
<tr>
<td>&lt;acc, loc&gt;</td>
<td>\ast</td>
<td></td>
<td>\ast</td>
</tr>
<tr>
<td>$\ast$ &lt;acc, dir&gt;</td>
<td></td>
<td>\ast</td>
<td>\ast</td>
</tr>
</tbody>
</table>

The highest ranked constraint OBJ $\rightarrow$ ACC is vacuously satisfied in this context, as there is no direct object to be marked. As this holds for adpositional case marking by definition, I will not consider this constraint
in the remainder of this chapter. In the first round of optimization, the form-meaning pair \(<\text{obl}, \text{loc}>\) is found super-optimal as it yields no violations of the constraints whatsoever. In a second round, both the pairs \(<\text{obl}, \text{dir}>\) and \(<\text{acc}, \text{loc}>\) are out, as they are blocked by the first super-optimal pair: There is a better interpretation for the oblique case, and a better form for the locative meaning respectively. The pair \(<\text{acc}, \text{dir}>\) comes out as the second super-optimal pair. Although it violates both \(*\text{COMPLEXITY}\) and \(*\text{ACC}_{pp}\), there is no better form left for the directional meaning, as oblique is already claimed by the first super-optimal pair, nor a better interpretation for the accusative form, as locative meaning is already paired up with the oblique form.

This general pattern accounts for all fluid differential case marking of the type locative vs. directional goal and route meaning described in Chapter 2. This pattern is illustrated by the combinations of the oblique case with the locative or source meaning and the accusative with a directional goal meaning, in the examples the Polish, Ancient Greek, German and Latin below.

Polish (Bielec 1975)

\[(14)\] a. \(\begin{array}{l}
\text{pracuje} \quad \text{na poczcie} \\
\text{Work.1SG NA post.office.LOC} \\
\text{‘I work at the post office’}
\end{array}\]

b. \(\begin{array}{l}
\text{idę} \quad \text{na poczcie} \\
\text{Go.1SG NA post.office.ACC} \\
\text{‘I’m going to the post office’}
\end{array}\)

In this Polish example, the locative reading in (a) combines with the locative case, the directional one with the accusative.

Latin (Rotteveel Mansveld & Waleson 1970)

\[(15)\] a. \(\begin{array}{l}
\text{in urbe} \quad \text{vivere} \\
\text{IN city.ABL to.live} \\
\text{‘to live in the city’}
\end{array}\)
b. in terram cadere
IN ground.ACC to.fall
‘to fall on the ground’

In Latin the same distribution can be seen. The static meaning of vivere ‘to live’ yields a locative reading of in, and therefore an ablative case marking on the PP object. On the other hand, the dynamic verb cadere ‘to fall’ leads to a directional reading, hence the accusative case marking.

However, in both the Latin and Polish example, a different verb is used in the opposite pairs. In these cases, one might argue that the verb somehow assigns case “over the adposition” to the object. In the following Ancient Greek and German examples, the verb is kept constant, and only the case of the object alternates:

Classical Greek (Iliad 2.596 and 18.143, from Luraghi 2003)

(16) a. ióna par’ Eurútou
go.PART.PRS.ACC PARA E.GEN
‘coming from Eurytos’
b. eimi par’ Héphaiston
go.FUT.1SG PARA H.ACC
‘I will go to Hephaestos’

(17) a. Ich gehe in dem Laden
I walk in the.DAT shop
‘I walk (around) in the shop’
b. Ich gehe in den Laden
I walk in the.ACC shop
‘I enter the shop’

Again, the case alternations correspond to the predicted alternation in meaning. The source meaning in Greek (16a) combines with the genitive case, whereas the goal meaning in (16b) goes with accusative. Also in the German example (17), the locative meaning corresponds to the oblique dative case and the directional one with accusative.
Here, a distinction is made between goal and route meaning, where the route meaning ‘around the forest’ combines with the locative case, and the goal meaning ‘up to her ears’ with accusative.

The difference in this alternation, lies in the degree of Proto-Patient-likeness. Although the object of the route adposition in (19) resembles an Incremental Theme (making it Proto-Patient-like), the whole PP is both atelic (there is no clear endpoint to walking around in the forest) and non-punctual (there is no real transition from ~P to P, in which P is the event of walking around in the forest). The latter properties make the complete event lower in transitivity. The goal PP in (18) however, has the properties telic (the endpoint of the blushing being the level of the ears) and punctual (there is a transition from ~P to P, in which P is the event of having a red face), making it high transitive-like. The object of a goal adposition in this view, is thus more patient-like than that of a route adposition. This is shown in the following tableau:
**Tableau 4. The goal-route distinction**

<table>
<thead>
<tr>
<th></th>
<th>ACC -&gt; PROTO-P</th>
<th>*COMPLEXITY</th>
<th>*ACC_PP</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;obl, goal&gt;</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;obl, route&gt;</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;acc, goal&gt;</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>&lt;acc, route&gt;</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

ACC -> PROTO-P rules out the candidate <acc, route>, because of the motivations outlined above. Subsequently, all directional readings equally violate *COMPLEXITY, which, therefore, does not rule out any candidate. Now, we have ended up with a rather unexpected tie. There is no preferred interpretation for the optimal oblique form: both candidates are possible first super-optimal pairs. We cannot apply straightforward bidirectional reasoning in this case, as both meanings are equally good. It is possible to determine the first super-optimal pair in a different way, however, which I will call “backwards bidirectional reasoning”. We can determine the optimal meaning for the dis-preferred accusative form, since its combination with route meaning was forbidden by ACC -> PROTO-P. Therefore, we know that the “second” super-optimal pair preferably is <acc, goal>. This is illustrated with the bracketed super-optimality signal in Tableau 5.

**Tableau 5a. The goal-route distinction**

<table>
<thead>
<tr>
<th></th>
<th>ACC -&gt; PROTO-P</th>
<th>*COMPLEXITY</th>
<th>*ACC_PP</th>
</tr>
</thead>
<tbody>
<tr>
<td>? &lt;obl, goal&gt;</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>? &lt;obl, route&gt;</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(θ) &lt;acc, goal&gt;</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>&lt;acc, route&gt;</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

Given the preferred interpretation of the accusative form, the “first” super-optimal pair becomes <obl, route>. It combines the best form, with one of the two best meanings. The second super-optimal pair, as we know already, is <acc, goal>. There is no better interpretation for the accusative form, nor is the goal meaning expressed by a better form. The resulting of this reasoning is illustrated in Tableau 5b:
Tableau 5b. The goal-route distinction

<table>
<thead>
<tr>
<th></th>
<th>ACC -&gt; PROTO-P</th>
<th>*COMPLEXITY</th>
<th>*ACC_P</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;obl, goal&gt;</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>&lt;obl, route&gt;</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>&lt;acc, goal&gt;</td>
<td></td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>&lt;acc, route&gt;</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

One could argue that the meaning of the adposition *po* in (19) is really more locative. Then, the route interpretation *around* is due to the searching event rather than part of the meaning of the adposition. If we take this view, the candidates become <obl, goal>, <obl, loc>, <acc, goal>, and <acc, loc> just like in Tableau 3 above, with precisely the same violation pattern of that tableau. In this case too, <obl, loc> comes out super-optimal in the first round and <acc, goal> in the second round of optimization correctly predicting the found pattern in (19).

Also, the *dē* example from Classical Greek can be accounted for in this analysis. Again consider the alternation:

(44) [Iliad 4.481-2, taken from Luraghi 2003: 168]

a. ḍi' ömou  khálkeon  égkhos
   go:AOR.3SG
   'the spear of bronze went through his shoulder'

Iliad 17.283, taken from Luraghi 2003: 171]

b. helixámenos  dìa  bēssas
   turn:PART.AOR.MID.NOM  DIA  glen:ACC.PL.F
   'turning around through the glens'

This difference between the two constructions (represented in Figure 9 above) was said to be the extent to which the path covered the Ground. Translated into object terms, we could say that the more covered, the more Patient-like an object is, hence the asterisk in the first column for the short route interpretation of the accusative form in Tableau 6. Also, a
The route-route distinction

Tableau 6. The route-route distinction

<table>
<thead>
<tr>
<th></th>
<th>ACC/PROTO-P</th>
<th>*COMPLEXITY</th>
<th>*ACC_PP</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;obl, short route&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;obl, long route&gt;</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>&lt;acc, short route&gt;</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;acc, long route&gt;</td>
<td>*</td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>

The pair <obl, short route> is found super-optimal in the first round of optimization, as it leads to no violation on any constraint. Following bidirectional reasoning, the pairs <obl, long route> and <acc, short route> are out of competition, as there is a better interpretation for the oblique form and a better form for the short route meaning that are already combined in the first super-optimal pair. The pair <acc, long route> is the second super-optimal pair: The less marked short route meaning for the accusative form is already claimed by the oblique form, and the better oblique form for the long route is already claimed by the short route.

6.5 Conclusion

In this chapter, I have accounted for all attested adpositional accusative-oblique case alternation, by introducing three constraints: *COMPLEXITY, *ACC\_PP and ACC/PROTO-P.

I argued that accusative case can be assigned inherent meaning, namely that of a Proto-Patient. This correspondence was formulated in the constraint ACC/PROTO-P, which says that accusative case corresponds to Proto-Patient properties. Also, I argued that there is a correspondence between transitive meaning and directional goal and source meaning. Using transitivity characteristics, directional meaning can be analyzed as more transitive-like than locative meaning. In context, some directional meaning can be analyzed as more transitive than some other directional meaning. Constantly, the ACC/PROTO-P constraint determines that the
most transitive like meaning option (given that context) is assigned accusative case. The constraint on complexity charges adpositions to be interpreted as simply as possible given the context. Finally, the constraint on accusative form, as an instantiation of Aissen’s (2003) *STRUCc, penalizes the use of accusative case.
Chapter 7

Conclusions

In this thesis, I have been looking at spatial adpositions that alternate between oblique and accusative case. I have shown that this case alternation corresponds to spatial meaning differences. In alternations, accusative case takes up the directional goal or route meaning whereas oblique case conveys locative meaning. I have accounted for this adpositional accusative-oblique case alternation by introducing three constraints: *COMPLEXITY, *ACC\textup{PP} and ACC/PROTO-P.

I have shown that there is a correspondence between transitive meaning and directional goal and source meaning: Transitivity and Proto-Patient characteristics as Kinesis, Punctuality, Aspect, Incremental Theme, and Rest with respect to some motion can be applied to describe adpositional phrases as well. Doing so, directional meaning can standardly be analyzed as more transitive-like than locative meaning. In context, some directional meaning can be analyzed as more transitive than some other directional meaning. Also, I argued that accusative case can be assigned inherent meaning, namely that of a Proto-Patient. This was formulated in the constraint ACC/PROTO-P, which determines that accusative case corresponds to Proto-Patient properties.

Applied to the adpositional domain, the ACC/PROTO-P constraint determines that the most transitive like meaning option (given some context) is assigned accusative case. The constraint on complexity charges adpositions to be interpreted as simple as possible, favoring a locative reading over a directional one. Finally, the constraint on accusative form, as an instantiation of Aissen’s (2003) *STRUC, penalizes the use of accusative case.
I have shown how the bidirectional interaction between the cross-modular constraints *COMPLEXITY, *ACC_{DP} and ACC-\rightarrow PROTO-P can account for the attested oblique-accusative case alternation.

Source meaning is by definition more agent- than patient-like. In Hopper and Thompson’s (1980) definition, Transitivity was said to be an activity that is transferred from an agent to a patient. The spatial metaphor in this definition says it all: “from an agent” is a source. Therefore, by mere definition, source is more like the agent than the patient: It is the participant from which the transferring event originates, which causes, or starts the event.
References


topological spatial relationships”. Manuscript, Eugene: University of
Oregon, and Nijmegen: Max Planck Institute for Psycholinguistics.
Mouton.


Den Dikken (2003) "On the syntax of locative and directional adpositional
phrases”. Manuscript, The Graduate Center of the City University of
New York.

[Studien zur deutschen Grammatik 62]. Tübingen: Stauffenburg

University Press.

Dryer, M. (in press) "Descriptive Theories, Explanatory Theories, and
Basis Linguistic Theory”. In: Catching Language: Issues in Grammar
Writing. F. Ameka, A. Dench, N. Evans (eds). Berlin: Mouton de
Gruyter.

semantic and pragmatic context. Amsterdam and Philadelphia: John
Benjamins.

Proceedings of the Twenty-Sixth Annual Meeting of the Cognitive
Science Society.

Fong, V. (2001) “‘Into doing something’: Where is the Path in event
predicates?”. Manuscript, University of Singapore.


Swart (eds) *Studies on case, valency and transitivity* [Studies in Language Companion Series 77]. Amsterdam: John Benjamins.


Appendix

Adpositional case alternation

In this appendix the case alternations of the spatial adpositions of the languages of my sample are shown. The meaning is first divided into Locational and Directional. Directional meaning is further subdivided into Source, Route, and Goal meaning. As is it often very hard to give a correct translation of adpositions, the attempts here should not be taken too strict. They are only meant to give some idea of the distribution of meaning, more specific uses cannot be accounted for in the present context.

1 Latin

Table 1. Latin case-alternating prepositions

<table>
<thead>
<tr>
<th></th>
<th>Locational</th>
<th>Directional</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Source</td>
<td>Goal</td>
</tr>
<tr>
<td>In</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abl</td>
<td>‘in, on’</td>
<td></td>
</tr>
<tr>
<td>Acc</td>
<td></td>
<td>‘in, on, to’</td>
</tr>
<tr>
<td>Sub</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abl</td>
<td>‘under, at the’</td>
<td></td>
</tr>
<tr>
<td>Acc</td>
<td></td>
<td>‘to under, to the foot of’</td>
</tr>
</tbody>
</table>
## 2 Classical Greek

Table 2. Greek case-alternating prepositions

<table>
<thead>
<tr>
<th></th>
<th>Locational</th>
<th>Directional</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Source</td>
<td>Goal</td>
</tr>
<tr>
<td><strong>Dia</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Gen</strong></td>
<td></td>
<td>‘through’</td>
</tr>
<tr>
<td><strong>Acc</strong></td>
<td></td>
<td>‘through’</td>
</tr>
<tr>
<td><strong>Epi</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Gen</strong></td>
<td>‘at (the top of)’</td>
<td>‘towards’</td>
</tr>
<tr>
<td><strong>Dat</strong></td>
<td>‘(close) to, on’</td>
<td></td>
</tr>
<tr>
<td><strong>Acc</strong></td>
<td></td>
<td>‘up to, towards, against,’</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Kata</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Gen</strong></td>
<td>‘under’</td>
<td>‘from … downwards’</td>
</tr>
<tr>
<td><strong>Acc</strong></td>
<td>‘across, at the level of’</td>
<td>‘following’, ‘along with, spread over’</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Meta</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Gen</strong></td>
<td>‘(together) with’ (mostly persons)</td>
<td></td>
</tr>
<tr>
<td><strong>Acc</strong></td>
<td></td>
<td>‘towards’</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Para</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Gen</strong></td>
<td></td>
<td>‘from’ (no inclusion)</td>
</tr>
<tr>
<td><strong>Dat</strong></td>
<td><em>Para at</em></td>
<td></td>
</tr>
<tr>
<td><strong>Acc</strong></td>
<td>‘next to’</td>
<td>‘to’</td>
</tr>
<tr>
<td></td>
<td>(animates), ‘next to, at’</td>
<td>(inanimates)</td>
</tr>
<tr>
<td>------</td>
<td>---------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Peri</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gen</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Acc</strong></td>
<td>‘round’</td>
<td>‘around’</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Prox</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gen</td>
<td>‘at the side of’</td>
<td></td>
</tr>
<tr>
<td>Dat</td>
<td>‘at’</td>
<td></td>
</tr>
<tr>
<td><strong>Acc</strong></td>
<td></td>
<td>‘towards, against’</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Huper</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gen</td>
<td>‘above’</td>
<td>‘over’</td>
</tr>
<tr>
<td><strong>Acc</strong></td>
<td></td>
<td>‘over, further away than’</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hupo</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gen</td>
<td>‘under’</td>
<td></td>
</tr>
<tr>
<td>Dat</td>
<td>‘under, at the base of’</td>
<td></td>
</tr>
<tr>
<td><strong>Acc</strong></td>
<td></td>
<td>‘under’</td>
</tr>
</tbody>
</table>
### Table 3. Polish case-alternating adpositions

<table>
<thead>
<tr>
<th></th>
<th>Locational</th>
<th>Directional</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Source</td>
<td>Goal</td>
</tr>
<tr>
<td><strong>Między</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acc</td>
<td></td>
<td>'to among,'</td>
</tr>
<tr>
<td>Instr</td>
<td>'among,'</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Nad</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acc</td>
<td></td>
<td>'to above'</td>
</tr>
<tr>
<td>Instr</td>
<td>'above',</td>
<td></td>
</tr>
<tr>
<td></td>
<td>**</td>
<td></td>
</tr>
<tr>
<td><strong>Pod</strong></td>
<td></td>
<td>'to'</td>
</tr>
<tr>
<td>Acc</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instr*</td>
<td>'below',</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Przed</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acc</td>
<td></td>
<td>'(to) in front of'</td>
</tr>
<tr>
<td>Instr*</td>
<td>'in front of'</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>W</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acc</td>
<td></td>
<td>'into'</td>
</tr>
<tr>
<td>Loc</td>
<td>'in, 'inside',</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>O</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acc</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loc</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Case</td>
<td>Nominative</td>
<td>Genitive</td>
</tr>
<tr>
<td>------</td>
<td>------------</td>
<td>----------</td>
</tr>
<tr>
<td>Na</td>
<td>'to (on)'</td>
<td></td>
</tr>
<tr>
<td>Acc</td>
<td>'to (on)'</td>
<td></td>
</tr>
<tr>
<td>Loc*</td>
<td>'on', 'at', 'in'</td>
<td></td>
</tr>
<tr>
<td>Po</td>
<td>'to'</td>
<td></td>
</tr>
<tr>
<td>Loc</td>
<td>'after', 'on'</td>
<td></td>
</tr>
<tr>
<td>Za</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gen</td>
<td></td>
<td>'to behind', 'to abroad'</td>
</tr>
<tr>
<td>Instr*</td>
<td>'behind, beyond', 'abroad'</td>
<td></td>
</tr>
</tbody>
</table>

* Instead of instrumental or locative case, also local cases may be used in the locational meaning.

** In some cases it is allowed to use pod, nad, and na with instrumental or locative case when expressing directional meaning.
### 4 Russian
Table 4. Russian case-alternating adpositions

<table>
<thead>
<tr>
<th>Locational</th>
<th>Directional</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Source</td>
</tr>
<tr>
<td></td>
<td>Goal</td>
</tr>
<tr>
<td></td>
<td>Route</td>
</tr>
<tr>
<td><code>в</code></td>
<td></td>
</tr>
<tr>
<td>Acc</td>
<td><code>(in)to</code></td>
</tr>
<tr>
<td>Loc</td>
<td><code>in, at</code></td>
</tr>
<tr>
<td><code>на</code></td>
<td></td>
</tr>
<tr>
<td>Acc</td>
<td><code>(on)to, to behind</code></td>
</tr>
<tr>
<td>Loc</td>
<td><code>on, at</code></td>
</tr>
<tr>
<td><code>за</code></td>
<td></td>
</tr>
<tr>
<td>Acc</td>
<td><code>to behind</code></td>
</tr>
<tr>
<td>Instr</td>
<td><code>behind</code></td>
</tr>
<tr>
<td><code>под</code></td>
<td></td>
</tr>
<tr>
<td>Acc</td>
<td><code>to under</code></td>
</tr>
<tr>
<td>Instr</td>
<td><code>under, underneath</code></td>
</tr>
</tbody>
</table>

### 5 Sorbian
Table 5. Sorbian case-alternating adpositions

<table>
<thead>
<tr>
<th>Locational</th>
<th>Directional</th>
</tr>
</thead>
<tbody>
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<td>Source</td>
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<tr>
<td></td>
<td>Goal</td>
</tr>
<tr>
<td></td>
<td>Route</td>
</tr>
<tr>
<td><code>프</code></td>
<td></td>
</tr>
<tr>
<td>Acc</td>
<td><code>to before, in front of</code></td>
</tr>
<tr>
<td>Loc</td>
<td><code>in front of, before</code></td>
</tr>
</tbody>
</table>
### Nad(e)

<table>
<thead>
<tr>
<th>Case</th>
<th>Directional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acc</td>
<td>‘to over, above’</td>
</tr>
<tr>
<td>Instr</td>
<td>‘over, above’</td>
</tr>
</tbody>
</table>

### Pod(e)

<table>
<thead>
<tr>
<th>Case</th>
<th>Directional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acc</td>
<td>‘to under, beneath’</td>
</tr>
<tr>
<td>Loc</td>
<td>‘under’</td>
</tr>
</tbody>
</table>

### Mjez(y)

<table>
<thead>
<tr>
<th>Case</th>
<th>Directional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acc</td>
<td>‘to between, among’</td>
</tr>
<tr>
<td>Instr</td>
<td>‘between’</td>
</tr>
</tbody>
</table>

### Na

<table>
<thead>
<tr>
<th>Case</th>
<th>Directional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acc</td>
<td>‘on, at’</td>
</tr>
<tr>
<td>Loc</td>
<td>‘on, in, at’</td>
</tr>
</tbody>
</table>

### Za

<table>
<thead>
<tr>
<th>Case</th>
<th>Directional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acc</td>
<td>‘to behind’</td>
</tr>
<tr>
<td>Instr</td>
<td>‘behind’</td>
</tr>
</tbody>
</table>

---

#### 6 Czech

Table 6. *Czech case-alternating adpositions*

<table>
<thead>
<tr>
<th>Locational</th>
<th>Directional</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Source</td>
</tr>
</tbody>
</table>

**Mezi**

<table>
<thead>
<tr>
<th>Case</th>
<th>Directional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acc</td>
<td>‘to among, between’</td>
</tr>
<tr>
<td>Instr</td>
<td>‘between, among’</td>
</tr>
<tr>
<td>Case</td>
<td>Acc</td>
</tr>
<tr>
<td>------</td>
<td>-----</td>
</tr>
<tr>
<td>Na</td>
<td></td>
</tr>
<tr>
<td>Acc</td>
<td></td>
</tr>
<tr>
<td>Loc</td>
<td></td>
</tr>
<tr>
<td>Nad</td>
<td></td>
</tr>
<tr>
<td>Instr</td>
<td></td>
</tr>
<tr>
<td>O</td>
<td></td>
</tr>
<tr>
<td>Po</td>
<td></td>
</tr>
<tr>
<td>Pred</td>
<td></td>
</tr>
</tbody>
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