

Semantics and Phonology in Syntax

by

Aniko Csirmaz

M.A., Eötvös Loránd University, Budapest, Hungary

Submitted to the Department of Linguistics and Philosophy
in Partial Fulfillment of the Requirements for the Degree of

Doctor of Philosophy in Linguistics

at the

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

September 2005

© 2005 Aniko Csirmaz. All rights reserved

The author hereby grants to MIT permission to reproduce and to distribute publicly
paper and electronic copies of this thesis document in whole or in part

Signature of Author: _____

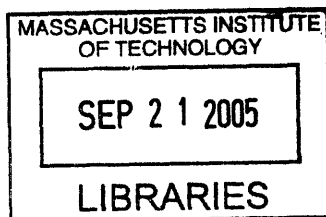
Department of Linguistics and Philosophy
August 5, 2005

Certified by: _____

Sabine Iatridou
Professor of Linguistics
Thesis Supervisor

Accepted by: _____

Irene Heim
Professor of Linguistics
Chair of the Linguistics Program



ARCHIVES 1

Semantics and Phonology in Syntax

by

Aniko Csirmaz

Submitted to the Department of Linguistics and Philosophy
on August 5, 2005, in partial fulfillment of the
requirements for the degree of Doctor of Philosophy in Linguistics

Abstract

In this thesis I argue that morphology should be allowed to interpret not only the information provided by the syntactic component, but also compositional semantic properties. This conception of grammar requires morphology to interact LF and the semantic component in addition to syntax. Applying this hypothesis, I account for the alternation between partitive and non-partitive structural case in Finnish, which is affected by the semantic property of divisibility. I argue that the property of divisibility, which is relevant for case alternation, is determined within Spell-out domains, which are interpreted immediately following Spell-out. Building on these domains as affecting case marking, I derive the differences between divisibility affecting case morphology and the property of divisibility as determined in the final semantic interpretation. I also discuss the properties of negated event predicates in detail, and argue for a specific view of the semantic import of negation on aspect. I show that in spite of the apparent semantic similarities, the effects of negation on Finnish case marking cannot be assimilated to the instances of case alternation determined by divisibility. I extend this conclusion and discuss the nature of divisibility licensed by negation crosslinguistically in more detail. Finally, I consider further areas where the interaction between semantics and morphology or the phonological form can be detected. I argue that while some of these interactions can be treated by assuming that the latter components are sensitive to semantic properties, not all interactions can be described this way. In general, however, permitting the interaction between semantics and morphology or phonology is desirable and leads to a more economical system, where the number of non-convergent derivations is minimized.

Thesis Supervisor: Sabine Iatridou

Title: Professor of Linguistics

Acknowledgments

As a number of people said before, a dissertation is not the work of a single person – and they are right. This dissertation could not have been written without the help and guidance of my advisor, Sabine Iatridou. Sabine has keen insight, an extensive knowledge of facts and accounts as well as great enthusiasm. In matters linguistic and otherwise, I greatly appreciate her help. Discussions with David Pesetsky were always intriguing and led me to pinpoint and sharpen core assumptions as well as pitfalls in the accounts considered. Kai von Stechow helped to make formalizations more precise, and get rid of unnecessary embellishments on the accounts proposed.

Apart from the members of my committee, I'm grateful to a number of other people for comments and discussions which may or may not bear directly on the issues discussed below.

For Finnish data and relevant discussions, I'm grateful to Paul Kiparsky, Liina Pylkkanen, Elsi Kaiser and Matti Miestamo, who provided careful and detailed data about Finnish. Other people who helped with data include Youngjoo Lee, Heejeong Ko, Michael Wagner, Tania Ionin, Valentine Hacquard, Seth Cable, Tamina Stephenson, Aly Adler and MaryAnn Walter. For comments and helpful discussions of various aspects of the issues presented here, I thank Noam Chomsky, Paul Kiparsky, Tanya Reinhart, Danny Fox, Shigeru Miyagawa, Norvin Richards, Irene Heim, Michel de Graf, and audiences at talks at the University of Lund, the North American Syntax Conference at Concordia University and at GLOW XXX.

For sharing an apartment, an office, or good times otherwise, thanks to Youngjoo Lee, the inhabitants of the linguistics apartment of Magazine Street (especially Jon Gajewski and Elena Guerzoni), Shoichi Takahashi, Markéta Ceplová, and all the members of Ling-00 and the department. Last, but not least, thanks to the staff of the department, and for MITWPL, where I learned that books and vitamins don't vanish into thin air.

On the other side of the Atlantic, I would like to thank the linguists in Hungary who introduced me to generative linguistics and specifically syntax: Mark Newson, Misi Brody and Katalin É. Kiss. From among the other faculty in Budapest, I remember fondly the courses of László Varga and András Komlósy, among others.

During the last years I was also involved in a research program on the aspectual properties and the left periphery of sentence structure in Hungarian, led by Katalin É. Kiss at the Linguistics Research Institute of the Hungarian Academy of Sciences. I would like to thank the participants of that project, Katalin É. Kiss, Chris Piñón, and also Annamária Bene for the discussions as well as for the long summer days at the Institute. For comments and otherwise, I'm also grateful to László Kálmán and Károly Varasdi, András Komlósy and István Kenesei.

Outside of the world of linguistic research, I enjoyed (and learned a lot from) teaching a number of linguistics courses in Hungary and at MIT. The students and the early morning atmosphere at some of the classes are unforgettable. I also thank Suzanne Flynn the opportunities to teach and be involved in curriculum development.

Doing Africanistics in Budapest was also a great experience – building huts, preparing African meals and sitting by the fires on the Hungarian savanna was unforgettable. Thanks to all my Africanist friends involved.

Finally, my family and friends provided enormous support throughout my years at MIT and beyond. I wish I was more conscientious in keeping in contact, but hopefully there are a lot more 'cholesterol parties' by the campfire in store. Many thanks to my family, who were always there when needed. And most importantly, thanks to Attila, who is the most patient, kind and understanding person I know. Thank you for believing in me and supporting me even when you surely had your doubts. And thank you for being such a good and inspired cook; our first Thanksgiving meal and the dishes documented are not easy to forget. And thanks for making even an empty room a home, where a cart and some newspapers can provide appropriate furniture, even if for a day.

Abbreviations

1sg	first person singular
2pl	second person plural
2sg	second person singular
3	third person
3pl	third person plural
3sg	third person singular
ACC	accusative
ADESS	adessive
ADN	adnominative
CAUS	causative
COP	copula
DAT	dative
DECL	declarative
GEN	genitive
ILL	illative
IMP	imperative
INESS	inessive
INF	infinitive
MASC	masculine
NOM	nominative
PART	partitive
PASS	passive
PL	plural
POSS	possessive
POT	potential
PRES	present
SG	singular
TRANS	translative
VOC	vocative

Contents

Abstract.....	3
Acknowledgments.....	5
Abbreviations.....	7
Contents.....	9
Chapter 1 Introduction.....	13
1.1 The Minimalist Program.....	14
1.2 Late insertion.....	17
1.3 Multiple Spell-out.....	22
1.4 Phases	27
1.4.1 All vPs are phases.....	28
1.4.2 Phasehood diagnostics and DP phases.....	30
1.5 Multiple Agree	34
Chapter 2 Morphological case patterns in Finnish.....	39
2.1 R-expressions.....	40
2.1.1 Abstract case	41
2.1.2 Accusative as a dependent case	43
2.2 Pronouns.....	49
Chapter 3 Partitive case alternation in Finnish.....	55
3.1 Partitive case licensed by properties of the nominal interpretation.....	56
3.1.1 Divisibility and case marking.....	57
3.1.2 The interaction of divisibility and case marking.....	65
3.2 Partitive case licensed by properties of the event predicate.....	69
3.2.1 Divisibility and case marking.....	74
3.2.1.1 Delimiters.....	75
3.2.1.2 Iterative and habitual interpretation.....	80
3.2.1.3 An ambiguity in divisibility and case marking.....	82
3.2.2 The range of partitive constituents.....	87
3.3 Adjunct positions.....	90
3.4 Case as a [divisible] feature.....	98

3.4.1 A precedent: case as [uT].....	99
3.4.2 Arguments against case as [divisible].....	103
3.4.2.1 [Divisible] and LF interpretation.....	104
3.4.2.2 Arbitrariness in [divisible] assignment.....	106
3.4.2.3 The object – adjunct asymmetry.....	108
3.4.2.4 Structural and inherent case	109
3.4.2.5 [Divisible] and subevent ordering.....	110
3.5 Summary.....	111
Chapter 4 Negated event predicates and partitive case.....	113
4.1 Partitive case and negation.....	114
4.2 Negation in Finnish.....	119
4.3 Similarities across languages.....	126
4.3.1 Russian genitive of negation.....	126
4.3.2 Polish genitive of negation	127
4.3.3 Finnish partitive of negation.....	130
4.4 Summary.....	131
Chapter 5 Negated event predicates and divisibility.....	133
5.1 Background assumptions.....	134
5.1.1 Time intervals.....	134
5.1.2 Modification of time intervals.....	137
5.2 For-adverbs and negated event predicates.....	142
5.3 Quantifiers and divisibility.....	147
5.3.1 Downward entailing quantifiers.....	147
5.3.2 Arguments modified by <i>only</i>	149
5.3.3 Other approaches.....	152
5.3.3.1 A DRT approach.....	152
5.3.3.2 Nominal and event predicate properties.....	153
5.3.3.3 Cumulative interpretation.....	159
5.4 Negation and stativity.....	162
5.4.1 Arguments for non-stativity.....	163

5.4.1.1 Present tense interpretation.....	163
5.4.1.2 Discourse structure.....	164
5.4.2 Agentivity.....	166
5.4.2.1 Imperatives.....	166
5.4.2.2 Complement of <i>force</i> and <i>persuade</i>	168
5.4.2.3 Complement of <i>must</i>	170
5.4.2.4 Agentive adverbs.....	171
5.5. A syntactic restriction on temporal adverbs.....	174
5.5.1 Adverbs restricted to event time modification.....	175
5.5.2 The source of the restriction.....	178
5.5.2.1 Locality of case licensing.....	179
5.5.2.2 Locality of adverb modification.....	180
5.6 Summary.....	182
Chapter 6 Alternative accounts.....	183
6.1 Partitive is inherent case.....	183
6.2 Accusative objects and completed events.....	184
6.3 Weak case.....	185
6.4 Partitive case with imperfective events.....	188
6.5 Unbounded predicates, maximal events and partitive objects.....	193
6.6 Degrees and case.....	196
6.6.1 The interpretation of degree adverbs.....	198
6.6.2 No necessary correlation between degree adverbs and case.....	199
6.7 An optimality-theoretic account.....	203
6.8 Accusative case as telicity.....	206
6.8.1 Telicity as culmination.....	206
6.8.2 Nominal-related partitive case and null determiners.....	209
6.9 Summary.....	211
Chapter 7 Conclusion and extensions.....	213
7.1 Summary.....	213
7.2 Extensions.....	214

7.2.1 Focus.....	215
7.2.1.1 Against a focus feature.....	216
7.2.1.2 Prosody in syntax.....	218
7.2.1.3 Focus and interface interaction.....	220
7.2.2 Polarity items.....	222
7.2.2.1 Restrictions on surface structure.....	224
7.2.2.2 Semantic constraints.....	226
7.2.2.3 A uniform treatment of PPIs, NPIs and negative quantifiers.....	230
References.....	235

Chapter 1 Introduction

This dissertation investigates the interaction of semantic, LF and PF (morphological and possibly phonological) phenomena. The hypothesis explored in detail is that the interaction between semantic and PF information is not necessarily mediated by syntax, as in standard Minimalist frameworks, but that PF properties can be sensitive to the semantic information which is determined outside of syntax. The relevant PF properties include phonological properties proper as well as properties of the morphological component, which is located on the PF branch connecting the syntactic component with the PF interface. Under this view, certain morphological alternations (and arguably some phonological alternations as well) can be ascribed to the semantic sensitivity of morphology and phonology. The sensitivity of morphology to semantic properties can be described as the ability of morphology to interpret semantic properties.

In exploring the direct interface interaction hypothesis, I discuss one phenomenon, the alternation of structural case in Finnish, in detail. This discussion is a case study in the effects of semantics on morphology, where I argue that the alternation between partitive and non-partitive structural case in Finnish can only be accounted for by assuming that morphological case is sensitive to semantic information, specifically to the property of divisibility.

In connection with Finnish structural case, I also show that the hypothesis that syntactic objects are interpreted at the interfaces as soon as they reach those interfaces, along with specific assumptions about cyclic Spell-out, make appropriate predictions. The relevant semantic property of divisibility, which regulates the distribution of partitive and non-partitive structural case, affects structural case only within a local domain. In order for the structural case of a given nominal to be affected by divisibility, the case must be realized or licensed in the local domain with the given divisibility property. The case of a nominal which is licensed outside of that domain will remain unaffected.

I argue that the relevant domain, where divisibility affects the morphological realization of structural case, is the phase. The phase as the domain where morphological reflexes of the relevant semantic property are restricted provides support to the cyclic view of Spell-out. Syntax constructs syntactic objects, which are spelled out cyclically, upon the completion of each phase. Spell-out consists of transferring the syntactic object, which was constructed up to that point, to the interfaces and consequently to the interpretive components. Since the phase is interpreted by the semantic component, its semantic properties are expected – and shown – to interact with the morphological properties of the same phase. Cyclic Spell-out thus predicts that some interactions between interface properties are local and restricted to being internal to the Spell-out domains, that is, phases.

In addition to the semantic effects on structural case in Finnish, some other instances of semantic properties affecting morphological form are also discussed. I argue that this type of approach can be extended, for instance, to account for the distribution of polarity items, negative quantifiers and free choice items. These items are different realizations of a single lexical item, where the specific morphological realization is determined by semantic and pragmatic factors. This view of these alternating elements also supports the hypothesis that morphology can be sensitive to semantics; certain semantic features can determine the morphological realization of some lexical items.

This chapter outlines the specific grammatical model and the syntactic mechanisms which are assumed in this dissertation. The main aim of this chapter is to provide the syntactic basis for the account, detailed in chapter 3, which addresses the interaction between semantic properties and morphological case in Finnish.

1.1 The Minimalist Program

The hypothesis that morphology can be sensitive to semantic properties, as outlined above, is encouched in a Minimalist framework. Thus before presenting a specific implementation of this hypothesis, a discussion of the basic assumptions of the Minimalist Program is in order. I also discuss Distributed Morphology, specifically late

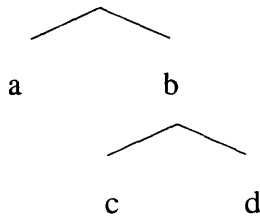
insertion, since late insertion is a prerequisite to semantically conditioned morphological realization.

The Minimalist Program (Chomsky 1993, 1995, 2000, 2001a,b) is a research program which derives from the Principles and Parameters framework, and has a number of different implementations. These implementations all explore the conjecture that language, and specifically the linguistic component, is an optimally designed object with minimal design specifications. In particular, the various implementations of Minimalism explore the strong hypothesis that the linguistic component is an optimal solution to the legibility conditions which are imposed on the linguistic component by the interpretive articulatory-perceptual and the conceptual-intentional systems. The interfaces between the linguistic component and these external interpretive systems are the phonological form (PF) and the logical form (LF), respectively.

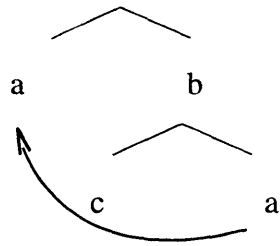
The linguistic component is derivational, and constructs syntactic objects. This derivational component interfaces with PF and LF via the Spell-out operation. Spell-out transfers the syntactic objects to the interfaces, making the objects accessible for the interpretive components. After being delivered to the interfaces, the objects yield linguistic expressions, pairs $\langle \pi, \lambda \rangle$, where π is a phonological representation at the PF interface and λ is a logical representation at LF.

The derivational component builds the syntactic objects starting from a lexical array, which is a selection of lexical items. Derivation then proceeds to construct syntactic objects from these lexical items by the operation Merge, which combines the syntactic objects; either individual lexical items or complex syntactic objects can be combined. Merge can combine two independent constituents (external merge), or "remerge" a constituent and a subconstituent of that constituent (internal merge). Internal merge is movement, where the remerged constituent moves from its original position to the site of the higher merger.

(1) External merge



Internal merge



In addition to merging constituents, the derivational component also establishes Agree relationships among the features of these constituents.¹ An Agree relation is established between a probe (a constituent with an unvalued feature, where the value of the specific feature is unspecified) and a goal (a constituent with a matching feature). As a result of Agree, any unvalued Agreeing feature is given a specific value,² and can be eliminated subsequently. It is the Agree relation which can trigger internal merge, as a consequence of a special EPP marking on one of the features involved in Agree.³

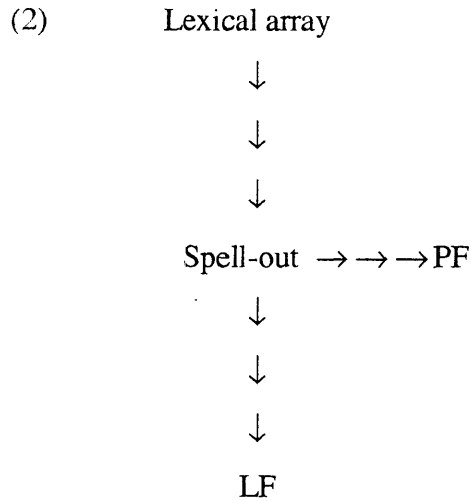
In sum, the operations in the derivational component which yield the syntactic objects are internal and external merge as well as Agree.

In Chomsky 1995, the derivation proceeds with these operations until it reaches the LF interface. At some point during the derivation, it branches off toward PF. This branching point is Spell-out, where the phonological information is sent off toward PF, with non-phonological information continuing towards LF.

1 The Agree relation appears in Chomsky 2000, 2001a,b, but not in earlier versions of the Minimalist Program, where feature checking plays the same role. Since the mechanics of feature checking are not relevant at this point, I restrict the discussion to the Agree relation. Agree is constrained by locality constraints and (arguably) by an activity condition (Chomsky 2000, 2001 assumes that an unvalued uninterpretable feature renders a goal *active*, and stipulates the activity condition, which states that a probe can only Agree with an active goal).

2 Valuation is subject to the constraint of phi-completeness. The goal must be phi-complete in order to value an unvalued case feature (Chomsky 2000).

3 See Pesetsky and Torrego 2001 on the discussion of whether EPP is a feature of a head or a feature of a feature itself.



The derivational component thus constructs syntactic objects, which are submitted to the interfaces. The interface representations of these objects must satisfy the Full interpretation condition; they can only contain elements which are interpreted at the given interface. If they fail to do so, the derivation does not converge.

1.2 *Late insertion*

The second grammatical component discussed is morphology. With respect to the role of morphology, I adopt specific assumptions of Distributed Morphology (Halle and Marantz 1993, 1994, among others). Distributed Morphology maintains that phonological features of lexical items are not present in the derivation, only syntactic and semantic features are present. This view of morphology ties in neatly with the possibility of semantics determining morphological alternation. Syntactic and semantic information is interpreted by morphology, and the phonological features inserted in the morphological component can thus be sensitive to semantic information.

Distributed Morphology (DM) is an instance of a non-lexicalist approach, where the phonological features of lexical items are separated from the semantic, syntactic and morphological features. This separation (also advocated by Beard 1986) is encoded by the different positions in the course of the derivation where these features are introduced.

The syntactic derivation starts with and proceeds by operating on the morphosyntactic and a number of semantic features of the morphemes. Crucially, phonological features of the morphemes are not present in the syntactic derivation.

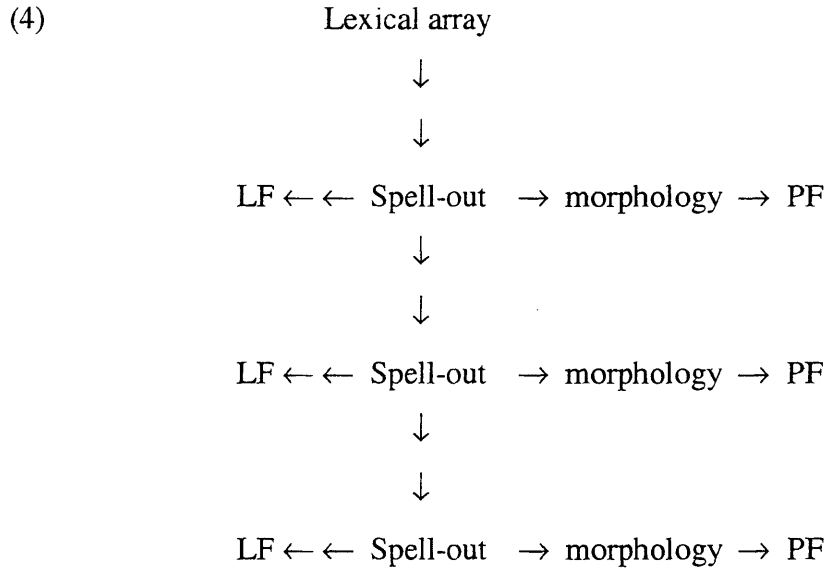
The phonological features are introduced after Spell-out, by the process of *Late insertion*.⁴ Late insertion refers to the insertion of phonological features, or that of *vocabulary items*. Insertion takes place in the course of transferring the terminal nodes of the syntactic object to the phonological form (PF). Crucially, late insertion does not provide semantic or syntactic features in addition to those manipulated by syntax, only phonological ones. Halle and Marantz 1994 define late insertion as follows.

(3) *Late insertion*

The terminal nodes that are organized into the familiar hierarchical structures by the principles and operations of the syntax proper are complexes of semantic and syntactic features but systematically lack all phonological features. The phonological features are supplied – after the syntax – by the insertion of Vocabulary Items into the terminal nodes. Vocabulary Insertion (VI) adds phonological features to the terminal nodes, but it does not add to the semantic / syntactic features making up the terminal nodes (Halle and Marantz 1994)

The process of vocabulary insertion and its interaction with the Minimalist syntactic model discussed earlier is sketched below. I assume that morphology is the place of vocabulary insertion, located on the PF branch after Spell-out.

⁴ In assuming that only phonological features are inserted by this operation, I depart from Harley and Noyer 1999. Harley and Noyer argue that there is some freedom in the insertion of *l*-morphemes, members of the class of open items. They argue that in the syntactic position of a 'noun', the insertion process may place the nouns *rose*, *book* or *car*, among others. If the specific vocabulary item is inserted after Spell-out on the PF branch, then it is not clear how the semantic import of these items appears in the semantic interpretation (Kai von Stechow, p.c.). If it is only syntax which mediates between LF and PF (the standard assumption), then items introduced by late insertion can have no effect on the semantic interpretation. To avoid this difficulty in interpretation, I assume – along with Halle and Marantz 1993, 1994 – that late insertion can only introduce phonological features.



In addition to *Late insertion*, DM is also characterized by a number of operations which can manipulate the terminal nodes within morphology (impoverishment, fission and morphological merger). Since these operations are not directly relevant to the present discussion, they will be disregarded here. Apart from the late insertion of vocabulary items, I will not adopt the specific assumptions of DM concerning the categories of morphemes or semantic interpretation. Specifically, I will treat all morphemes inserted in the syntactic derivation as supplied with category labels (the traditional V, N, v, and so on). Neither do I adopt the notion of a category-less root (in the terminology of Pesetsky 1995), which appears in a local relations with category-defining morphemes (such as v or n), and thus functions as a verb or noun, for instance. Furthermore, I will not assume that theta roles are reduced to structural configurations between the predicate and its argument, contrary to Hale and Keyser 1993, 1998, 2002. Even though the discussion in the following chapters is compatible with these assumptions, I will retain the non-DM view of syntactic categories and theta role assignment in order to simplify the discussion.

Before concluding this section, it is worth addressing two issues raised by Halle and Marantz 1993. Halle and Marantz note that Distributed Morphology and a specific implementation of the Minimalist Program, namely Chomsky 1993, are not compatible. I will argue that the first concern can be addressed within a Distributed Morphology

framework, and does not necessarily argue against Minimalist account. For the second issue, I argue that the incompatibility is resolved in the later implementations of the Minimalist Program (Chomsky 1995, 2000, 2001a,b).

First, Halle and Marantz 1993 observe that while DM assumes that terminal nodes uniformly mediate between phonological information and syntactic / semantic information, Chomsky 1993 assumes a heterogeneous morphological realization of these nodes. In Chomsky 1993, and the Minimalist Program in general, some functional heads which value features may never be spelled out. The T or the Agr heads (the latter are assumed by Chomsky 1993, and are discussed by Halle and Marantz 1993) merely check features, but are devoid of phonological features themselves. T and Agr thus do not behave like the verb, which acquires phonological features by late insertion and whose features are checked by these heads. The verb, but not the T and Agr heads, mediate between the syntactic / semantic and phonological features. This heterogeneity of terminal nodes survives to later incarnations of the Minimalist Program. Chomsky 1995, 2000, 2001a,b assumes that some heads, including T, systematically lack phonological realization. T only contributes to the semantic interpretation and Agrees with features of the verb and the subject.

I suggest that the heterogeneity of terminal nodes in the Minimalist Program does not need to be viewed as such an unwelcome result. In Distributed Morphology, default vocabulary insertion takes place in absence of more specific morphological form. Let us assume that default vocabulary insertion amounts to no insertion of phonological features, and all instances of overt phonological material insertion are more specified. In this case, lack of phonological features are just a special case of late (non)-insertion. Thus terminal nodes mediate between phonological features and semantic / syntactic information depending, on the presence or absence of phonological features inserted.

The second difference between Minimalism and DM which is discussed in Halle and Marantz 1993 is connected to movement types allowed in a Minimalist setting. Halle and Marantz 1993 compare DM with the framework of Chomsky 1993, where movement is either overt, taking place before Spell-out, or covert, if it takes place after Spell-out. In the Minimalist theory of Chomsky 1993, the finite English verb can check the tense

features of its affix against T at LF, following the covert movement of the verb to T. Since the verb moves covertly, it is free to appear lower than T at Spell-out. In Chomsky's system, the phonological features of lexical items are present in syntax, with the phonological form of the verb merged in the V position. Thus even though movement to the T head was delayed until after Spell-out, the phonological features were spelled out.

The specific assumptions of Chomsky 1993 cannot be translated into a DM account. In DM, vocabulary insertion requires the fusion of the appropriate terminal nodes of V and T before Spell-out. Unless the verb and T merge before Spell-out (and thus also before vocabulary insertion), the tense affix cannot appear on the verb. While the system of Chomsky 1993 allows a local relation between T and the verb to obtain after Spell-out, DM requires it to be established before Spell-out if the heads are transferred to a single merged inflected verb form. The specific timing assumptions of Chomsky 1993 are thus incompatible with a DM account of phonological features.

In spite of the ordering difference between DM and the Minimalist system of Chomsky 1993, the two approaches are not incompatible in general. More recent Minimalist implementations, including Nissenbaum 2000, Chomsky 2000, 2001a,b, do not assume a necessary ordering difference between overt and covert movement. As noted above, overt movement arises as the interaction of Agree and pied-piping, where overt movement is parasitic on Agree, and is triggered by an EPP feature. In this approach, Agree and the valuation of an unvalued feature can happen before Spell-out, even among constituents which are not local in the syntactic structure. A local relation, contrary to Chomsky 1993, is not a prerequisite for Agree.⁵ If valued features are a precondition for vocabulary insertion (at least for uninterpretable or unvalued features), then pre-Spell-out Agree and morphological merger in DM can be reconciled. For a finite verb in English, the T feature of the verb Agrees with T before Spell-out. Similarly, morphological merger between T and V takes place before Spell-out, as in Halle and Marantz 1993.

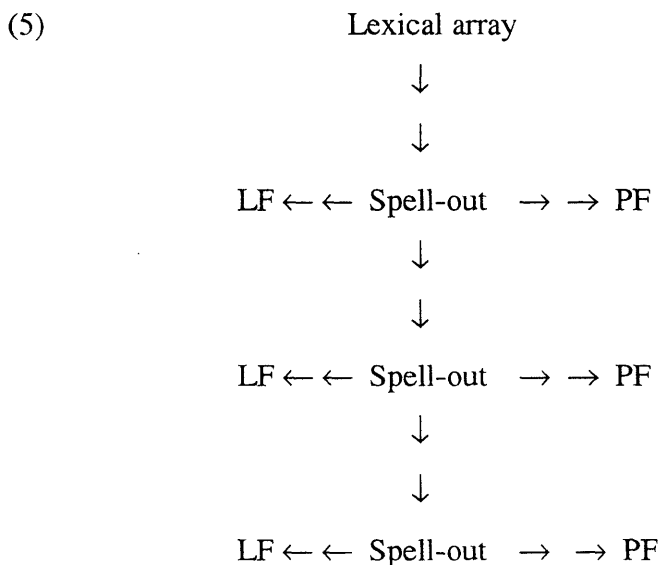
⁵ As argued by Pesetsky 2000, covert movement still needs to be assumed to account for ACD and QR effects, among others. Note that neither ACD nor QR interacts with morphology, at least in English. If these instances of covert movement are representative, then the relations where DM requires pre-Spell-out merger may all fall under pre-Spell-out Agree.

If this discussion is on the right track, then the issues raised raised by Halle and Marantz 1993 with respect to Minimalism of Chomsky 1993 and DM can be resolved by appealing to a more recent implementation of the Minimalist Program. In the remainder of this dissertation, I thus assume a Minimalist system, as in Chomsky 2000, 2001a,b, along with a DM-style morphological component.

The Minimalist architecture and Distributed Morphology are general assumptions for the hypothesis that morphology (and possibly phonology) can be sensitive to semantic information. The following assumptions are necessary to account for a specific set of data discussed below, namely the alternation between partitive and non-partitive structural case in Finnish. While they permit encoding a close interaction between syntactic domains and the domain of semantic and morphological features which interact, they are not crucial to an account which merely allows semantic information and morphology to interact directly.

1.3 *Multiple Spell-out*

In the Minimalist model of Chomsky 1995 outlined above, there is a unique Spell-out operation. It has been suggested that this operation can occur more than once in the course of the derivation:



The multiple Spell-out account differs from the implementation of Chomsky 1995 not only in the number of Spell-out operations, but also in the transfer of syntactic objects to the interfaces. While the single Spell-out only transfers the objects to PF, the Spell-out operations in (5) transfer these objects to LF as well as PF.⁶

Multiple Spell-out operations are suggested, among others, by Uriagereka 1999, who argues that after Spell-out, syntax can only affect the Spell-out domain in a restricted fashion. He sketches two versions of this restriction. The conservative view treats the Spelled out portion as a single compound word, which can still be manipulated by syntax. The radical view of multiple Spell out assumes that the Spell-out domain is not accessible to syntactic operations and is combined with other Spell-out domains within the interpretive components.⁷

Like Uriagereka 1999, Nissenbaum 2000 also argues that there is no unique Spell-out position in the course of the syntactic derivation. In determining Spell-out, Nissenbaum 2000 ascribes a crucial role to *phases*, which are defined by Chomsky 2000 as propositional units, are vP and CP (and also DP, as discussed in section 1.4 in more detail). According to Nissenbaum 2000, phases trigger Spell-out, which happens upon the completion of the phase. The Spell-out domain, which is transferred to phonology by the Spell-out operation, is the domain of the head of the phase, circled below. The domain excludes the specifier(s) and the head of the phase, which are spelled out in the next

6 The transfer to both interfaces is not a necessary property of multiple Spell-out theories. Chomsky 2000, for instance, assumes multiple Spell-out with cyclic transfer only to the PF interface. The syntactic object is not transferred to LF, but proceeds toward the unique transfer to LF. Matushansky 2005 argues that only PF or LF properties alone do not distinguish phases, the domains relevant for Spell-out, from non-phase constituents. She suggests that both PF and LF properties (which may be distinct from the properties described in Chomsky 2000, 2001a,b, as discussed in section 1.4) are necessary to distinguish phases from non-phases. On the assumption that the LF properties of a phase are determined upon Spell-out, I assume that cyclic Spell-out transfers the syntactic object to both the PF and LF interfaces.

A note on the terminology is in order. Chomsky 2001b uses the term *transfer* to refer to the operation which transfers the syntactic objects to LF and PF, and reserves *Spell-out* for transfer to PF. I use the term *Spell-out* for the operation leading to both interfaces, in Chomsky's sense of *transfer*.

7 Uriagereka 1999 notes that the conception of multiple Spell-out entails that syntactic unification is not provided by the (syntactic) derivation itself (also Hoffman 1996), but – at least partially – by the phonological and semantic components. In fact, all implementations of multiple Spell-out require the semantic and phonological components to keep track of the interpretation of earlier phases. These components must also combine the successive phase representations to create a final unique semantic or phonological interpretation.

Spell-out operation, triggered by a higher phase.

$$(6) \quad [_{YP(\text{phase})} \quad XP_{\text{specifier}}^* \langle \text{edge} \rangle \quad [Y' \quad [\quad Y \quad] \quad \textcircled{ZP_{\langle \text{domain} \rangle}^*} \quad]]$$

Nissenbaum 2000 argues that the Spell-out domain is opaque, and constitutes an island, unlike the edge of the phase. The Phase Impenetrability Condition (Chomsky 2000) is derived from the opacity of the Spell-out domain.

(7) Phase Impenetrability Condition (PIC)

In a phase α with head H, the domain of H is not accessible to operations outside of α , only H and its edge are accessible to such operations (Chomsky 2000)

Nissenbaum 2000 also argues that cyclic Spell-out enforces a cyclic view of movement: overt movement, with phonological consequences, takes place before Spell-out, and covert movement follows Spell-out.

The existence of cyclic Spell-out raises some questions with respect to the interpretation of covert movement (Kai von Stechow, p.c.). If the phase, the syntactic object undergoing Spell-out is immediately interpreted by the semantic component, then it must be allowed that the semantic interpretation be revised following a later Spell-out.

To see why revision is necessary, consider covert movement. In some instances of covert movement, such as covert quantifier raising, only the highest copy of the quantifier is interpreted as quantificational in the final semantic representation; lower copies are interpreted as variables. This position and interpretation of the quantificational expression is easily accommodated under the standard assumptions, where only the complete LF representation is interpreted.

In a cyclic Spell-out approach, a given copy of the quantifier may be the highest copy within the phase, and be interpreted as a quantifier following Spell-out. In the final structure, the same copy may be interpreted as a variable if the quantifier has undergone quantifier raising. In general, the lower copies of a constituent are not necessarily interpreted identically in the minimal phrase where they undergo Spell-out and in the final interpretation. Thus if cyclic Spell-out involves semantic interpretation at the point where Spell-out takes place, then it must be allowed that the interpretation of a specific constituent be revised in the final semantic interpretation. This revision of interpretation is a necessary consequence of cyclic Spell-out and the existence of covert quantifier raising and similar instances of covert movement. The need for accommodating these changes in interpretation may account for a dispreference of covert movement for the purposes of semantic interpretation.⁸

Cyclic Spell-out, as in Nissenbaum 2000, is adopted by Chomsky 2000, 2001a,b, as well as by Fox and Pesetsky 2005. Similarly to the other approaches, Fox and Pesetsky 2005 assume that Spell-out happens at the completion of a phase. They argue, however, that the Spell-out domain is not a subconstituent of the phase, but rather the complete phase itself:

$$(8) \quad [Y_{P(\text{phase})} \quad X_{P_{\text{specifier}}^*} \quad [Y \quad Z_{P^*}]]$$

To account for the effects of the PIC, Fox and Pesetsky propose an account of linearization which constrains the movement of non-edge constituents of a phase. Spell-out establishes linear order, and the linear order of constituents must be preserved. According to Fox and Pesetsky 2005, the ordering established in higher Spell-out domains may not contradict the linear order established in lower Spell-out domains.

⁸ This conception of the effects of Spell-out on the semantic interpretation differs from the view of the phonological (specifically linear) effects of Spell-out assumed by Fox and Pesetsky 2005. They argue that Spell-operations are strictly monotonic, since they only add information about linear ordering, but do not alter it. If transfer submits the Spell-out domain to LF as well as PF, then the properties of the two transfer operations must crucially differ.

An instance of movement excluded by the linearization restriction is sketched below. The linear order established in the phase in (9a) contradicts the ordering in (9b). While X precedes Y in (9a), Y precedes X in the higher domain.⁹

- (9)a [X Y Z]
 b [Y Q [X Y Z]]

Movement of a constituent other than the initial constituent of a phase is only possible if the movement does not alter the ordering with respect to the initial constituent (X above). As Fox and Pesetsky 2005 note, this requirement is satisfied in two instances in the previous example: (a) if the initial constituent (X) also moves leftward, and (b) if X is not present in the linearization – for instance, as the result of ellipsis.

Recall that the Phase Impenetrability Constraint restricts not only movement, but also Agree; a probe outside of the phase cannot look into the domain of the phase. In the framework of Fox and Pesetsky 2005, Agree can be constrained by restricting it to the constituent with the feature targeted by the probe which is closest to it (David Pesetsky, p.c.). Under this view, the closest potential goal blocks further search by the probe and thus, further Agree relations.¹⁰ The restrictions on movement and Agree have different sources, unlike the uniform treatment of the Phase Impenetrability Condition.

In this dissertation I adopt cyclic Spell-out, with Spell-out happening upon the completion of a phase. Following Fox and Pesetsky 2005, I also assume that the Spell-out domain is the complete phase. In chapter 3, I offer an empirical argument for the complete phase, rather than a subconstituent of the phase, being the Spell-out domain. Considering semantic properties of phases and their effects on morphology, I will show

⁹ Fox and Pesetsky 2005 argue that traces do not count for determining linear order. They assume that it is only the most recently merged copy of an element (within the given Spell-out domain) which is relevant for determining precedence relations. In later discussion, they derive this restriction by assuming that it is a single element which is remerged after movement. That is, there are no independent 'traces' in that theory.

¹⁰ This restriction on Agree presupposes a specific account of the lack of island restriction on covert wh-movement, as in Japanese or Chinese. I assume, following Nishigauchi 1990, Watanabe 1992, Hagstrom 1998 and Richards 2000, that if the wh-phrase is inside an island, then it is not the wh-phrase (or the scope marker associated with it) which moves. Rather, the entire island undergoes movement, voiding island effects (Watanabe and Hagstrom argue that it is the scope marker associated with the island which moves, rather than a scope marker associated with the wh-phrase).

that the head of the phase is also relevant for determining these semantic properties. On the assumption that semantic properties are determined after Spell-out, it is necessary then to adopt the Fox and Pesetsky notion of Spell-out domains

1.4 Phases

In the previous section it was noted that phases are relevant for cyclic Spell-out, since they trigger the Spell-out operation. In addition, they are the Spell-out domains themselves, as argued by Fox and Pesetsky 2005 and assumed here. On the assumption that the notion of phases is uniform for Chomsky 2000, 2001a,b and Fox and Pesetsky 2005, let us consider what constituents count as phases and what their defining properties are.

Chomsky 2000, 2001a,b argues that the phases are CPs and transitive vPs (including unergative vPs). Chomsky provides a number of diagnostics which distinguish phases from TPs and VPs. The latter appear in structurally similar positions as the former, but do not qualify as phases. According to Chomsky 2000, 2001a,b, phases are of the semantic type t .¹¹ In addition, phases show some degree of phonological and syntactic or LF independence. Semantic or LF independence is signaled by the fact that the edges of

¹¹ When characterizing phases as propositions, Chomsky 2000, 2001a,b argues that vP and CP phases are the closest syntactic counterparts to a proposition. However, rather than of type t , as characterized there, propositions are of type $\langle s,t \rangle$, functions from worlds to truth values. For the intended characterization of phases as propositional constituents, it may be assumed that all phases are of type $\langle s,t \rangle$.

Chomsky also notes that phases form a natural semantic unit: a verb phrase with all theta roles assigned or a clause including tense and force. This characterization shows that in addition to their propositional nature, syntactic (or in some sense, semantic) completeness is also taken to be a defining property of phases. In fact, if complete saturation of the argument structure is required for phases, then phases are of the type t and not propositional (of type $\langle s,t \rangle$), as described in Chomsky 2000, 2001a,b. Matushansky 2005 generalizes the saturation requirement and considers the possibility that all phases are of a semantically simple type. Given the role of argument saturation, I assume that phases are of type t rather than propositional. This conclusion is also supported by the fact that quantifier raising targets types of node t in general, and that it also targets the edge of phases, as discussed below in this section.

The semantic 'propositional' property of phases described by Chomsky and Matushansky 2005, is an assumption concerning the nature of phases, and does not follow inherently from the system. The propositional property will be suggested below to be neither a necessary nor a sufficient property of phases. If this discussion is on the right track, then the propositional property cannot be used as a defining property of phases.

A further notational point: some authors (including Zimmermann 2002 and Matushansky 2005) use angled brackets when representing simple semantic types (e.g. $\langle t \rangle$). Since the angled brackets indicate an ordered pair, no brackets are necessary for simple types. In accordance with this, I use italics to represent simple types (t) and angled brackets for complex types (e.g. $\langle e,t \rangle$).

phases are reconstruction sites for quantifier and operator movement. Phonological independence is shown by the phonological isolation of phases; Chomsky 2000, 2001a,b suggests that phases, unlike non-phases, can undergo clefting and vP-movement. As noted above, phases are also Spell-out units; they trigger the transfer of the Spell-out domain to the interfaces.

This section presents arguments for the claim that CPs and transitive vPs are not the only phases; unaccusative and passive vPs, as well as DPs, are also phases. While these constituents do not behave uniformly with respect to the diagnostics proposed by Chomsky 2000, 2001a,b and other authors, they all trigger cyclic Spell-out. In addition to the range of phases, the diagnostics of phasehood are also discussed.

1.4.1 All vPs are phases

Legate 2003 challenges the claim that phases are restricted to CPs and transitive vPs. She argues that all vPs, including unaccusative and passive vPs, constitute phases. Legate 2003 cites arguments which diagnose the position of traces (reconstruction, QR and parasitic gaps) as well as an argument for the cyclicity of nuclear stress assignment. These arguments show that movement from a passive or unaccusative vP targets the edge of the vP, just as movement from a transitive vP does.

Among others, Legate 2003 uses arguments from quantifier raising to show that unaccusative and passive vPs are phases. Antecedent-contained deletion (ACD) forces quantifier raising to allow ellipsis (e.g. May 1985). The quantifier raising of the DP in the examples below cannot target a position above negation, since otherwise the negative polarity item *anyone* or *any of the scenic spots* would fail to be licensed. Thus there must be a potential quantifier raising site, on the edge of the vP, which is targeted by the DP. The same quantifier position is available for transitive (10a) as well as passive (10b) and unaccusative (10c) vPs.

- (10) a Mary didn't [_{VP} introduce John to [_{DP} anyone you did [_{VP} e]]]
 b Mary wasn't [_{VP} introduced to [_{DP} anyone you were [_{VP} e]]]
 c The road didn't [_{VP} go by [_{DP} any of the scenic spots you expected it to [_{VP} e]]]
 (Legate 2003)

The PIC in (7) requires all movement from the domain of phases to target the edge of the phase, since constituents in the domain of the phase remain inaccessible for syntactic processes. Similarly, the linearization account of Fox and Pesetsky 2005 requires non-edge constituents of phases to move outside of the phase by proceeding through the edge of the phase. The phasehood of all vPs thus forces all movement to proceed through the edge of the phase.¹²

Following the arguments of Legate 2003, I assume that all vPs are phases, and they all undergo cyclic Spell-out, as discussed in the previous section.

12 With respect to the cyclicity of nuclear stress assignment (Bresnan 1972), Legate 2003 argues that nuclear stress is assigned to the rightmost constituent within the vP phase. Furthermore, if a constituent moves to the non-edge position of the phase, as in (i), then its lower copies are deleted prior to stress assignment. The lower copy of *them* in (i) is deleted, and thus nuclear stress is assigned to the rightmost constituent *away*. In (ii), in contrast, *my bike* moves out of vP, via the edge position of the vP. The copies at the edge of the phase do not trigger the deletion of a lower copy. While the lower copy of *my bike* is not pronounced, it is still relevant for nuclear stress assignment. Being the rightmost constituent, it receives nuclear stress, which is shown by the stress realized on the higher, vP-external copy.

- (i) Please [put them ~~away~~ *them*]
 (ii) [My *bike*] was [stolen ~~my bike~~]
 (Legate 2003)

If Legate 2003 assumes that Spell-out domains are subconstituents of phases (as argued by Chomsky 2000, 2001a,b and Nissenbaum 2000), then nuclear stress assignment can be relativized to the Spell-out domain of vP rather than the complete vP phase. Under this view, it is the highest copies within the Spell-out domain which are relevant for nuclear stress assignment, yielding the stress patterns in (i) and (ii) above. This is still an argument for the phasehood of passive and unaccusative vPs, since it is the domain of a phase which must be spelled out.

Otherwise, it remains unclear why copies at the edge of the phase (as in (ii) above) do not affect the position of nuclear stress. If the Spell-out domain is the complete phase, it must be assumed that copies at the edge of the phase do not trigger the deletion of the lower copies prior to nuclear stress assignment. The lower copies must be deleted subsequently, however, since they are not pronounced. Thus if nuclear stress assignment appeals only to complete phases, then it must be stipulated that the copies at the phase edge behave differently from non-edge copies. In addition, deletion must either precede or follow nuclear stress assignment. I leave a reconciliation of the nuclear stress argument of Legate 2003 and the Spell-out domain of phases for further research.

1.4.2 Phasehood diagnostics and DP phases

In addition to vPs and CPs, the phasehood of DPs has also been discussed in Matushansky 2005 and mentioned in Chomsky 2001a, Fox and Pesetsky 2005. Matushansky 2005 presents a detailed discussion of the diagnostics for phasehood and their applicability to DPs. She argues that the diagnostics do not paint a clear picture of DPs as phases: morphophonological diagnostics identify DPs as phases, while syntactic and LF-considerations do not. Since the phasehood of DPs is of central importance in this dissertation, let us consider the arguments of Matushansky 2005 in more detail.

The initial assumption of Matushansky 2005 is that phases trigger Spell-out, and are transferred to the PF and LF interfaces. Since they constitute the units at the interface, they are expected to show some independence with respect to the material contained in other phases. The diagnostics used to establish phasehood (Chomsky 2000, 2001a,b, Legate 2003) all hinge on the assumption of phase independence and on specific properties of the phases vP and CP.

Matushansky 2005 argues that the PF diagnostics of phasehood identify DPs, as well as vPs and CPs as phases. Phonological independence is one of the PF diagnostics, satisfied by vPs, CPs and DPs. For vPs, I follow Matushansky 2005 and Legate 1998 in using 'Mad Magazine' sentences

- (11)a What does he hate?-- *That you always arrive late* (CP)
b *Me arrive late?* (vP)
c He arrived late -- *Fred?* (DP)

According to Chomsky 2000, 2001a,b and Matushansky 2005, the movement of phases is also a PF diagnostic, since it shows the distributional freedom of the constituent in question.

- (12)a [That he would arrive late]_i, I never believed t_i (CP)
b [Arrive late]_i, he never did t_i (vP)
c He_i seems [t_i angry] (DP)

PF diagnostics also include other movement-like operations, including clefting.¹³

- (13)a It's [that you always arrive late] that he hates (CP)
b ?It's [arrive late] that I really want (vP)
c It's [late arrivals] that drive him mad (DP)

While the PF independence of phases in freestanding utterances and movement supports the phasehood of vPs and CPs as well as that of DPs, syntactic considerations are inconclusive. Matushansky 2005 argues that the predictions of the locality restrictions imposed by phases cannot be detected.

As noted in the previous section, phases restrict the movement of constituents which are not located at the left edge of the phase. All movement must proceed through the specifier of the phase or a position adjoined to the phase. If DPs are phases, then it is predicted that movement must proceed through Spec,DP (Szabolcsi 1983, 1994, Giorgi and Longobardi 1991, among others), or some position adjoined to DP. A filled Spec,DP position blocks extraction.¹⁴

- (14) * Who_i did you buy Michelangelo's portrait of t_i ?
(Matushansky 2005)

Matushansky 2005 notes that extraction in (14) may be blocked for a reason other than a filled specifier. Citing Barker 2000, she notes that the existence of possessed DPs is necessarily presupposed. A specific DP, which introduces existential presupposition, blocks extraction even in absence of a possessor:

13 Matushansky 2005, citing (i), assumes that vP-clefts are uniformly ungrammatical.

(i) *It's [doubt that Desdemona was unfaithful] that Othello did

While I have no account of the ill-formedness of (i), I note that vPs are not all ungrammatical (David Pesetsky, p.c.).

14 If DPs are phases, then extraction should be possible through an adjoined position, similarly to extraction from vPs. The impossibility of moving constituents via a position adjoined to DP must be independently excluded.

(15) * Who_i did you buy a specific / particular / certain portrait of t_i ?

It is nevertheless possible that extraction must proceed through the specifier position, but is independently blocked by the specificity of the DP. Contrary to Matushansky 2005, I believe that the phase status of the DP is thus compatible by the extraction facts, though not explicitly supported by them.

Parasitic gaps also constitute a diagnostic of phases. Nissenbaum 2000 argues that parasitic gaps can be licensed by a constituent which moves from a phase via the edge of the phase. In (16a), the parasitic gap is licensed by movement through the edge of the vP phase. Movement from within a DP, in contrast, fails to license parasitic gaps (16b):

(16)a [which paper]_i did John file t_i [op [PRO without reading t_{op}]]? (vP)

b *who_i did Mary tell [a story about t_i] [op that really impressed t_{op}]?]

(Matushansky 2005)

As Matushansky 2005 notes, the lack of parasitic gap licensing by extraction from a DP fails to argue against its phase status, since parasitic gaps can be excluded independently. She notes that the ungrammaticality of (16b) may be due to the height of the attachment site of the relative clause or to some independent property of relative clauses which excludes parasitic gaps in the example above.

Phases (vPs and CPs) have also been defined by appealing to their semantic type or denotation. Chomsky (2000) suggests that phases are of type *t*. If this is a defining property of phases, then a number of DPs are straightforwardly excluded. Following Heim and Kratzer 1998, Matushansky 2005 assumes that DPs can be of different types, including *e*, $\langle e, t \rangle$ and $\langle et, t \rangle$; the type of nominals denoting an individual; a property of individuals or a quantified nominal, respectively. DPs can also be propositional, as in (17d) (David Pesetsky, Kai von Stechow, p.c.).

- | | | |
|-------|---|--------------------------------------|
| (17)a | <i>Fred</i> | <i>e</i> |
| b | <i>a disgruntled employee</i> | $\langle e, t \rangle$ |
| c | <i>every disgruntled employee</i> | $\langle et, t \rangle$ |
| d | I deplore <i>the complaining of disgruntled employees</i> | $\langle s, t \rangle$ ¹⁵ |

Since the type of the DPs is variable, they also do not qualify as phases if phases are defined as being constituents with their arguments saturated (Chomsky 2000).

Given that DPs are not necessarily of the type *t* and quantifier raising targets nodes of type *t*, DPs do not always serve as quantifier raising sites, another diagnostic applied to vP and CP phases.

Let us take stock of the diagnostics and their relevance for DPs. Phonological independence, which allows phases to appear in isolation and be subject to clefting or movement, supports the phase status of DPs. Extraction out of DPs, including parasitic gap licensing, fails to show that movement must proceed through the edge of DP, as predicted by its purported phase status. Finally, DPs do not qualify as phases if all phases are of type *t*. Thus PF considerations support a phase account of DPs. The arguments from the syntax / LF side are either independently excluded, or excluded by the (possibly mistaken) assumption that phases are of a certain semantic type.

As noted above, the diagnostics discussed above yield a clearer picture when applied to vPs and CPs. PF independence, extraction and parasitic gap licensing as well as semantic type considerations all support the phase status of these constituents.

Matushansky 2005 argues that while the diagnostics do not converge, both PF and LF criteria are necessary to identify phases. Assuming that vPs and CPs are phases, but VPs and TPs are not, neither the PF nor the LF criteria discussed above are sufficient to distinguish phases from non-phases by themselves. It remains to sharpen the set of diagnostics or criteria which identify phases, including DPs, and possibly also other constituents as well (Fox and Pesetsky 2005).

¹⁵ The existence of proposition-denoting DPs has also been argued for by Zimmermann 2002. She cites English gerunds (analyzed as having the maximal category of DP by Abney 1987) as examples of these, as well as examples from Finnish and Tsez, where the propositional constituent has case marking or a noun class marker, respectively.

In the discussion in this dissertation, I will rely on the PF diagnostics, and assume that DPs are phases. In chapter 3, I offer a semantic argument for the phasehood of DPs.

1.5 *Multiple Agree*

While the Agree relationship holds between two features, a specific feature can establish multiple Agree relations. Multiple Agree can account for, among others, the case marking of structurally case marked adjuncts. As discussed below and in chapter 3 in more detail, a crosslinguistically stable set of adjuncts (including duratives, spatial measure adjunct and multiplicatives¹⁶) can appear with structural case rather than as a PP or an inherently case marked constituent. The case feature of these structurally case marked adjuncts and that of objects is valued by the same feature, the case feature of *v*. Thus it must be explicitly allowed for a given feature to establish Agree with more than one feature.

In a modification of the standard ingredients of Minimalist implementations, a number of proposals have been made for multiple Agree relations. With multiple Agree, a single feature takes part in more than one Agree relation. This section discusses the proposals of Ura 2000 and Hiraiwa 2000, 2001 to this effect; the specific assumptions concerning multiple Agree adopted in this dissertation are outlined at the end of the section.

Ura 2000 argues that features can have either a [+multiple] or a [-multiple] specification.¹⁷ If a feature is [+multiple], then it can enter into more than one Agree relation.¹⁸ The [+multiple] specification of features is unrestricted; either the goal or the probe can be specified as [+multiple].

16 The term *multiplicative* is understood here to refer to adjuncts counting the occurrence of an event (*once, five times, etc*). I refrain from using the term *frequentative*, since that term can also refer to adjuncts which explicitly specify the time of occurrence rather than the number of occurrences (*every Monday, Wednesdays, on some weekends*).

17 In describing the relations between features, Ura 2000 uses the term *checking* rather than *Agree*. In the interest of consistency, I use the terms *Agree* and *valuation* in the discussion.

18 As noted in section 1.3, Agree can be constrained in a number of ways in Fox and Pesetsky 2005, in absence of the PIC. If Multiple Agree holds, as argued by Ura 2000, Hiraiwa 2000, 2001 and Bobaljik and Branigan (to appear), then Agree cannot be blocked by the closest Agreeing constituent. Rather, it must be explicitly assumed that Agree is constrained by restrictions similar to those on movement. In other words, Agree is constrained by a restriction similar to the PIC, while movement is restricted by the constraints on linearization.

On the one hand, the [+multiple] feature can appear on the goal. Let us consider a structurally case marked DP, which is targeted by the T or v probes in search of valuing their case feature. If the case feature of the DP is [+multiple], then it can enter into various Agree relations with more than one probe. According to Ura 1994a,b, 1996, this happens in hyperraising constructions.

On the other hand, it is also possible for the feature on the probe to be [+multiple]. Ura 2000 argues that multiple nominative case marking in Japanese is the result of multiple Agree. The T head has a [+multiple] case feature specification and so it can Agree with the case feature of both arguments of the psych-predicate.

- (18) John-ga Mary-ga shimpai-da
J-nom M-nom anxious-cop
'John is anxious about Mary' (Ura 2000)

According to Ura 2000, the [-multiple] or [+multiple] specification is a property of the feature specified on a specific constituent. Either the feature of the probe or that of the goal can take part in more than one Agree relations if it is specified as [+multiple].

Hiraiwa 2000, 2001 also treats individual features as optionally having a [+multiple] specification. Hiraiwa 2000, 2001 adopts the framework of Chomsky 2000, 2001a,b, where probes search for appropriate goals in order to value the unvalued features of the former. Hiraiwa restricts the discussion to [+multiple] specification of features of the probe.

Similarly to Ura 2000, Hiraiwa 2000, 2001 proposes that probes with a feature that is specified as [+multiple] can enter into an Agree relation with more than one goal with the same feature. The search space of the probe is restricted to the active phase, where the probe searches for all active goals with the feature in question. The Agree relation is established with the goals simultaneously; the multiple Agree operations are thus simultaneous rather than consecutive. As a result of the simultaneous Agree, the goals closer to the probe do not count as interveners for the goals further away from it, and do not block Agree.

Hiraiwa 2000 accounts for multiple nominative case marking in Japanese essentially as Ura 2000 does, and extends the account of multiple Agree to cover the Nominative-genitive conversion as well. Hiraiwa 2000 argues that the multiple nominative case of the subject and the object both Agree with an amalgam formed by C-T-V.

- (19) Totemo yoku John-ga nihongo-ga dekiru riyuu
 very well John-nom Japanese-nom do-can-pres-adn reason
 'the reason why John can speak Japanese very well' (Hiraiwa 2000)

Hiraiwa assumes that C licenses genitive structural case on the DPs that it Agrees with. Since the case of both constituents Agree with the C-T-V amalgam, either the subject or the object (or both) can appear with genitive rather than nominative case marking, known as the Nominative-genitive conversion. Any combination of nominative and genitive case is licensed, as illustrated below.

- (20) Totemo yoku { John ga / John no } { nihongo ga / nihongo no }
 very well John-nom John gen Japanese-nom Japanese gen
 dekiru riyuu
 do-can-pres-adn reason
 'the reason why John can speak Japanese very well' (Hiraiwa 2000)

Thus for Hiraiwa 2000, 2001, multiple Agree can result in distinct morphological case marking on the goals, with either the subject or the object having nominative case and the other, genitive.¹⁹

¹⁹ Bobaljik and Branigan (to appear) also allow a single probe to enter into multiple Agree relations, and also allow these relations to have different morphological reflexes. They propose that the case feature of both the subject and the object is valued by T in ergative languages, with case spelled out as ergative and absolutive, respectively. They also extend this treatment to French causatives, and assume that the *v* of *faire* can Agree with both a dative and an accusative goal, licensing their case features.

I adopt the multiple Agree hypothesis of Hiraiwa 2000, 2001 to account for case feature valuation of objects and structurally case marked adjuncts.²⁰ Structurally case marked adjuncts are illustrated by the Korean example below, where the multiplicative cooccurs with an accusative object.

- (21) Cheli-ka Mary-lul panci-lul *two pen-ul* senmwul-ul hay-ss-ta
 Ch-nom M-acc ring-acc twice-acc gift-acc do-past-decl
 'Cheli presented Mary with a ring twice' (Wechsler and Lee 1996)

Following Maling 1993, I assume that the case feature of these adjuncts, like that of objects, is valued by *v*.²¹ I assume that in languages like Korean, the case feature on *v* can be specified as [+multiple], permitting Agree with the case feature of various goals. I also assume, following Hiraiwa 2000, 2001 that the goals, which are in an Agree relation with a [+multiple] probe, can have distinct morphological case markings.

I argue in chapter 2 that in Finnish, *v* can value the case feature of the durative adverb and the object alike. I also argue in chapter 3 that the specific morphological case marking of objects, but not of adjuncts, is conditioned by semantic properties of the *vP*. This is shown in (22), where the *vP* is divisible²² and licenses partitive case on the object but accusative on the adjunct.

- (22) Hän ajoi *auto-a tunni-n*
 he drove car-part hour-acc
 'He drove the car for an hour'

20 For the purposes of this dissertation, any of the three approaches outlined above can be adopted. I am assuming that multiple Agree proceeds as in Hiraiwa 2000, 2001, since that is the most restrictive of the theories. While the other two theories also allow multiple Agree, Hiraiwa 2000, 2001 explicitly restricts multiple Agree to goals within the same phase.

21 Maling 1993 notes that objects and structurally case marked adjuncts show the same case alternation between nominative and accusative case marking. I assume that it is case valuation by *v*, and the properties of *v*, which are responsible for this alternation.

22 A *vP* is divisible iff whenever the event predicate denoted by the *vP* holds for a time interval *t*, then for all proper subintervals *t'* of *t*, there is an interval *t''* such that $t' \subseteq t'' \subset t$ and *P* holds for *t''* (Hinrichs 1985, von Stechow 1997). For a more detailed discussion of divisibility, see chapter 3.

Thus a given [+multiple] feature on a probe can Agree with the appropriate feature on multiple goals. A [+multiple] case feature of the probe can value the case feature of various constituents, possibly resulting in distinct morphological case markings on the goals.

With the specific Minimalist background assumptions defined, let us turn to the discussion of Finnish case marking and its interaction with semantic properties. Before delving into the details of this interaction, the following chapter offers an overview of the morphological realization of structural case in Finnish.

Chapter 2 Morphological case patterns in Finnish

This chapter offers an overview of non-partitive structural case in Finnish. It is relevant to semantically conditioned alternation of morphological case, discussed in the next chapter, where structural case shows an alternation between partitive and non-partitive case under certain conditions. All nominals (including pronouns and R-expressions) can appear with either partitive or non-partitive structural case, albeit under different conditions. In this chapter, I argue that a successful treatment of the morphological realization of structural case needs to appeal to the notion of dependent case, which is contingent on the realization of a non-dependent structural case in the same clause. Pronouns and R-expressions show different case marking patterns; I argue that this difference can be captured as an instance of differential case marking, which is widely attested crosslinguistically.

Non-partitive structural case has three distinct realizations on animate pronouns: nominative (a phonologically null case), accusative and genitive.

- (1)a sinä
 I-nom
- b sinut
 I-acc
- c sinun
 I-gen

While pronouns show three distinct types of case marking, R-expressions display only two different endings. These are morphologically identical to the nominative and genitive case of pronouns.

- (2)a karhu
bear-nom
- b karhun
bear-gen

In the environments where a pronoun has an accusative *-t* marking, R-expressions either display a case marking morphologically identical to the genitive case (*-n*) or lack an overt case marking.²³

- (3)a Matti antaa hänen nähdä karhun / sinut
M-nom let-3sg he-gen see-inf bear-acc / you-acc
'Matti will let him see the/a bear / you'
- b Anna Matin nähdä karhu / sinut!
let(imp) M-gen see-inf bear-nom / you-acc
'Let Matti see the/a bear / you!' (Kiparsky 2001)

Two aspects of structural case marking are addressed below. First, I consider the identity of the structural case which appears on R-expressions. In section 2.2, I address the distinct case patterns of R-expressions and pronouns.

2.1 *R-expressions*

As shown above, R-expressions display two kinds of non-partitive morphological case. The case marking is homonymous with either the nominative or the genitive case marking on pronouns. In addition, in the environments where pronouns display a specific *-t* accusative marking, R-expressions also show either of these morphological cases. Building on the accounts of Maling 1993 and Nelson 1998, I begin by identifying the case marking that R-expressions display, and proceed to deriving the distribution of the two cases.

²³ The case endings are glossed in accordance with the case marking account presented below.

2.1.1 Abstract case

Of the two non-partitive structural cases that R-expressions can display, I assume, following Timberlake 1975a, Taraldsen 1986, Maling 1993, Nelson 1998 and Kiparsky 2001, that the phonologically empty case is always nominative.²⁴ As expected, subjects without inherent case marking appear as nominative. Nominative case also appears on a number of objects of lexically transitive predicates: impersonal passives (4a), imperatives (5a) and on the objects of complex predicates with a modal matrix verb (6a). The parallel (b) examples show that pronouns appear with the overt *-t* accusative marking in these environments.

- (4)a Asemalta tuotiin laukku
station-from bring-pass,past bag-nom
'The bag was brought from the station'
- b Heidät tuotiin asemalta
they-acc bring-pass,past station-from
'They were brought from the station' (Nelson 1998)
- (5)a Tuo sateenvarjo!
bring-imp umbrella-nom
'Bring the umbrella!'
- b Tuo häne-t!
bring him/her-acc
'Bring him / her!' (Nelson 1998)
- (6)a Sinun pitäisi tuoda sateenvarjo
you-gen should-3sg bring-inf umbrella-nom
'You should bring the/a umbrella'

²⁴ More precisely, R-expressions are nominative when appearing in those environments where pronouns also display nominative case marking, or where pronouns have an accusative *-t* marking. In general, the lack of overt case marking is treated as nominative, rather than a phonologically empty form of accusative. As far as I am aware, conclusive arguments for either analysis remain to be found.

- b Sinun pitäsi tuoda heidät
 you-gen should-3sg bring-inf they-acc
 'You should bring them' (Nelson 1998)

The overt *-t* case marking on pronouns supports the assumption that the R-expressions which lack overt case marking are nominative.²⁵

25 Kiparsky 2001 gives additional reasons for assimilating zero marked R-expressions to nominatives and also for treating R-expressions with morphological *-n* case ending as genitive-marked. He cites constraints on coordination structures and on cooccurrence with *kuka* ('who') in support of this account. In a coordination structure, the shared constituents (with those in other than the first conjunct optionally elided) must have identical case marking, defined according to Kiparsky 2001's account. Thus a nominative R-expression can only be coordinated with another nominative R-expression. Coordination of a nominative constituent with an accusative *-t* marked pronoun is, however, ungrammatical.

- (i) Mikko pyörtyi ja (Mikko) kannettiin ulos
 M-nom fainted and (M-nom) carry-pass out
 'Mikko fainted and (Mikko) was carried out'
 (ii) Hän pyörtyi ja *(häne-t) kannettiin ulos
 he-nom fainted and (he-acc) carry-pass out
 'He fainted and (he) was carried out' (Kiparsky 2001)

In the same vein, the *-n* case marking on R-expressions is analyzed as genitive by Kiparsky 2001, since these constituents can only be coordinated with *-n* marked (genitive) pronouns.

A similar restriction is operative on constituents which agree with *kuka* ('who'). *Kuka*, like R-expressions, cannot appear with *-t* case marking. Kiparsky 2001 also assumes a case identity restriction which operates on *kuka* and modifying adjectives. Given the restriction on *kuka* and the case identity requirement, Kiparsky 2001 predicts that *kuka* cannot be modified by a *-t* marked adjective.

- (iii) Kuka kumma nähtiin?
 who-nom strange-nom saw
 'Who on earth was seen?'
 (iv) * Kene-t kumma nähtiin?
 who-acc stranger-nom saw
 'Who on earth was seen?'

I believe that the restrictions on coordination and the modification of *kuka* fail to provide a conclusive argument for the specific case account of Kiparsky 2001. If the restrictions involve surface identity rather than identity of the of abstract case marking, then the restrictions can be equally accounted for. It is possible then to maintain the classification proposed above, where all null case marked R-expressions are nominative, and the *-n* marked R-expressions which occur in the environments where pronouns are *-t* marked, are accusative.

Syncretism, the restriction on morphological identity in coordination structures (and free relatives) is more widespread, and can be observed in Slavic and Germanic as well (David Pesetsky, p.c.). This makes a treatment of Finnish where morphological case is identified with abstract case less attractive.

- (v) Kogo /*čego /*čto ja iskal, ne bylo doma (Russian)
 wh-acc/gen what-gen / what-acc I-nom sought not was home
 'What I was looking for wasn't at home'
 (vi) Er findet und hilft Frauen / *Manner / *Kindern (German)
 he-nom found and helped women-acc/dat / men-acc / children-dat
 'He found and helped the children'
 (Levy and Pollard 2002)

While all instances of phonologically empty case are assumed to be nominative, the case marking *-n* of R-expressions is ambiguous. In those environments where pronouns also appear with *-n*, the *-n* marked R-expressions are genitive. In the environments where the pronouns bear the accusative *-t*, I assume that R-expressions with the *-n* case marking are accusative. The accusative nature of the relevant instances of *-n* marking on R-expressions is supported by the fact that this case marking appears on patients in transitive active sentences, a canonical instance of accusative case marking.

I suggested that in the environments where pronouns display a *-t* accusative case marking, R-expressions are either nominative or accusative (this classification of R-expression case marking is also argued for in Maling 1993 and Nelson 1998). The remainder of this section derives the distribution of these case markings.

2.1.2 Accusative as a dependent case

In order to account for the distribution of phonologically null and *-n* case marking, I adopt a dependent case account for unaccusatives. As proposed in the *Case in Tiers* approach of Yip et al. 1987, specific case features are mapped to structurally case marked constituents.²⁶ The approach distinguishes independent and dependent case, which must be mapped to structurally case marked constituents. The constituents are ordered in a hierarchy, and dependent case can only be mapped if the independent case has already been mapped to another constituent higher in the hierarchy. Once independent case has been mapped, dependent case is mapped to the remaining structurally case marked constituents.²⁷ Following Maling 1993, I assume that nominative is the independent case in Finnish, and accusative is a dependent case marking.

To account for the mapping of case features, Maling 1993 adopts a hierarchy of grammatical functions for Finnish (7), where subjects are the most salient.

(7) Subject > Object > Measure > Durative > Multiplicative

26 The lexically determined (inherent) case marking is invariable, and not affected by the mapping procedure described below.

27 This approach to dependent case differs from that of Marantz 1991, where the realization of a case feature can depend on syntactic properties of other NPs in the clause, but not on the specific case feature of other NPs.

The structural cases (nominative and accusative in Finnish) are mapped onto these constituents by matching the highest structurally case marked constituent in (7) with the independent nominative case.²⁸ Accusative case is mapped to the remaining structurally case marked constituent(s) in the hierarchy.

As noted by Maling 1993 (also Heinämäki 1984, Kiparsky 1998, Nelson 1998) and reflected in the hierarchy in (7), a number of adjuncts – temporal and spatial measure adjuncts as well as multiplicatives – can be structurally case marked. The structural (rather than inherent) case account of these adjuncts is supported by an alternation between partitive and non-partitive case marking. Structurally case marked subjects and objects show a similar alternation with partitive case (though under somewhat different conditions, discussed in section 3.2).

The accusative *-n* case marking (in presence of a nominative subject) of all three adjunct types is shown below.

- (8) Raili hiihti päivä-*n* / kilometri-*n*
 R-nom skied day-acc / kilometer-acc
 'Raili skied a day / a kilometer' (Heinämäki 1984)
- (9)a Luotin Kekkoseen [yhde-*n* vuode-*n*]_{ACC} [kolmanne-*n* kera-*n*]_{ACC}
 trust-past,1sg K-ill one-acc year-acc third-acc time-acc
 'I trusted Kekkonen for a year for the third time' (Maling 1993)
- b Liisa muisti matka-*n* vuode-*n*
 L-nom remembered trip-acc year-acc
 'Liisa remembered the trip for a year' (Maling 1993)

(9) also illustrates multiple mapping of accusative case, where the dependent accusative case is mapped to both the durative and the multiplicative adverb.

²⁸ For examples with apparent multiple nominative case marking (Nelson 1998), I assume that they involve a phonologically unmarked vocative as well as a nominative constituent.

(i) Ota sinä kahvi kaapista!
 take-imp you-voc coffee-nom cupboard-from
 'You take the coffee from the cupboard!' (Nelson 1998)

The dependent nature of accusative case is shown by the morphological case marking appearing on adjuncts. In an impersonal passive construction, if the patient has inherent illative case marking, the adjunct is nominative since – in absence of a more prominent structurally case marked constituent – it is assigned the independent, nominative case.

- (10) Kekkoseen luotettiin [*kolmas kerta*]_{NOM}
 K-ill trust-pass third time-nom
 'Kekkonen was trusted for a third time' (Maling 1993)

The independent nominative case can be mapped to only a single constituent; whenever there are multiple structurally case marked constituents, including adjuncts, at most one of them can have nominative case. The multiplicative (11a) and (11c), or durative adverb (11b) appears with accusative case, since nominative case is mapped to another constituent, which is higher in the hierarchy in (7).

- (11)a Kekkoseen luotettiin [*yksi vuosi*]_{NOM} [*kolmanne-n kerra-n*]_{NOM}
 K-ill trust-pass one-nom year-nom third-acc time-acc
 'Kekkonen was trusted for a year for the third time' (Maling 1993)
- b Käveltiin [*kilometri*] [*koko talven*]_{ACC}
 walked-pass kilometer-nom whole winter-acc
 'There was walked a whole kilometer the whole winter' (Maling 1993)
- c Juokse [*kilometri*] [*kolmannen kerran*]_{ACC}!
 run-imp kilometer-nom third-acc time-acc
 'Run a kilometer for the third time!'

Once again, accusative as a dependent case appropriately describes the distribution of accusative and nominative case on structurally case marked constituents.

Traditional grammars of Finnish as well as a number of generative ones propose *Jahnsson's rule* to describe the case marking of objects and adjuncts. I show below that Jahnsson's rule, as generally formulated, does not capture the case marking of R-expressions.

Jahnsson's rule is adopted as a surface filter in Kiparsky 2001 and Asudeh 2003, among others.

(12) *Jahnsson's rule*

- A verb which has no overt subject governs the endingless [nominative] accusative.
 - A verb with an overt subject governs the *-n* accusative
- (Jahnsson 1871, Kiparsky 2001, Asudeh 2003)

Even though *Jahnsson's Rule* refers to two kinds of accusative case markings, it can be reinterpreted as describing the morphological case markings regulated by Maling's dependent case account. The dependent case account and Jahnsson's rule fare equally in most environments. It will be shown, however, that only the former is adequate in capturing morphological case marking in Finnish.

Jahnsson's rule and the dependent case account make different predictions in a number of environments, including possessive copular constructions. Possessive copular constructions are straightforwardly accounted for by a dependent case account, and require a sharpening of Jahnsson's rule. An R-expression possessee is nominative, but has an accusative *-t* marking when it is pronominal. The *-t* marking on the pronominal possessee shows that, in terms of case marking, the R-expression possessee behaves like a nominative R-expression object.

- (13)a Hänellä on hevonen
s/he-adess is horse-nom
'S/he has a horse'

b Hänellä on sinut
 s/he-adess is you-acc
 'S/he has you' (Nelson 1998)

The dependent case account directly derives the case marking on the R-expressions possessee; there is no structurally case marked constituent which is higher in the hierarchy in (7), thus the independent nominative case is mapped to the possessee. Jahnsson's rule, in (12), in contrast, crucially refers to subjects to determine the case marking of non-subject constituents. It must be ensured then that the notion *subject* is defined in a way to exclude the subjects in (13). I assume that the preverbal possessor in (13) is in Spec,TP, a subject position.

(14) [_{TP} hänellä [_T on hevonen]]

The subjecthood of the adessive is diagnosed by the fact that it moves to the matrix clause in raising constructions:

(15) Hänellä näyttää [t olevan hevonen]
 s/he-adess seems be-inf horse-nom
 'S/he seems to have a horse'

In addition, the postverbal nominative, unlike preverbal thematic subjects, fails to trigger phi-feature agreement on the finite verb.²⁹

(16) Häne-llä on hevos-et
 s/he-adess is horse-pl-nom
 'S/he has the horses'

²⁹ Pre- and postverbal nominative thematic subjects trigger phi-feature agreement. Partitive subjects, however, appear with a default 3sg agreement on the verb. The agreement on the verb in (16) can thus be assumed to be default agreement triggered by the adessive, as in the case of partitive thematic subjects.

In spite of the filled subject position in Spec,TP, the object appears with nominative case marking. Jahnsson's rule must then explicitly appeal to overt nominative subjects rather than overt subjects, as in the original formulation.

In fact, as (17) shows, no overt subject needs to be present for an R-expression to be marked as accusative. Generic statements and weather predicates have an accusative (-*n* marked) complement and they lack an overt nominative constituent.

- (17) Jouluksi satoi pysyvän lumen
Christmas-transl fall-past,3sg stay-part-acc snow-acc
'For Christmas, there fell a permanent (amount of) snow'
(Kiparsky 2001)

To account for these facts in the dependent case account, I assume that the generic subject pronoun and an expletive weather *pro* have nominative case marking (for an alternative account, see Kiparsky 2001). The presence of the accusative constituent in (17) presents a problem for Jahnsson's rule as given in (12).

Finally, let us consider how the case feature of nominals is licensed within the Minimalist Program. With respect to the heads licensing structural case, I assume that nominative case can be licensed by either T or v. Recall that according to Maling 1993, nominative is an independent case, which is mapped to the highest structurally case marked constituent – independently of any other restriction on that constituent, including its case licenser. Whether nominative case is licensed by T or v has implications, though. Following George and Kornfilt 1981 and Chomsky 2001a,b, I assume that if T Agrees with a phi-complete constituent and licenses its case feature, then T shows phi-feature agreement with that constituent. Thus if the nominative case is licensed by T, the nominative constituent triggers agreement on T. If the case is licensed by v, then T only displays default agreement.

In sum, structurally case marked R-expressions in Finnish can appear with nominative, accusative, genitive or partitive case marking. Genitive and accusative case is homonymous. Accusative case marking for R-expressions is a dependent case, which is mapped to a constituent only if nominative is assigned to a hierarchically more prominent one.

2.2 *Pronouns*

As noted earlier, the case marking of pronouns is significantly different from that of R-expressions.³⁰ Pronouns can appear with three morphologically distinct types of non-partitive structural case: nominative, accusative and genitive.

- (18)a sinä
I-nom
b sinut
I-acc
c sinun
I-gen

Only subject pronouns are marked as nominative. Object pronouns, including those in imperatives and modal constructions, have a *-t* accusative case marking.

I suggest that the difference between the case marking of R-expressions and pronouns arises from different case marking systems applying to these constituents. It was argued above that the accusative case marking on R-expressions is a dependent case. The *-t* accusative case marking on pronouns, in contrast, is not a dependent case, and thus can be assigned even in absence of a nominative constituent. The dependent accusative case of R-expressions and the non-dependent case of pronouns accounts for the overlapping distribution of nominative R-expressions and accusative pronouns.

³⁰ As shown below, the initial characterization of the different case marking systems as distinguishing pronouns and R-expressions is misguided. Rather, it is human pronouns which differ in case marking from other nominals.

The case marking systems applying to pronouns and R-expressions thus crucially differ in two respects. On the one hand, the accusative case of R-expressions is homonymous with genitive case, while the accusative case marking of pronouns, *-t*, is morphologically distinct from the genitive *-n* marking. On the other hand, the accusative case of R-expressions is a dependent case and that of pronouns is not.

While the differences between pronouns and R-expressions can be easily captured, the source of the different case marking of these constituents remains a question. I show that differential case marking treats Finnish nominals appropriately. A structural distinction, as in Kiparsky 2001, makes the wrong predictions in turn.

Differential case marking, where the case of nominal constituents in a specific environment is not uniform, are fairly common crosslinguistically. In Romanian, for instance, the object case marker, *pe*, is obligatory on pronouns referring to animate entities; is optional on definite and indefinite specific objects which refer to animate entities, and is precluded on all inanimate-referring objects and all non-specific objects (Farkas 1978).

Aissen 2003, building on Bossong 1991, Comrie 1989, Croft 1988 and Silverstein 1981, among others, notes that differential case marking can be determined by the relative degree of animacy or definiteness of the nominals in question. Given scales of animacy and definiteness, and a cutoff point on these scales, nominals display different case markings depending on whether they are above or lower than the cutoff point on the scale.

Kiparsky 2001 shows that the pronouns which are case marked differently from R-expressions can only refer to humans. In addition, only personal pronouns can be marked in this way; interrogative or demonstrative pronouns, for instance, are case marked as R-expressions. In the animacy scale of Aissen 2003, the most prominent elements are those referring to humans.

- (19) human > animate > inanimate
(Aissen 2003)

The animacy scale thus distinguishes, in effect, human pronouns from other nominals in terms of the differential case marking.

With respect to the restriction to personal pronouns, I suggest that it follows from the ordering of the definiteness scale. In Aissen 2003, personal pronouns are the highest in the definiteness scale:³¹

- (20) personal pronoun > proper name > definite NP > indefinite specific NP >
non-specific NP
(Aissen 2003)

The attested differential case marking pattern in Finnish is derived by the assumption that a different case marking applies to the constituents which are the highest in both the definiteness and animacy scale. The differential case marking in Finnish is thus not distinct from that in a number of Indo-Iranian and Romance, Dravidian or Afro-Asiatic languages. In all of these cases, differential case marking can be defined in terms of animacy or definiteness (Aissen 2003).³²

Kiparsky 2001 proposes a different way of distinguishing the nominals which are case marked differently. According to Kiparsky 2001, these pronominal elements³³ with exceptional case marking differ from other pronouns in that they can combine with an overt R-expression. *Hän* ('he') is case marked unlike R-expressions and cannot cooccur with an R-expression.

31 On the source of this ordering, see Farkas 2002.

32 The differential case marking pattern of human pronouns and other nominals may be implemented by a system of filters, as in the treatment of Aissen 2003. I assume that the specific licensing of the case feature proceeds identically for all nominals, with an appropriate case licenser (T or v) licensing the case feature of the nominal. The specific morphological case, discussed in this chapter, is determined outside of syntax, following the licensing of the case feature. It must be noted that Nelson 1998 also proposed a differential case treatment of Finnish nominals. The semantic features she identified (animate pronouns), however, do not capture the distribution adequately.

33 Kiparsky 2001 argues for a difference between case marking of nominals with an (overt) NP and those without it. I will adhere to the terminology used previously, and refer to these nominals as R-expressions and pronouns, respectively.

- (21)a *se* mies
 it man
 'that man'
- b *kuka* roisto
 who villain
 'who the hell'
- c * *hän* mies
 he man
 'he the man'

Kiparsky further argues that in addition to animacy and definiteness, case marking can also be sensitive to a structural difference in the internal structure of case marked constituents. According to Kiparsky 2001, all nominals are DPs. If a D head can take an NP complement, then it is case marked as an R-expression, independently of whether the D head is pronominal or non-pronominal. This description covers not only R-expressions, but also pronominal elements which can appear with an NP complement (21a,b). Whenever the D head cannot take an NP complement the case marking on the DP surfaces as described for pronouns above.

This correlation, however, appears not to hold in general. Personal pronouns such as *me* ('we') and *te* ('you-pl') can cooccur with an R-expression, as shown below. Yet they are case marked as *hän* ('he') and unlike R-expressions.

- (22)a *me* naiset
 we women
- b *te* pojat
 you boys

The compatibility of personal pronouns, which have a non-dependent *-t* accusative case and an R-expression shows that the correlation suggested by Kiparsky 2001 does not always hold. The two case marking systems in Finnish differentiate human personal

pronouns from other nominals, and do not distinguish nominals based on a structural difference. The different case systems operative in Finnish can then be assimilated to other occurrences of differential case marking, where a semantic condition determines the specific case system applying to a nominal.

Let us summarize the discussion in this chapter. I argued that the distribution of non-partitive structural case on R-expressions is best described by a dependent case account as in Yip et al. 1987. Nominative is the independent case in Finnish. Accusative appears only if nominative is licensed on a more prominent constituent. The morphological case of R-expressions is obscured by the fact that the genitive and accusative case on R-expressions is homonymous. These cases are reliably distinguished, however, by the case marking of pronouns in the same environment. A distinct case system applies to pronouns, where accusative and genitive are overtly distinguished. In general, the structural case on nominals can appear as nominative, accusative, genitive and partitive. The following chapters discuss the distribution of partitive case in Finnish, and the semantic import (or lack of semantic import) of partitive case.

Chapter 3 Partitive case alternation in Finnish

As discussed in the previous chapter, structurally case marked nominals in Finnish show a variation between nominative and accusative case marking. In addition to that variation, the nominals can also appear with partitive case marking, as the case alternation on the object shows.

- (1)a Hän ajoi *autoa*
 he drove car-part
 'He drove the car'
- b Hän ajoi *auton* talliin
 he drove car-acc garage-ill
 'He drove the car into the garage'

In this chapter I argue that the case alternation between partitive and some non-partitive structural case marking can be given a simple and intuitive account. A crucial ingredient of the proposal is the possibility of semantic properties influencing morphological form, specifically case marking, as argued by a number of authors (Kiparsky 1998, 2001, Maling 1993). Divisibility, a semantic property which can be applied to the interpretation of nominals as well as event predicates (following Bach 1986, Kamp and Reyle 1993, Krifka 1989, 1992, 1998, Link 1987, 1998) is relevant for determining the nature of case marking. I argue that partitive case is licensed on all structurally case marked elements whose case feature is licensed or realized in a minimal divisible domain, specifically, a phase. The restriction on the effect of divisibility follows from the mechanism of semantic interpretation. Each Spell-out domain, or phase, is interpreted upon being transferred to the interpretive components, and can thus affect morphological properties determined within the same phase.

3.1 Partitive case licensed by properties of the nominal interpretation

Partitive case can alternate with nominative or accusative case on all structurally case marked constituents; subjects, objects and structurally case marked constituents can all appear with partitive case. The following pairs of examples illustrate alternating structural case, contrasting the partitive constituent with a nominative or accusative one.

(2) Object

- a Ostan *jäätelöä*
buy-1sg icecream-part
'I'll buy some ice cream'
- b Ostan *jäätelön*
buy-1sg icecream-acc
'I'll buy the ice cream'

(3) Adjunct

- a Tämä patsas on seisonut tässä *vuiosisatoja*
this-nom statue-nom has stood here years-hundred-part
'This statue has been standing here for centuries'
- b Tämä patsas on seisonut tässä [*viisikymmentä vuotta*]_{ACC}³⁴
this-nom statue-nom has stood here five-hundred-acc year-part
'This statue has been standing here for five hundred years'

34 In quantificational expressions, the case marking of the DP (accusative in (3b)) is displayed by the quantifier or the numeral, and the case of the NP itself varies widely. If the structurally case marked DP which contains a numeral higher than one is nominative or accusative, then the case marking on the NP itself is partitive. Any inherent case marking appears on the numeral as well as the NP, and case marking is also doubled with the numeral *one*. A handful of quantifiers (including *paljon* 'a lot of') resemble numerals in appearing with partitive case marking on the NP. Other quantifiers, such as *harvat* ('few') and *monet* ('many') appear with the case of the DP marked on the NP as well as the quantifier. The case marking of the NPs cannot be straightforwardly correlated with a semantic property such as divisibility or plurality. A detailed discussion of NP case marking in numeral and quantificational expressions, and a possible unification with instances of alternating partitive case marking, is left for further research. The case of the DP is indicated as a subscript on the right-hand bracket of the DP.

- (4) Preverbal subject
- a *Olutta* on jääkaapissa
 beer-part is fridge-iness
 'Some beer is in the fridge'
- b *Olut* on jääkaapissa
 beer-nom is fridge-iness
 'The beer is in the fridge'
- (5) Postverbal subject
- a Keitiössä on *lapsia*
 kitchen-iness is children-part
 'There are children in the kitchen'
- b Keitiössä on *joku*
 kitchen-iness is someone-nom
 'There is someone in the kitchen'

As the data show, alternating partitive case can appear on all structurally case marked constituents. These include objects (2), structurally case marked adjuncts (3), preverbal subjects (4), as well as postverbal subjects (5).

3.1.1 Divisibility and case marking

The different interpretation of the partitive nominals and their non-partitive counterparts in (2)-(5) provides the basis of the account of alternating partitive case in Finnish. Indefinite mass nouns, as in (2a) and (4a), and bare plurals, in (3a) and (5a), appear with partitive case. Definite mass nouns, illustrated in (2b) and (4b), singular count nouns (5b) and quantified plurals (3b) all have non-partitive case marking.

Divisibility is the property of nominal interpretation which distinguishes nominals along the same lines as partitive and non-partitive case marking. The interpretation of partitive nominals in (2)-(5) is divisible, and that of non-partitive nominals is non-divisible. As the name suggests, if the property described by a divisible nominal applies

to an entity, then it also applies to parts of that entity. *Olutta* ('beer-part') or *beer*, for instance, are divisible: dividing any quantity of beer yields two quantities of beer. *Olut* ('beer-nom') and *the beer* are, in contrast, non-divisible. Dividing a definite, specified quantity of beer in two does not yield two of the same definite, specified quantities.

For concreteness, I assume the following definitions of the property of divisibility:

- (6) A predicate P is divisible iff whenever $P(x)$ for an argument x , then
 for all $y \subset x$, $\exists z [y \subseteq z \subset x \ \& \ P(z)]$
 (all proper parts of x must be parts of P -arguments)
- (7) A predicate P is divisible iff whenever $P(x)$ for an argument x , then
 $x = \oplus_{NT} \{y : P(y)\}$
 (x is the (non-trivial) sum of a set of P -arguments)

(6) is adapted from the definition of durative *for*-adverbs by Hinrichs 1985 by von Stechow 1997, and (7) from a somewhat different version of *for*-adverb entry by von Stechow 1997. For our purposes, the two definitions are equivalent, and the definition in (6) will be used throughout the paper.

According to the definition in (6), a predicate is divisible if whenever it applies to an argument x , then for all parts y of x , there is a proper part z of x which contains y , such that the predicate also holds for z . In other words, the predicate is not required to hold for all parts of the argument x .

A number of arguments support the adoption of a definition of divisibility as in (6) or (7), rather than the standard definition of divisibility in (8) (based on Bennett & Partee 1972, Dowty 1979, Link 1998 and others).

- (8) A predicate P is divisible iff whenever $P(x)$ for an argument x ,
 then for all $x' \subset x$, $P(x')$

Several additional stipulations are required when adopting (8) as the relevant notion of divisibility. First, it must be assumed that there must exist at least one proper part of the argument x of the predicate P for which the required condition holds. A similar requirement is necessary for (6) and (7); in the latter, the argument must be a non-trivial sum of a set of parts. This requirement ensures that an atomic predicate is not divisible. Singular count nouns, such as *stamp*, *car* are atomic, and would qualify as divisible in absence of a non-triviality requirement.

Even though the non-trivial satisfaction must be stipulated in both the standard definitions and the one adapted from Hinrichs 1985, the latter is superior in a number of other respects.

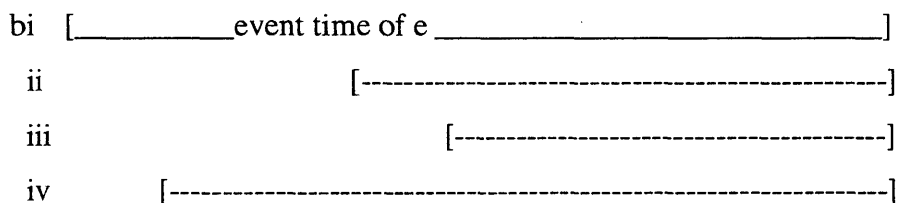
Hinrichs 1985 points out that granularity, or the minimal parts requirement presents a problem for definitions such as (8). The universal quantification over subparts in (8) should not be interpreted exhaustively, requiring that any subpart of the argument be an argument of P . This requirement fails in a number of cases, since there are parts of the maximal P -arguments which are not P -arguments themselves. The mass noun *water* is divisible, but it has proper parts which are not molecules of water, but rather individual atoms or components of atoms themselves. Thus the universal quantification over parts of arguments must be restricted, and required to apply to molecules of water as the smallest parts. A number of approaches (e.g. Moltmann 1991, Rothstein 2004) refer to contextual restriction to restrict quantification.

Even when adopting a contextual definition, some difficulties arise in connection with granularity. First of all, one runs the danger of circularity, if universal quantification is restricted to those parts of the maximal P -argument to which the predicate P could, in theory, apply. Consider the divisible bare plural *centuries*, for instance. For the definition of divisibility in (8) to apply, the potential arguments of the nominal *centuries* must be restricted to centuries, a clearly circular move. In addition, as Hinrichs 1985 notes in connection with the divisibility of event predicates, the interpretation of granularity is restricted by a number of contextual factors, including those external to language. For the activity of running, for instance, the properties of the agent, such as its physical state, influence the minimal event which qualifies as running.

Granularity does not present a problem for the definition of divisibility in (6) and (7), since it is not required that all subparts of the maximal argument be P-arguments. (6) requires the existence of at least two distinct proper parts of the maximal argument x to be P-arguments. All subparts of x must be parts of a P-argument, but are not required to be P-arguments themselves. Similarly, (7) requires the existence of at least two proper parts of x to be P-arguments, since x must be the non-trivial sum of P-arguments. Again, it is not required that all parts of x be arguments of P themselves.³⁵

Hinrichs 1985 notes that his treatment of divisibility (as well as the definition in (7)) ensures the existence of at least two non-overlapping parts of the maximal P-argument which are arguments of P themselves. The necessity of at least two such argument parts can be illustrated by event predicates, to which the property of divisibility also applies. Let us consider an event of *Fred go to the store* and assume that event times are arguments of the event predicate. Given the event time, an infinite number of proper parts of that event time are also arguments of *Fred go to the store*. As the diagram in (9b) shows, all subintervals of the event time which include the endpoint of the former (9bii-iv) are also time arguments of *Fred go to the store*.

(9)a Fred went to the store



Even though the event predicate P in (9a) holds of an infinite number of proper parts of the event time, it is non-divisible. The definition of divisibility in (6) requires that each subpart of the argument be a part of a proper part of the argument of the predicate. Given a subinterval t' of the event time such that the left boundary of t' is the left boundary of the

³⁵ Von Stechow 1997 notes that a contextual restriction on the size of parts is nevertheless necessary. (i) is judged false if Fred does not call during the first four months, but calls every day thereafter. (6) and (7) predict (i) to be true in the scenario.

(i) For two years, Fred called on most days

event time t , there is no interval $t'' \subset t$ such that $t' \subseteq t''$ and $P(t'')$. Since all intervals for which *Fred went to the store* is true must include the right boundary of the event time, t itself is the minimal interval which includes t' and for which the event predicate holds.

(10)a Fred went to the store

bi [_____ t = event time of e _____]

ii [--- t' -----]

The non-divisibility of *Fred go to the store*, which follows from the definition in (6), is shown by adverbial modification. Like other non-divisible event predicates, the event time can be measured by an *in*-adverb, but not by a *for*-adverb:

(11) Fred went to the store in half an hour / #for half an hour³⁶

The non-divisibility of *Fred go to the store* shows that a predicate P is divisible only if for an argument x , x has two distinct parts which are also P -arguments themselves.³⁷ As noted above, this follows for the proposed definitions in (6) and (7), but not for the standard definition in (8).

Finally, let us address the range of constituents which can be divisible. The definition in (6) defines divisibility for a predicate with a single argument of type e . In the discussion above I assumed that divisibility can also hold for an event predicate with a time interval argument, an argument of type s . The question arises then whether the property of divisibility also holds for constituents of other semantic types.

If the property of divisibility is applicable to any predicate, then it is predicted to apply to quantificational expressions (of type $\langle et, t \rangle$) as well as the nominal predicates discussed above. Let us assume that the divisibility of nominals in fact correlates with partitive case. Divisible quantificational expressions are headed by downward entailing

36 For some speakers, the event predicate *Fred went to the store* can be modified by a *for*-adverb. The relevant (progressive-like) interpretation is that the store was not reached, but it was the intention of the agent to reach it (David Pesetsky, p.c.). For the purpose of this discussion, I assume that this interpretation arises as the result of a coercion of the telic, non-divisible event predicate.

37 The argument x being the event time in this case.

quantifiers. Thus if the definition of divisibility in (6) applied to predicates other than nominals of the type $\langle e,t \rangle$ or event predicates, then downward entailing qualifiers would be predicted to appear with partitive case, just as divisible nominals of type $\langle e,t \rangle$. Downward entailing quantifiers take an argument of type $\langle e,t \rangle$. Whenever a predicate can serve as an argument of the downward entailing quantifier, then a part of that predicate can also do so. By the definition of divisibility in (6) then, downward entailing quantifiers are divisible.

As the following examples show, however, structurally case marked downward entailing quantifiers are not partitive, but rather accusative or nominative.

- (12)a [Harvat ihmiset]_{NOM} muistivat onnettomuuden
 few-nom people-nom remembered accident-acc
 'Few people remembered the accident'
- b Hän humasi [muutaman poliisin]_{ACC}
 he-nom noticed a.few-acc police-acc
 'He noticed (a) few policemen'
- c Hän huomasi [vähemmän kuin kolme virhettä]_{ACC}
 he-nom noticed fewer-acc than three-nom mistake-par
 'He noticed less than three mistakes'

Partitive case is not universally excluded from downward entailing quantifiers or nominals other than of type $\langle e,t \rangle$ in general. Other environments which license partitive case can license partitive case on all nominals, regardless of their semantic type. It is thus not a ban on case marking, but the limited scope of divisibility which is responsible for the case marking of quantifiers.

Since the generalization concerning the correlation between the interpretation of nominals of type $\langle e,t \rangle$ and their case marking in Finnish is otherwise well substantiated, I conclude that the definition of divisibility does not apply to nominals of other types. Thus even though downward entailing quantifiers have the appropriate semantic properties, they are not partitive by virtue of being of the semantic type $\langle et,t \rangle$, to which the

definition of divisibility does not apply. Similarly, it is predicted that the semantic properties nominals of the type *e* will not license partitive case. This is shown, among others, in the preceding examples, where pronouns and definite expressions appear with nominative and accusative rather than partitive case marking.

Given the property of divisibility, the alternation of structural case marking in (2)-(5) can be described as in (13).

(13) Divisible, structurally case marked nominals are partitive

(13) is not a biconditional, since partitive case can be licensed in other environments as well, as discussed in section 3.2 and chapter 4.

The generalization in (13) predicts that it is the interpretation rather than the lexical properties of a nominal which determines the case marking. As noted by Kiparsky 1998, a singular count noun can appear with partitive case marking if it is interpreted as a kind term. In (14) the object *tätä ruusua* ('this rose') refers to a specific kind of rose, of which various specimens were planted.

(14) Puutarhuri istutti kaikkialle tätä ruusua
 gardener-nom sit-caus-past3sg everywhere this-part rose-part
 'The gardener planted this (kind of) rose everywhere' (Kiparsky 1998)

The basic, non-kind interpretation of the nominal *tätä ruusua* ('this rose') is non-divisible. The relevant interpretation in (14), which arises with the partitive case marking on the nominal, is an instance of a kind interpretation. *Tätä ruusua* ('this rose') is interpreted as instantiations of a specific kind of rose: it is actual instantiations of the kind of rose, the rose plants which are planted by the gardener.

I assume two operators of Chierchia 1998, which apply to the lexical denotation of the nominal, to account for (14). On the one hand, a down operator (\cap) applies to the

definite nominal *tätä ruusua* ('this rose'), and yields a kind term³⁸. An up operator (\cup), when applying to a kind term, yields the instantiations of the kind. The consecutive application of the two operators yields the interpretation of *instantiations of this kind of rose*.³⁹ The successive applications of Chierchia's operators are shown below, where small capitals stand for the interpretation of the definite nominal.

(15) $\cup (\cap (\text{THIS ROSE}))$

The interpretation that arises after the application of the two operators is divisible. There are no number restrictions on the specific objects which are instantiations of the salient kind of rose, since the singular number marking restricts the interpretation of the kind of rose rather than that of its instantiations. The interpretation of number marking is illustrated below, where (16a) and (16b) contrast in the number of types rather than that of instantiations.

- (16a) The gardener planted this rose everywhere
 b The gardener planted these roses everywhere

In absence of number restrictions on the instantiations, the derived nominal in (9) can apply to single as well as plural individuals, the latter being the sum of plural or single individuals. The object predicate in (14) is divisible, and thus partitive case marking on the object is expected, given the generalization in (13).

38 More precisely, the down operator yields a contextually salient subkind of the kind *rose*, within a taxonomic hierarchy with the kinds of roses (including *briar*, *tea rose*, *spray rose* or *rambler*, etc.) ordered hierarchically.

39 This reading is referred to as the *representative object interpretation* in Krifka et al. 1995.

3.1.2 The interaction of divisibility and case marking

It was argued above that whenever a structurally case marked nominal in Finnish is divisible, it appears with partitive case. Two possible ways of implementing the interaction between case marking and divisibility are discussed below.⁴⁰ I suggest that in spite of the identical empirical coverage, the account in terms of interface interaction is more attractive than the alternative approach.

The first possibility, suggested by D. Pesetsky, is to allow specific case features, specified for partitive, accusative or nominative, to be freely present on nominals in syntax. The nominal case features in this approach are not instantiations of a general case feature, but are those of the specific partitive, accusative or nominative case. Under this view, a semantic filter restricts the occurrence of partitive case features, which can appear only if they satisfy semantic licensing conditions. One of the licensing conditions, discussed above, is appearance on a divisible nominal. If the licensing conditions are not met, then partitive case marking on the nominal leads to a non-convergent derivation. Non-partitive structural case is also subject to filtering; if it appears within an environment which licenses partitive case, then accusative or nominative case leads to a crash. This implementation allows semantics to be conceived as a purely interpretive component. It also assumes that semantics and morphology only interact through the syntactic component, as in most implementations of the Minimalist Program.

At least one additional filter on structural case is needed if this account is adopted. As argued in chapter 2, the distribution of non-partitive structural case on Finnish R-expressions is best described as involving dependent case (Yip et al. 1987). If the case features on nominals are specific case features, then this additional filter must ensure that non-partitive structural case patterns as described by the dependent case generalization.⁴¹

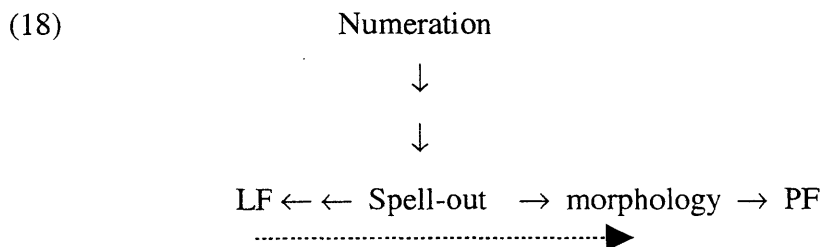
40 A third approach, which identifies partitive case and the semantic property of divisibility, is discussed in section 3.4.

41 As discussed in the previous chapter, Yip et al. 1987 propose that accusative case is a dependent case; it appears on an R-expressions only in the presence of another structurally case marked constituent which is higher in the hierarchy established. The latter nominal bears the independent nominative case and the former, accusative.

The second account does not require the existence of filters, but assumes that the specific case marking of nominals can be sensitive to semantic information. In this view morphology, where late insertion applies, does not only interpret the information supplied by syntax, but also the information provided by the semantic component, where divisibility is determined. The property of divisibility is determined after Spell-out, when the Spell-out domain (in the case of nominals, DP) is transferred to the interpretive component. Since it is the Spell-out domain, the complete phase that is interpreted, it is expected that case marking is determined by the divisibility of the phase rather than a smaller constituent. The relevance of the complete DP phase is shown by the interpretation and case marking of plural nominals. A plural NP with a demonstrative is non-divisible and appears with non-partitive case, while the bare plural is divisible and partitive. The D head must then be within the domain where divisibility is determined.

- (17)a [*Nuo puut*]_{NOM} ovat kauniita
 those-nom tree-pl-nom3pl are beautiful
 'Those trees are beautiful'
- b *Puita* on Suomessa vähän
 tree-pl-part is Finland-iness few
 'There are few trees in Finland'

The availability of semantic information for the morphological component is schematically indicated by an arrow pointing to the interpretive component below.



If morphology and late insertion have access to semantic information, then the case feature of nominals can be left unspecified in the syntactic component. The specific morphological case is determined outside of syntax, subject to the semantic condition on partitive case and the dependent case generalization. Non-partitive structural case can also be treated by appealing to underspecified case features; the specific case marking of R-expressions is determined globally, depending on the presence of a structurally case marked constituent higher in the case hierarchy.

The two accounts are empirically indistinguishable, since both allow only those derivations to converge where the distribution of morphological case corresponds to the relevant constraints. They differ, however, in how grammar is viewed. The first implementation, where nominals appear with specific case features in syntax, resembles previous generative accounts in the Government and Binding framework (e.g. Chomsky 1981, 1986). In those accounts, operations are rather free and are filtered by various restrictions on the results of those operations. The output of the unrestricted operation Move α is constrained by restrictions on traces which arise in the course of movement. The second approach, which allows morphology to interpret semantic information, does not need to impose filters and does not overgenerate in this respect. This approach is more like the Minimalist Program, where movement is not free, but only takes place when triggered by an EPP feature on the probe. In a sense, Minimalist accounts show a move toward failure-proof grammars, since the number of non-convergent derivations is reduced.

The desirability of failure-proof derivations, which tilts the scales in favor of the second account, has been addressed within the Minimalist Program before. Chomsky 2001b notes that the requirement that derivations be failure-proof motivates Minimalist research which aims to eliminate non-local operations in general.⁴² Ensuring that derivations are failure-proof also is also a consideration in the treatment of polarity items in Szabolcsi 2004, discussed in section 6.2.2. Szabolcsi 2004 follows Postal 2000 in discarding the standard view that polarity items need to be licensed and unlicensed polarity items result in ungrammaticality. Rather, she assumes that polarity items are

⁴² Adopting some non-standard Minimalist assumptions, Frampton and Gutmann 2002 argue for a strong version of crash-proof syntax, where no filters are needed and all derivations converge.

merged as underspecified objects and whether they surface as positive or negative polarity items (or negative quantifiers) is determined by semantic conditions.⁴³ All derivations with the given underspecified lexical item converge, albeit with different morphological realizations of the given lexical item.

A grammar where semantic information can affect morphological realization is more efficient, given that there are less non-convergent derivations derived than with the alternative view. If the grammatical derivation is selected by a filter, then the proliferation of filters may lead to a grammar which resembles Optimality Theoretic frameworks, where the generative component is unrestricted and an ordered set of constraints filters out the non-convergent, losing candidates. While some filters may be necessary in a Minimalist framework, minimizing the number of filters results in a grammar which is more Minimalistic 'in spirit'.

Given these considerations, I adopt the second account in the following discussion. It must be nevertheless emphasized that the two accounts are empirically indistinguishable and only theoretical considerations support one over the other.

43 The morphological surface form of the underspecified items is not fully deterministic. In English, for instance, some optionality must be permitted to allow for the optionality between the determiners *a* and *some* when occurring with a non-divisible NP complement.

3.2 *Partitive case licensed by properties of the event predicate*

Nominals can appear with partitive case marking even if they are not divisible themselves. I show below that the range of partitive constituents whose case is licensed by the divisibility of nominals differs from partitive case licensed by atelic event predicates. In spite of this difference, I argue that the two sources of partitive case can be treated similarly, and that the distribution of partitive case licensed in these environments follows from the domain where semantic properties are determined. The alternation of partitive and accusative case marking on a non-divisible object is illustrated below.

- (19)a Hän ajoi *autoa* tunni-n
he drove car-part hour-acc
'He drove the car for an hour'
- b Hän ajoi *auton* talliin
he drove car-acc garage-ill
'He drove the car into the garage'

The examples in (19) crucially differ from those discussed above in that the nominals are all non-divisible. Not all nominals are affected equally by the case alternation; in (19) only the case marking of the object varies between partitive and accusative case; the nominative case of the (non-divisible) subject and that of the adjunct is not affected. In this respect the alternation in (19) is different from the occurrences of partitive case discussed above, where all structurally case marked constituents could appear with partitive case marking if they were divisible.

The relevant difference between (19a) and (19b), where the object appears with partitive and accusative case marking, respectively, is the telicity of the event predicate.⁴⁴ The difference in telicity is shown by the temporal adverbs below. An accusative durative adverb, the counterpart of English *for*-adverbs, can only modify atelic event predicates (20a). The inessive-marked temporal adverb in (20b) appears with telic event predicates, like its English equivalent.

- (20)a Hän ajoi *autoa* tunnin
 he drove car-part hour-acc
 'He drove the car for an hour'
- b Hän ajoi *auton* talliin [kahdessa minuutoissa]_{INESS}
 he drove car-acc garage-ill two-iness minutes-iness
 'He drove the car into the garage in two minutes'

Atelic event predicates are similar to divisible nominals in licensing partitive case marking. As noted earlier, they are unlike the previous instances of case marking in section 3.1, since atelic event predicates only yield partitive case on objects. The latter licensing environment is independent of the divisibility of the nominals themselves, so all objects of atelic event predicates are partitive. As a first approximation, the generalization concerning event predicates and structural case can be stated as in (21).

- (21) The object of an atelic event predicate is partitive

⁴⁴ Telicity and atelicity are properties of the event predicates rather than that of the events themselves. A single event can be described by various event predicates; for instance, the two examples in (19) are easily interpreted as referring to the same event. Instead of describing the relevant difference between the event predicates as involving telicity, I will refer to the difference as involving divisibility later in this section. Identifying telicity with non-divisibility permits a common account of the properties of nominals and event predicates.

The generalization extends not only to dynamic events, but also to stative predicates. The non-divisible object of a state is partitive (22a). If the stative predicate has an accomplishment reading, which arises if it is modified by a resultative, then the object is accusative, as with other telic event predicates (22b).⁴⁵

- (22)a *Minä pelkään sotaa*
 I-nom fear war-part
 'I am afraid of war'
- b *Pelkäsin itseni puolikuoliaaksi*
 feared-1sg myself-acc half-dead-to
 'I scared myself half to death'
- (Heinämäki 1984)

A divisible state only licenses partitive case on objects, which is consistent with preceding the generalization. Adjuncts, including a structurally case marked measure adverb, appear as accusative:

- (23) *Kaali painoi kilon*
 cabbage-nom weighed kilogram-acc
 'The cabbage head weighed one kilogram'
- (Heinämäki 1984)

The distribution of morphological case on structurally case marked constituents can be summarized as given below. The divisibility of any structurally case marked nominal enforces partitive case on that nominal. If the event predicate is atelic, then partitive case must appear on the object, but not on a subject or adjunct. Even though the atelic event predicate does not enforce partitive case marking of the latter types of nominals, they can still appear as partitive if they are divisible themselves.⁴⁶

45 Not all states license partitive case on their object. Some exceptional states, which occur with accusative objects, are discussed in section 6.6.

46 Or if they appear in a negative sentence, as discussed in chapter 4.

Object	Divisible nominal	→	partitive
	Atelic event predicate	→	partitive
Subject	Divisible nominal	→	partitive
	Atelic event predicate	↗	partitive
Adjunct	Divisible nominal	→	partitive
	Atelic event predicate	↗	partitive

The generalization in (21) can be assimilated to that of the correlation between structural case marking and the divisibility of nominals. As argued by Bach 1986, Kamp and Reyle 1993, Krifka 1989, 1992, 1998 and Link 1987, 1998, the interpretation of both nominals and eventualities can be represented as a part structure.⁴⁷ Given that both interpretations are organized as a part structure, the property of divisibility can be applied to nominals and event predicates alike. The definition of divisibility, from (6), is repeated below.

- (24) A predicate P is divisible iff whenever P(x) for an argument x, then
for all $y \subset x$, $\exists z [y \subseteq z \subset x \ \& \ P(z)]$

I assume that an event predicate takes a time argument, which is interpreted as the duration of the event, the event time. The divisibility or homogeneity of the event predicate is evaluated with respect to the time argument. Atelic event predicates (25a) are divisible with respect to the time argument, while telic event predicates (25b) are not.

- (25)a Hän ajoi *autoa*
he drove car-part
'He drove the car'

⁴⁷ The relevant part structure representing individuals is a lattice structure, which includes not only individuals, but also fusions of individuals. Following Bach 1986, I use the term *eventuality* to include states as well as dynamic event predicates.

- b Hän ajoi auton talliin
he drove car-acc garage-ill
'He drove the car into the garage'

The event time in (25a) is the time interval during which the event of *he drove the car* holds. For any subinterval t' of the event time, there is a subinterval t'' of the event time containing t' such that the event predicate also holds at t'' . The telic event predicate of (25b) is, in contrast, non-divisible. For any proper subinterval t' of the event time which contains the beginning of the event time, there is no proper subinterval t'' of the event time which contains t' and for which the event predicate holds.⁴⁸

Given that telicity can be rephrased in terms of divisibility, the generalization in (21) can be revised as in (26), to be further refined below.

(26) The object of a divisible event predicate is partitive

(26) is reminiscent of the source of partitive case discussed in section 3.1, where I suggested there that all structurally case marked constituents are partitive if they have a divisible interpretation.

In the following sections I argue that this similarity is not accidental. Rather, the two generalizations refer to two sides of the coin, or to the two facets of case feature checking. First, I will sharpen the notion of divisibility. I show that certain interpretations and adjuncts do not affect object case marking, and propose an account for the independence between semantic interpretation and case marking. Then I show why (26) is restricted to objects rather than extending to all structurally case marked constituents. Both restrictions will be proposed to follow from the restriction on Spell-out domains.

48 Cf. the discussion in (9).

3.2.1 Divisibility and case marking

In order to account for the effect of divisibility on the morphological case marking on nominals, I suggested above in section 3.1.2 that the interface properties can directly interact.⁴⁹ Following Spell-out, the syntactic object is mapped to the LF and PF interfaces, where the semantic and morphological / phonological properties are determined, respectively. Morphology can interpret not only information supplied by syntax, but also information determined by semantics, accounting for the semantic properties which correlate with different morphological case markings.

I will argue below that the same interaction can yield the partitive case marking of objects with divisible event predicates.⁵⁰ As noted in chapter 1, the Spell-out domains are phases, which include DPs, vPs and CPs. The property of divisibility can be determined for DPs as well as vPs, the latter interpreted as event predicates.⁵¹ Once the vP is spelled out, divisibility is determined in the semantic component, similarly to the semantic interpretation of DPs.

Given the interface interaction sketched in (18), the divisibility of the vP can affect the morphological realizations of features licensed within the phase. Specifically, divisibility affects the morphological realization of the case feature licensed by v, the head of the phase. The case of the object is always affected, since its case feature is licensed by v.

I assume that it is the sensitivity of case marking to semantic conditions which accounts for the variation in morphological case due to properties of the vP. Semantic effects on case marking can also be observed in differential case systems (chapter 2), where case marking is affected by the animacy or definiteness of the case marked constituent.⁵² Since it is the divisibility of the vP which is relevant for determining the

⁴⁹ Alternatively, filters at the interface can rule out non-convergent derivations from among derivations involving specific morphological case marking on the nominals within syntax. I suggested that the former approach is more minimalistic in spirit.

⁵⁰ Partitive case marking on objects can arise with a divisible interpretation of both the nominal and of the vP. As discussed at length in section 3.2.1.3, if incremental objects are partitive, then they require a divisible interpretation of both the object and the vP. The correlation does not necessarily hold, however; the divisible object of an instantaneous predicate, for instance, can appear in a non-divisible vP. Also, a divisible vP can have a non-divisible object, as shown, for instance, in (20).

⁵¹ As noted in section 3.1., the property of divisibility does not hold for CPs, since they are neither of type <e,t>, nor of type <s,t>.

⁵² The divisibility of vP represents the flipside of semantic sensitivity to case marking found in differential

morphological case of objects, the final generalization concerning this semantic condition can be stated as in (27).

(27) The object of a divisible vP is partitive

Accordingly, the table summarizing the conditions where partitive case is enforced is revised as follows.

Object	Divisible nominal	→	partitive
	Divisible vP	→	partitive
Subject	Divisible nominal	→	partitive
	Divisible vP	+→	partitive
Adjunct	Divisible nominal	→	partitive
	Divisible vP	+→	partitive

If it is the divisibility of the vP which is relevant for determining the case marking of objects, then it is predicted that certain constituents that can affect the divisibility of the event predicate itself do not necessarily influence object case marking. Those constituents which are outside of vP cannot affect case marking, since they are not part of the Spell-out domain which determines divisibility and indirectly, morphological case marking. They still contribute to the event predicate and can determine the semantic properties of the event predicate itself. In the next section, I argue that constituents of this type do, in fact, exist.

3.2.1.1 Delimiters

An event predicate may be delimited by a number of adjuncts, including goals, resultatives, measure phrases and durative adverbs. These delimiters do not behave uniformly in Finnish; some of them affect the case marking of objects, while others do

case marking systems, since with vPs it is properties of the projection of the case licenser which affect case marking. A specific account of this semantic sensitivity may build on a bare phrase structure (Chomsky 1995) and the assumption that the head of the projection and the projection itself are non-distinct.

not. I propose that the difference between these adjuncts boils down to the position where they are interpreted semantically. Goals and resultatives are interpreted within the vP and can affect the divisibility of the vP and consequently, object case marking. Measure and durative adverbs, in contrast, are interpreted outside of the vP and so fail to affect properties of the vP (the structural position of these adjuncts is discussed in more detail in section 3.3). Both types of adjuncts delimit the event predicate itself, which is shown by the fact that the adjuncts uniformly license *in*-adverb modification of the event time.

Goals, as in (28) and (29), yield a non-divisible vP and affect the case marking of the object, as expected.⁵³

(28)a Bussi kuljetti *minua*
 bus-nom carried I-part
 'The bus carried me'

(29)a Hissi vei *meidät* alas
 lift took we-acc down
 'The elevator took us down'

b Bussi kuljetti *minut* etelään
 bus carried I-acc south-to
 'The bus carried me south' (Heinämäki 1984)

A resultative phrase also denotes the endpoint of the event and enforces a non-divisible interpretation of the vP. The morphological case of the object is, accordingly, accusative whenever a resultative is present.

(30)a Hieroin *sitä*
 rubbed-1sg it-part
 'I rubbed it'

⁵³ The adjuncts *alas* ('down') and *etelään* ('to south') denote a goal rather than a direction.

- b Hieroin *sen* pehmeäksi
 rubbed-1sg it-acc soft-sg-translative
 'I rubbed it soft' (Kiparsky 1998)

Unlike a goal or resultative, a measure phrase does not yield a non-delimited event predicate for the purposes of case marking. If only a measure adverb is present, the object can appear with partitive case.

- (31)a Hissi vei *meitä* [yhden kerroksen]_{ACC}
 lift-nom took we-part one-acc story-acc
 'The lift took us one story'
- b Bussi kuljetti *minua* [viisi kilometriä]_{ACC}
 Bus carried I part five-acc kilometer-part
 'The bus carried us five kilometers' (Heinämäki 1984)

The measure phrase delimits the event predicate, since it determines the endpoint of the event.⁵⁴ The non-divisibility of the event predicate is shown by time adverb modification. In English, the event time of divisible event predicates can be measured by *for*-adverbs, and that of non-divisible event predicates, by *in*-adverbs. Once a measure adverb is present, only *in*-adverbial modification is possible.

54 If telicity is diagnosed by *in*-adverb modification (as assumed by Kratzer 2004, for instance), then the event predicates modified by a measure adverb are telic, just as event predicates modified by a goal or resultative are. Under this view, the property of telicity cannot distinguish between the event predicates which appear with accusative or partitive objects. Telicity can also be determined by assuming that telic events have a distinct result state (e.g. Smith 1997, who distinguishes telic achievements, such as *win* and atelic semelfactives like *cough* based on this criterion). On the assumption that measure and durative adverbs do not introduce a distinct result state, the event predicates are appropriately distinguished: telic event predicates can appear with accusative objects, while the objects of atelic event predicates are obligatorily partitive. A consideration arguing against reducing event predicate properties to telicity is the semantic characterization of nominals which are partitive. As argued above, divisible nominals always appear with partitive case. Distinguishing event predicates based on telicity makes it impossible to treat nominals and event predicates alike. Assuming that divisibility is at play in both cases, a common account is possible.

- (32)a He walked (# in half an hour) / (for half an hour)⁵⁵
 b He walked *two miles* (in half an hour) / (#for half an hour)

Similarly, no structurally case marked durative adverbs can modify an event predicate containing a measure phrase in Finnish.⁵⁶ The lack of *for*-adverb modification shows that even though the event predicate itself is non-divisible, the object can still appear with accusative case.

- (33) Bussi kuljetti minua [viisi kilometriä]_{ACC} (# tunnin)
 bus-nom carried I-part five-acc kilometer-part hour-acc
 ??'Thus bus carried me five kilometers for an hour'

Measure phrases fail to affect the case marking of objects, even though they delimit the event predicate. Like spatial measure adverbs, durative adverbs also leave the case marking of the object unaffected. In the presence of a durative adverb, objects appear with partitive rather than accusative case marking.

55 Following Gajewski 2002, I assume that a non-divisible event predicate modified by a *for*-adverb is not ungrammatical (*) but is less marked, which can be indicated by the diacritic #. Gajewski 2002 specifies the condition for semantic ungrammaticality, which he labels *L-analyticity*. If an LF structure contains an L-analytic constituent (a node of type *t* whose denotation is constant) then the LF structure is ungrammatical; otherwise, it can be at most marked (#) as the result of semantic ill-formedness. Gajewski 2002 argues for the validity of the condition of L-analyticity by noting that the status of contradictions and tautologies is not homogeneous, as illustrated in (i)-(ii), but rather depends on whether the LF structure contains an L-analytic constituent or not. Non-divisible event predicates modified by a *for*-adverb are not ungrammatical, since replacing the verb (iii) with some other predicate (iv) can yield a grammatical sentence. With *for*-adverb modification, there is no L-analytic constituent in the LF structure.

- (i) * There is everyone in the room
 (ii) # Every woman is a woman
 (iii) # John learned this poem for two years
 (iv) John studied / liked this poem for two years

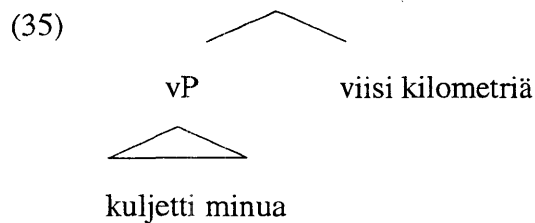
56 If the event is iterated and the durative adverb measures the duration of the iterated event, then modification is possible (i), but marked for some speakers. In the example in (33), the durative adverb measures the event time directly.

- (i) Käveltiin kilometri koko talven
 walked-pass kilometer-nom whole winter-acc
 'There was walked a whole kilometer the whole winter' (Maling 1993)

- (34) Hän ajoi *autoa* tunnin
 he drove car-part hour-acc
 'He drove the car for an hour'

To summarize: durative adverbs, just as measure adverbs, are delimiters and yield a non-divisible event predicate. Yet both of them fail to enforce accusative case marking of the object.⁵⁷

In order to account for the independence of object case marking from the properties of the event predicate, I appeal to vP as the domain licensing partitive case. If measure phrases and durative adverbs are not interpreted within the vP, then they are straightforwardly excluded from affecting the divisibility of vP and object case marking.



The assumed structural position of measure phrases and durative adverbs accounts for their unexpected behavior, and is discussed in section 3.3 in more detail.⁵⁸

⁵⁷ Even though *v* licenses the case feature of both objects and structurally case marked adjuncts, the two differ in the case marking with divisible vPs; objects are partitive but adjuncts are accusative. I suggest that the lack of partitive case on adjuncts with divisible vPs correlates with the effect of adjuncts on object case marking, discussed in section 3.2.2. The possibility of a single head licensing distinct morphological case via multiple Agree was discussed in section 1.5.

⁵⁸ The distinction between the two kinds of adjuncts, resultatives and goals on the one hand and measure and durative adverbs on the other, must also be encoded in some way if the alternative filtering account is adopted. As noted earlier, the alternative account allows specific case marking on nominals within syntax, and assumes filters to rule out unlicensed partitive case. Given that account, it must be ensured that an event predicate modified by a durative or measure adverb is a licenser for partitive case, but an event predicate modified by a resultative or goal is not.

3.2.1.2 Iterative and habitual interpretation

Apart from measure and durative adverbs, habitual interpretation⁵⁹ also fails to affect the case marking on objects, but modifies the divisibility of the event predicate. Iterative interpretation, in contrast, licenses partitive case marking on objects, as also noted by Kiparsky 1998, 2005.

As durative adverbial modification shows, iterated or habitual event predicates are both divisible. An accusative durative adverb can modify the habitual event predicate in (36). The habitual event predicates are divisible, since for all subintervals t' of the time of the habitual event, there is a proper subinterval of the habitual event time which contains t' , such that the habitual predicate holds for that subinterval. Similarly, an iterative event predicate, as in (37), is also divisible and susceptible to *for*-adverb modification.

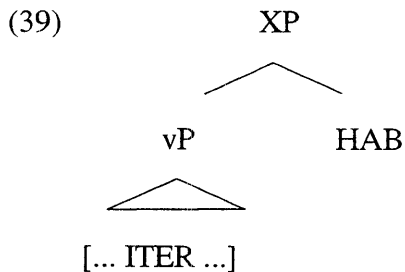
- (36)a Jukka-Pekka joi *koko talven* kahvinsa parvekkeella
J-P drank whole winter-acc coffee-acc-poss.3 balcony-adess
'Jukka-Pekka drank his coffee on the balcony the entire winter'
- b Jukka-Pekka söi päivällisen Hilikussa *koko talven*
J-P ate dinner-acc H-iness whole winter
'Jukka-Pekka ate dinner at Hilikku the whole winter'
- (37) Hän avasi ikkuna *tunnin*
he-nom opened window-part hour-acc
'He opened the window for an hour (repeatedly)'

Even though the habitual event predicate is divisible, the object appears with accusative rather than partitive case marking. As noted by Kiparsky 1998, 2005, iterative events license partitive case on objects even if the iterated event itself is non-divisible. As shown by the interpretations arising with the different case marking on the object below, the object is partitive if the completed events are iterated, but not if no iteration is involved.

59 Following Filip and Carlson 1997, I assume that while both imperfective aspect and iterative / habitual interpretation yield divisible event predicates, they are different types of aspect. Habitual or generic interpretation cannot be viewed as a subtype of imperfective aspect.

- (38)a Hän avasi ikkunan
 he-nom opened window-acc
 'He opened the window'
- b Hän avasi ikkunaa
 he-nom opened window-part
 'He (repeatedly) opened the window'

Following Carlson 1977, de Swart 1998, 2000 and Rimell 2004, I assume that a covert operator, HAB or ITER yields the habitual or iterative interpretation of events, respectively.⁶⁰ Within the account of case marking proposed above, the difference between the effect of habitual and iterative interpretation can be encoded as a hierarchical difference between the position of the two operators. If the habitual operator is merged above vP, then it fails to affect the divisibility of vP and the case marking of the object. An iterative operator, within vP, affects both the divisibility of vP and case marking, as shown in (39).⁶¹



60 I adopt the HAB operator from de Swart 1998, 2000, and Rimell 2004, and assume that the G operator of Carlson 1977 can be equated with HAB. The ITER operator has been argued for by de Swart 1998, 2000.

61 While the difference between iterative and habitual interpretation can be captured in the treatment proposed, independent evidence is needed to support the distinction.

3.2.1.3 An ambiguity in divisibility and case marking

With some objects, partitive case marking of the object correlates with a divisible interpretation of the object as well as of the vP. As noted by Vainikka 1989, Kiparsky 1998, 2001, and others, a number of predicates show variability in object case marking. A non-divisible object of these predicates can appear with either accusative or partitive case, as illustrated below.

- (40)a Matti söi kakun
M-nom ate cake-acc
'Matti ate the cake'
b Matti söi kakkua
M-nom ate cake-part
'Matti ate (from) the cake'

- (41)a Ammuin *karhun*
shot-1sg bear-acc
'I shot the bear'
b Ammuin *karhua*
shot-1sg bear-part
'I shot at the bear'
(Kiparsky 1998)

I suggest that the predicates with variable case marking appear in either a divisible or non-divisible vP, in accordance with the partitive or accusative morphological case on the object, respectively. The case marking is thus consistent with the divisibility of the vP, and is independent of other properties, such as the perfectivity of the event.

Two kinds of verbs show variable behavior in case marking. The first group of verbs takes an incremental theme object or some other gradually affected argument (40).⁶²

⁶² An incremental theme (Dowty 1979, 1991) is gradually affected as the event progresses. The arguments which show alternation between accusative and partitive case in Finnish only need to satisfy the condition of graduality. The predicates and objects thus satisfy the condition of mapping to subevents and the mapping to subobjects condition of Krifka 1992, 1998, but do not necessarily meet the uniqueness condition.

The object case in (40) correlates with the extent of the object which is affected. If the object is accusative, then the complete cake has been consumed by Tuula. If the object is partitive, then only a portion of the cake has been eaten. Other verbs can be interpreted as appearing with an event predicate modified by a resultative (41). In (41) if the object is accusative, the bear is interpreted as either killed or as having been shot. With a partitive object, the bear was either not killed, or the shot missed it.

As noted above, verbs with an incremental theme, including *lukea* ('read') and *juoda* ('drink') appear in either a divisible or a non-divisible vP. The interpretation depends on whether the object is totally affected (yielding a non-divisible vP) or only in part (with a divisible vP).

The partial or complete affectedness of incremental themes, as shown by the appropriate case marking, is an ambiguity that can be observed in other languages as well. As argued by Krifka 1992 and Hay, Kennedy and Levin 1999, a non-divisible incremental theme can appear in a telic or atelic event:

- (42)a Sue played the sonata in five minutes
 - b Sue played the sonata for a few minutes
- (Moens and Steedman 1988)

- (43)a Lisa read the Bible in two days
- b Lisa read the Bible for two days

- (44)a Sue ate the cake in ten minutes
- b Sue ate the cake for ten minutes

The incremental themes in the previous examples are preferably interpreted as appearing in a telic event predicate, and are somewhat marked if an atelic reading is enforced by the *for*-adverb. The availability of *for*-adverbial modification in these examples contrasts strongly with (45):

- (45) # Lisa learned this poem for two years

Krifka 1992 and Hay, Kennedy and Levin 1999 argue that the ambiguity with incremental themes arises from the variable interpretation of the incremental theme, which can be interpreted as partially or completely affected. The maximal interpretation of the incremental theme, where it is completely affected, arises from a conversational implicature. The implicature can be canceled if the event predicate is modified by a *for*-adverb, as shown above. The implicature cannot be canceled if the maximal interpretation is required by the modifier *whole*:⁶³

(46) # Sue played the whole sonata for a few minutes

Finnish is thus not exceptional in allowing a partially or completely affected interpretation of incremental themes.

The second type of verbs which license variable case marking were illustrated in (41), repeated below.

(47)a Ammuin *karhun*
shot-1sg bear-acc
'I shot the bear'

b Ammuin *karhua*
shot-1sg bear-part
'I shot at the bear'

(Kiparsky 1998)

⁶³ Especially with a longer time interval, an iterative or habitual interpretation is possible. I assume, however, that these interpretations are made available by an iterative or habitual operator, respectively (see de Swart 1998, 2000 and other references cited above for a discussion of these operators).

I assume that the different interpretations arise depending on whether a result state is assumed. If no result is specified, then the object appears as partitive. If an overt or covert result state is specified – which can have variable interpretations, as noted above – then the object is accusative. The case alternation of the object in accordance with the presence or the absence of a result is consistent with the accusative object marking licensed by a resultative, discussed in section 3.2.1.1.

The effect of a resultative can be observed in a variety of examples, including the following data involving degree achievements as well. As before, the object is accusative if a result state is assumed. In absence of a result, the object appears with partitive case marking. A durative adverb can modify an event predicate with a partitive object, but not one with an accusative object, which is also consistent with the claim that a result state yields a non-divisible event predicate.

- (48)a Räätäli lyhensi *hametta* (tunnin)
 tailor-nom shortened skirt-part hour-acc
 'The tailor shortened the skirt (for an hour)'
- b Räätäli lyhensi *hameen* (# tunnin)
 tailor shortened skirt-acc hour-acc
 'The tailor shortened the skirt (#for an hour)'
 (Kiparsky 2005)

The accusative case marking of the object supports the account that there must be a covert resultative in (48b). As the following examples from Kiparsky 2005 show, only a resultative (49a), but not a measure adverb (49b) licenses accusative case on the object.⁶⁴

- (49)a Räätäli lyhensi *hameen metrin pituiseksi* (# tunnin)
 tailor shortened skirt-acc meter-gen long-trans hour-acc
 'The tailor shortened the skirt to a meter's length (#for an hour)'

⁶⁴ The event predicate itself is non-divisible in both cases, as shown by the ungrammaticality of *for*-adverb modification.

- b Räätäli lyhensi *hametta* **sentin** **verran** (# tunnin)
 tailor shortened skirt-part cm-gen by hour-acc
 'The tailor shortened the skirt by a centimeter (#for an hour)'
 (Kiparsky 2005)

The different effects of result and measure specification, observed by Kiparsky 2005, warn against adopting the notion of telicity to account for case marking in Finnish.

Hay, Kennedy and Levin 1999 note for English that resultatives and measure adverbs can telicize event predicates. In absence of an overt adjunct, a covert adjunct can also modify the event. If neither overt or covert modification is present, then the event predicate is atelic, divisible, and can be modified by a *for*-adverb.⁶⁵

- (50)a The tailor shortened the skirt for an hour / in an hour
 b The tailor shortened the skirt by a centimeter / to twenty centimeters
 #for an hour / in an hour

Verbs which license either accusative or partitive case on a non-divisible object appear in either non-divisible or divisible vPs, respectively, which is consistent with the generalization proposed in (27) above. A lexically divisible vP can be non-divisible as the result of the maximal interpretation of an incremental theme. For other predicates, an optional covert resultative yields a non-divisible vP. The correlation between the divisibility of the vP and the licensing of partitive case on the object can thus be maintained.

65 As Hay, Kennedy and Levin 1999 argue, the degree of change of *shorten* is a gradual, scalar argument, similarly to gradual incremental themes, and assume a uniform treatment of these. The Finnish data shows that the degree of change and incremental themes crucially differ: a maximal interpretation of a theme argument describes a result state, while measuring (quantizing) the degree of change fails to behave as a resultative. This difference between the interpretation of scalar constituents is also discussed in section 6.6.

3.2.2 The range of partitive constituents

As noted earlier, divisible vPs affect the case of only some, but not all structurally case marked nominals. (19a), repeated below, shows that only the object appears with partitive case if the event predicate is divisible. The non-divisible subject and the structurally case marked adjunct appear with a non-partitive structural case; nominative, and dependent accusative, respectively.

- (51) Hän ajoi *autoa* tunnin
he drove car-part hour-acc
'He drove the car for an hour'

The hypothesis that partitive case can be licensed by divisible vPs permits an account of the restriction on partitive case marking. I proposed above that a divisible vP licenses partitive case marking on the object because the divisibility of the vP affects the case feature licensed within the vP. Given this assumption, if the case of a nominal is licensed by T rather than v, then it is predicted that no partitive case is licensed by a divisible vP.

This restriction on case licensing accounts for the lack of partitive case on a subject even when the vP is divisible, since its case feature is licensed by T rather than v. On the assumption that the verb shows overt phi-feature agreement with a nominal only if the case of the nominal is licensed by T, the case of subjects can be shown to be licensed by T rather than v.

If a nominative subject is preverbal, then it triggers phi-feature agreement with T, which appears on the finite verb.

- (52)a Vieraat *olivat* keittiössä
guests-nom were kitchen-iness
'The guests were in the kitchen'
- b Minä *olin* keittiössä
I-nom was-1sg kitchen-iness
'I was in the kitchen'

If the subject is postverbal, then generally it fails to show overt agreement with the finite verb. Postverbal subjects are generally either nominative singular R-expressions or partitive plurals, as in the following examples.

(53) Puutarhassa on kissa
garden-in is cat-nom
'In the garden is a cat'

(54) Keittiössä on lapsia
kitchen-iness is children-part
'In the kitchen there are children'

Even though overt agreement is absent above, the examples fail to establish whether postverbal subjects can trigger agreement with T or not. The default agreement is 3sg, the agreement which can be triggered by the singular postverbal subject in (53). Partitive subjects are not expected to trigger agreement, since T appears with default phi-feature specification even with a preverbal partitive subject:

(55) Lapsia on keittiössä
children-part is kitchen-iness
'Some children are in the kitchen'

Nominative plural subjects and first or second person subjects can appear, but are marked in postverbal position. These subjects trigger overt agreement with the finite verb, showing that the case feature of these subjects is licensed by T, similarly to the case of preverbal subjects.⁶⁶

66 Nominative postverbal subjects must be focused if they are not singular R-expressions. The necessary focusing is expected, since these structures can be shown to be locative inversion constructions. Among others, transitive predicates cannot appear with postverbal subjects, and in raising constructions it is the preverbal locative rather than the postverbal subject which moves.

- (56)a Keittiössä *olivat* vieraat
 kitchen-iness were guests-pl.nom
 'In the kitchen were THE GUESTS'
- b Keittiössä *olin* minä
 kitchen-iness was-1sg I-nom
 'In the kitchen was I'

If the partitive case licensed in divisible event predicates is restricted to nominals whose case feature is licensed by *v*, then it is expected that partitive case appears on neither pre- nor postverbal subjects.

The agreement triggered by subjects contrasts with the behavior of objects. As noted in of chapter 2, the nominative case of objects, which is licensed by *v*, never triggers phi-feature agreement:

- (57)a Häne-llä on hevos-et
 s/he-adess is horse-pl-nom
 'S/he has the horses'
- b Sinu-n pitäisi tuo-da sateenvarjot
 you-gen should-3sg bring-inf umbrellas-nom
 'You should bring the umbrellas'

The absence of partitive case licensing on subjects is due to the nature of the case licensor.

Apart from subjects, adjuncts also fail to appear with partitive case marking with divisible event predicates. To account for the absence of obligatory partitive case on these nominals, I appeal to their effect on divisibility. It was noted above that structurally case marked adjuncts fail to affect the divisibility of the *vP* and the case of the object. I suggested that this is due to the position of these adjuncts; they are interpreted higher than the *vP*, and so fail to influence its semantic properties. The position of adjuncts can also account for the lack of partitive case licensing with divisible *vPs*. If adjuncts are not

interpreted in the vP, where divisibility which interacts with morphology is determined, then the absence of partitive case is predicted. The lack of partitive case licensed on adjuncts is thus consistent with the generalization that divisible vPs license partitive case on case features licensed within the vP. This proposal, which requires durative and measure adjuncts to be outside of vP, is considered in more detail in the next section.

3.3 *Adjunct positions*

The previous account of partitive case licensed by the divisibility of the vP hinges on a crucial difference among adjuncts. It was proposed that resultatives and goals are within vP, and so they can affect the divisibility of the vP itself. Durative adverbs, measure adverbs and multiplicatives are outside of the vP; thus a delimiting measure or durative adverb does not yield a non-divisible vP. The proposed account, where structural case marking is sensitive to Spell-out domains, also derives the case asymmetry between objects on the one hand and durative, measure and multiplicative adjuncts (henceforth *DMM* adjuncts) on the other. In a divisible vP, objects are partitive (irrespective of the divisibility of the latter), but adjuncts are nominative or accusative. If adjuncts are outside of vP, the Spell-out domain, but objects are within that domain, then a domain-sensitive case marking accounts for this asymmetry.

In addition to these theory-internal expectations, it can be shown that the adjuncts differ with respect to their position. In English, vP-fronting and vP-ellipsis obligatorily moves and elides resultatives and goals in addition to other vP constituents, respectively. *DMM* adjuncts, in contrast, can be stranded by vP-fronting and be outside of the elided domain.

vP-fronting

- (58) *John tried to ride the unicycle, and [ride the unicycle] he did *to the street corner*
[goal]
- (59) *John intended to roast the meat, and [roast the meat] he did *rare*
[resultative]⁶⁷

67 The restriction on vP-fronting and vP-ellipsis with resultatives may be related to a restriction on

- (60) John intended to study Chinese, and [study Chinese] he did *for six months*
[durative]
- (61) John tried to ride the bike, and [ride the bike] he did *for 200 yards*
[measure]
- (62) John intended to hit the target, and [hit the target] he did *four times*
[multiplicative]

*vP ellipsis*⁶⁸

- (63) * John took the car to the store, and Mary did <take the car> *to the bakery*
[goal]
- (64) * John painted the car red, and Mary did <paint the car> *blue*
[resultative]
- (65) John studied Chinese for a year, and Mary did <study Chinese>
for two years [durative]
- (66) John rode the unicycle for 100 yards, and Mary did <ride the unicycle>
for 300 yards [measure]
- (67) John coughed twice, and Mary did <cough> *three times* [multiplicative]

pseudogapping. Citing Johnson 1996, Lechner 2003 notes that scrambling and pseudogapping cannot target secondary predicates:

- (i) * Rona looked annoyed, but she didn't [frustrated]
(ii) * ... and [consider the book] he did interesting

In a more recent version of that paper, Johnson 2003 assumes that secondary predicates can be targeted by vP-ellipsis (contrary to Larson and May 1990):

- (iii) Because someone had rolled the dough long, we will <roll the dough> wide

Since the speakers consulted uniformly judged vP-fronting and ellipsis with resultatives and goals ill-formed, I will treat them as such.

68 The elided string is contained within angled brackets.

While vP-fronting and vP-ellipsis illustrate the distinction between the two groups of adjuncts in English, these tests cannot be replicated for Finnish. Finnish lacks vP-fronting (Vainikka 1989), permitting only the topicalization of infinitival clauses.⁶⁹ Vainikka 1989 argues that vP-ellipsis is possible in Finnish. However, as Vainikka 1989 herself proposes (and as noted in chapter 4), the finite verb moves to T in Finnish matrix clauses. The ellipsis in (68b) is then not an instance of vP-ellipsis, since the finite verb in T is also elided.

- (68)a Pekka syö aina pinaattinasa
 P-nom eats always spinach-3poss
 'Pekka always eats his spinach'
- b Niin minäkin
 so I-nom-also
 'So do I'
- (Vainikka 1989)

Thus for Finnish, no direct argument can be cited for the asymmetrical position of the two groups of adjuncts under discussion, since the appropriate structures are independently excluded. However, if the position of adjuncts is uniform crosslinguistically, then the conclusions for English are expected to carry over to Finnish as well.

In addition to the position with respect to vP, one can also explore the relative position of the two groups of adjuncts, which is shown by the c-command relations which hold between two adjuncts. C-command relations indicate a different, right-branching structure, which is expected given Pesetsky's paradox (Pesetsky 1995).

Negative polarity item licensing by a negative or other downward entailing constituent is a possible diagnostic for the c-command relation between the two constituents. As shown by Barss and Lasnik 1986 and Larson 1988, indirect objects c-command direct objects, and can license a direct object NPI in a double object construction (69a).

⁶⁹ The topicalization of infinitival clauses also involves obligatory object shift (Vainikka 1989), showing that fronting involves object movement in addition to topicalization, unlike English vP-fronting.

It can also be shown that objects c-command adjuncts (69b), and that c-command relation holds among certain adjuncts themselves (69c,d) as well (Lechner 2003, Pesetsky 1995).

- (69)a John gave no one [anything]_{NPI}
- b John gave nothing [to any of the children]_{NPI} [in any classroom]_{NPI} on Tuesday
- c John gave candy [to none of the children] [in any classroom]_{NPI} on Tuesday
- d John gave candy to the children [in no classroom] [on any public holiday]_{NPI}
- e John gave no candy to the children [in any classroom]_{NPI} [on any public holiday]_{NPI}

From the adjuncts in question, resultatives and goals yield a non-divisible vP, and structurally case marked durative adverbs modify only divisible vPs. This makes it impossible to test the position of duratives with respect to the former directly. NPI licensing by negative adjuncts shows, however, that goals c-command multiplicatives (as in (70)) and measure adverbs (71), but these do not c-command goals.

- (70)a *John walked a few times [to any appointment]_{NPI}
- b John walked to a few appointments [any number of times]_{NPI}⁷⁰
- (71)a *John pushed the vending cart for a few yards [to anyone's houses]_{NPI}
- b ? John pushed the vending cart to a few owner's houses
[for any number of yards]

The Finnish equivalents of an NPI measure or multiplicative adverb are marked, so they may be independently excluded. Like their English counterparts, however, NPI goals cannot be licensed by a multiplicative:

70 Even though an idiomatic interpretation, meaning *many times* is easily available for the multiplicative (Tamina Stephenson, p.c.), the interpretation in question is an NPI reading licensed by the goal. While the NPI reading may be less readily available, it is nevertheless possible. The relevant context can be described as involving a number of appointments, each of which recur regularly. For a few of these appointments, John has walked there at least once, but not for the others.

(72) * Jussi meni harvoja kertoja [mihin tahansa kokoukseen]_{NPI}
 Jussi-nom went few times which ever meeting-ill
 'Jussi went few times to any appointment'

As may be expected based on (69), where the object c-commands the adjuncts to its right, objects also c-command durative, measure and multiplicative adverbs:

(73)a John drove no car [for any length of time]_{NPI}
 b John drove no car [any distance]_{NPI}
 c John hit no one [any number of times]_{NPI}

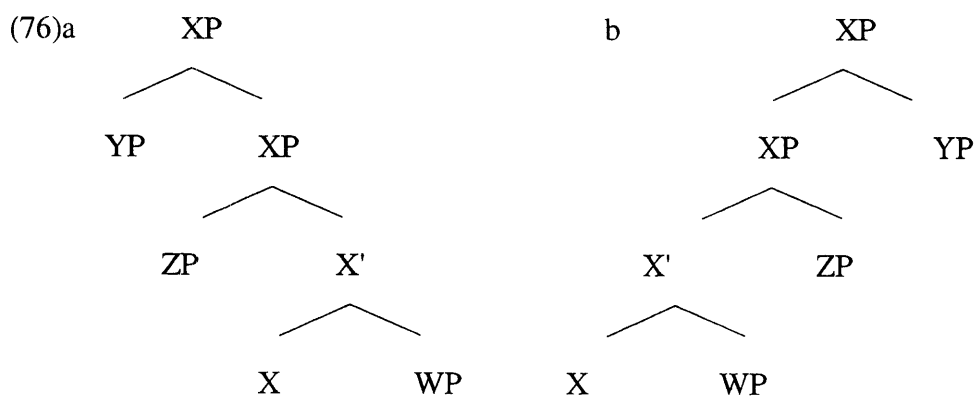
The data above show a dual behavior of DMM adjuncts. On the one hand, they are c-commanded by objects as well as resultative and goal adjuncts, allowing NPI licensing by these negative constituents. On the other hand, they appear in a left-branching structure, since the vP-internal material (including the object, resultatives and goals) can be elided and fronted without affecting DMM adjuncts.

This dual behavior is not unique to DMM adjuncts; locatives and punctual temporal adverbs show the same behavior (Pesetsky 1995, Lechner 2002, 2003, Baltin 2003, Phillips 2003). As (69) shows, both locatives and punctual temporal adverbs are c-commanded by objects. Like DMM adjuncts, they are not necessarily affected by vP-fronting (74) or vP-ellipsis (75):

(74) John intended to give candy to the children in libraries on weekends, and
 a ... [give candy to children in the classroom], he did on weekends
 b ... [give candy to children], he did in the classroom on weekends

(75)a John gave candy to the children in the classroom on weekends, and Mary did
 <give candy to the children in the classroom> on weekdays
 b John gave candy to the children in the classroom on weekends, and Mary did
 <give candy to the children> in school cafeterias on weekdays

The dual behavior shows that adjuncts, including DMM adjuncts as well as locatives and punctual temporal adjuncts, appear in a right-branching structure for purposes of c-command dependent diagnostics (NPI licensing as well as binding, not discussed here), as shown in (76a). Movement and ellipsis processes appeal to a left-branching structure, given in (76b). If the preceding discussion, which assumed that resultatives / goals and DMM adjuncts occupy different structural positions, is on the right track, then the structure relevant for case checking is that in (76b), where DMM adjuncts are higher than resultatives and goals.



In the remainder of this section, I briefly explore the source of the structural ambiguity, and then discuss how case marking interacts with structure.

The ambiguity in the phrase structure shown in (76) is *Pesetsky's paradox*, (Pesetsky 1995). Pesetsky 1995 argues that the right-branching ('cascade') and left-branching ('layered') structures coexist throughout the derivation, and presents an algorithm for deriving these structures. In fact, as he notes, the effects of both structures are seen in vP-fronting constructions, where the topicalized vP contains an object that binds an adjunct:⁷¹

- (77) John intended to give candies to the children, and
 [give candies to them_i] he did on each other_i's birthdays

⁷¹ vP-ellipsis blocks the binding possibilities available for vP-fronting, a fact explored in detail in Baltin 2003, Lechner 2003 and Phillips 2003.

Instead of adopting a dual structure, Lechner 2003 argues that the ambiguous structure is attained derivationally.⁷²

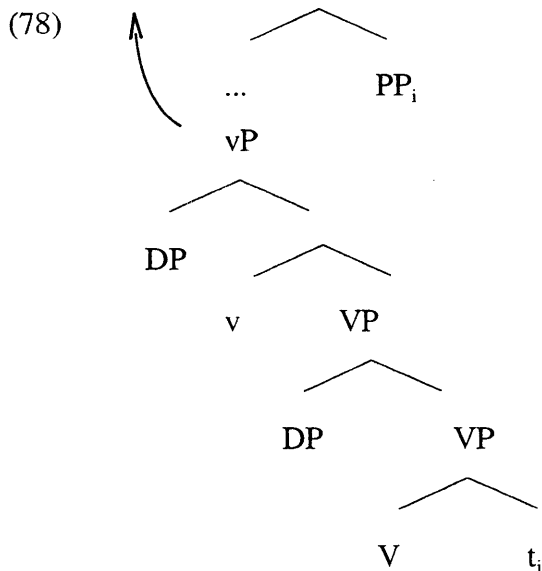
Lechner 2003 argues for a derivational account of the dual nature of constituent structure. Lechner assumes a right-branching vP, where the adjuncts are c-commanded by the object. The adjuncts can be extracted from the vP prior to vP-fronting, leaving the extracted vP behind.

72 In addition to Lechner 2003, Phillips 2003 and Baltin 2003 also propose a derivational account of the dual structure. Phillips 2003 argues that Pesetsky's paradox follows from the direction of structure building operations, which construct sentences from left to right rather than in a standard bottom-up fashion. The fronted vP is thus constructed first, containing only the verb, the direct object and the goal in (77). The punctual adverb has not been merged at this point; it is merged consequently at the extraction site of the vP. Lechner 2003 cites a number of arguments against Phillips 2003. Among others, Lechner 2003 notes a scope freezing effect which is unexpected given the order of merger as in Phillips 1996, 2003.

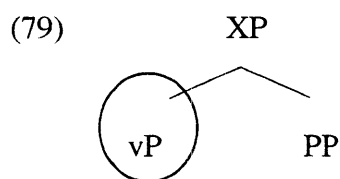
- (i) David planned to give every handout to one of the students $\forall > \exists, \exists > \forall$
(ii) ... and [give every handout] David did to one of the students $*\forall > \exists, \exists > \forall$

On the assumption that in the default case, the structure is right-branching, the goal is merged in a position c-commanded by the direct object in (ii). Given this position, it is predicted that the indefinite can scope below the universal quantifier, contrary to fact.

Baltin 2003 proposes that the structure is built up by a standard bottom-up process, which constructs a left-branching vP. The operation of vP-fronting, Baltin argues, is in effect the combination of two separate movement processes. First the object moves to an A-position (which is identified by Baltin 2003 as Spec.AgrP), followed by movement of the vP. The A-position landing site of the object ensures that it can bind the adjuncts it c-commands, including locative and punctual adverbs. As the previous examples in (69)-(71) show, c-command is not restricted to objects; adjuncts may also c-command other adjuncts. Thus if the account of Baltin 2003 is to be maintained, then it must be ensured that adjuncts can also move from within the vP to a higher position where they can c-command the adjuncts to their right. This movement cannot be an instance of A-movement since the adjuncts in question can be PPs, which do not require case licensing. If the account of Baltin 2003 is generalized to instances of c-command relations between adjuncts, then it must be assumed that the movement of adjuncts, allowing c-command of other adjuncts, is driven by some trigger other than case licensing. In the account of Lechner 2003, discussed below, it is the adjuncts which are extracted from a right-branching vP, prior to vP-fronting. Lechner 2003 thus does not face the problem noted for Baltin 2003.



Since vP-fronting is preceded by PP-extraction rather than object movement to a case position, this treatment of vP-fronting easily extends to cases of an adjunct binding another adjunct. Lechner 2003 also argues that vP-fronting must target vP, while vP-ellipsis can be ellipsis of VP or vP. This account enforces the conclusion that the potential landing site of adjunct extraction be higher than the circled vP, which can be the target of vP-ellipsis or vP-fronting.⁷³



Let us consider how the proposed interaction of case marking and divisibility in Finnish interacts with the account of Lechner 2003. Recall that the case marking account assumes that DMM adjuncts are outside of vP, while resultatives and goals are interpreted within the vP. This difference among adjuncts is also supported by the different behavior in vP-

⁷³ Not all adjuncts can move higher than vP. As shown earlier, resultatives and goals cannot be targeted by vP-fronting or vP-ellipsis. I assume that this follows from a restriction on extraction, which requires the movement of these constituents to target a position within vP.

fronting and vP-ellipsis constructions in English. The c-command relations among adjuncts show, however, that resultatives and goals c-command DMM adjuncts. It may be expected then that if the former can affect the interpretation of the vP, then the latter are also be able to do so. I suggest that this is not necessarily predicted. If the semantic component interprets Spell-out domains, and if extraposition happens prior to Spell-out, then it can be the derived structure which serves as the input to interpretation. In the derived structure, adjuncts are higher than resultatives and goals, as foreshadowed in the preceding discussion.

The conclusion that semantic and morphological interpretation refers to the derived, left-branching structure is supported by the cyclicity of Spell-out. Recall the Spell-out operation is realized cyclically in the course of the derivation, following the construction of each phase. The constituents interpreted by the semantic and morphological / phonological component are phases. Given the restrictions on movement, extraposed adjuncts must be moved prior to the completion of the phase. At Spell-out, the extraposed PPs are thus in a position from which they can c-command the goal and the resultative.

3.4 Case as a [divisible] feature

Before concluding this chapter, let us consider another possible account of morphological case and case alternation in Finnish, which does not require morphology to interpret semantic features. This alternative account differs from the accounts explored above, where the interaction between semantic properties and case was ensured by direct interaction between semantics and morphology or by a semantic filter on the distribution of morphological case.

The account discussed in this section treats case as an instance of the [divisible] feature and does not require a direct, non-mediated interaction between LF and morphology.⁷⁴ Instead, it requires the assumption that the semantic property of divisibility

⁷⁴ A similar approach is suggested for Finnish (and extended to Russian and German) by Kratzer 2004, who equates accusative case with the feature [telic]. The alternative account considered in this section can be seen as an extension of her approach, since the feature [divisible] can apply to nominals as well as event predicates. The proposal of Kratzer 2004 is discussed in more detail in section 6.8.

and partitive case are both encoded as [+divisible] within syntax.⁷⁵ The purported [+divisible] feature is interpretable outside of syntax; it is interpreted as the property of divisibility at LF, and as partitive case marking in the morphological component.

The [+divisible] account thus differs from the theory proposed earlier in that the former maintains the relative independence of the interfaces.⁷⁶ It also differs from the alternative account considered above in section 3.1, which assumes that nominals have a random specific case marking in syntax, and a filter rules out those which do not conform to the semantic restrictions. For the account which appeals to filters, I suggested that it is empirically indistinguishable from the theory advocated here, and only theoretical considerations distinguish between them. For the account which equates the property of divisibility with case marking, I show that there are a number of considerations militate against adopting it.

3.4.1 A precedent: case as [uT]

Encoding structural case as a feature other than [case] is not without precedent. Pesetsky and Torrego 2001 argue that nominative case is an uninterpretable [uT], rather than a [case] feature on the subject.⁷⁷ According to Pesetsky and Torrego 2001, a number of phenomena receive a natural explanation if nominative case is assumed to be [uT]. One such phenomenon is the T-to-C movement asymmetry between subject and non-subject wh-phrases.

75 The feature [divisible] is treated here as a bivalent feature. A constituent can be either [+divisible] or [-divisible], depending on whether it is divisible or non-divisible. If divisibility does not apply to a constituent, then no [divisibility] is specified.

76 The account of case alternation in Finnish proposed earlier in this chapter assumes that structural case is encoded as a [case] feature.

77 [uT] is an uninterpretable [T] feature.

- (80)a What did Mary buy t?
 b * What Mary bought t?
- (81)a * Who did buy the book?
 b Who bought the book?

Interrogative C has an uninterpretable [uT] and an uninterpretable [uWh] feature. Both of these features have an EPP feature themselves, triggering overt movement of the constituent which Agrees with the respective feature.⁷⁸ By the locality metric assumed in Pesetsky and Torrego 2001, TP and the subject in Spec,TP are equidistant from C, thus either TP or the subject can Agree with C. If C triggers the movement of a feature of TP, then the T head moves, by assumption.

T-to-C movement in (80a) is triggered by an uninterpretable [uT] feature on C, which Agrees with T. The [uWh] feature Agrees with and triggers movement of *what*. The [uT] feature of C can also Agree with and trigger the movement of the subject (81b). In this case, the [uWh] and [uT] features of C both Agree with the subject *who*. The Agree relation with (and subsequent deletion of) both features requires a single Agree operation, unlike the derivation in (81a). In (81a), the [uT] feature of C Agrees with T and the [uWh] feature agrees with the subject. This operation requires Agree with two distinct constituents, and is thus ruled out by economy considerations.

Pesetsky and Torrego 2001 argue that in addition to the T-to-C asymmetry, nominative case as a [uT] feature on subjects also accounts for the *that*-trace effect as well as the *that*-omission asymmetry in embedded clauses.

This treatment of nominative case is extended in Pesetsky and Torrego 2004 to the accusative case of objects. They argue that accusative case is also a [uT] feature, which Agrees with the functional head T₀, merged above VP and below vP.

- (82) SubjectT_S [_{vP} v T₀ [_{vP} V obj]]

⁷⁸ Pesetsky and Torrego 2001 assume that EPP is a feature of a feature, rather than a feature of the constituent itself.

The semantic import of T_0 , as assumed by Pesetsky and Torrego 2004, is to establish an ordering between the vP subevent and the subevent denoted by VP.⁷⁹ The correlation between subevent ordering and object case marking is shown by Spanish and Icelandic.

The different ordering of subevents in stative and non-stative predicates in Spanish result in different case marking for animate objects, as described by Torrego 1998. The animate object of the stative predicate *conocer* 'know' is a bare DP (83a), while that of the non-stative predicate *conocer*, meaning 'get to know' is a PP headed by the preposition *a* (83b).

- (83)a Conocen bien un vecino suyo
 they-know well a neighbor of-theirs
 'They know a neighbor of theirs well'
- b Conocen bien a un vecino suyo
 they-know well to a neighbor of-theirs
 'They got to know a neighbor of theirs well'
- (Pesetsky and Torrego 2004)

No distinct subevents can be identified in the case of a stative predicate, such as in (83a). The subevents of the VP and vP can be distinguished, however, in the case of the dynamic predicate (83b); the result subevent (of vP) is distinct from the process part (VP) of the complex event.⁸⁰ Thus the different subevent structure of the predicate correlates with a difference in object case marking.

Apart from the empirical advantages of analyzing nominative and accusative case as [uT],⁸¹ Pesetsky and Torrego 2001 note that this move also has a theoretical appeal. Minimalist considerations, as well as more general economy guidelines, aim to minimize in grammar the set of purely formal features, which lack interpretation at either the LF or

79 More specifically, T_0 can establish ordering of these subevents if the subevents can be distinguished. The subevents can be indistinguishable as well, however, as noted below. T_0 is still present in these structures, but fails to impose an ordering on the non-distinguishable subevents. T_0 differs from Asp, as in chapter 5, in that Asp orders the event time with respect to the topic time, and does not order the subevent times among each other.

80 In addition, the initial point of the VP subevent precedes that of the vP subevent.

81 In fact, they assume all structural case to be [uT].

PF interface. Uninterpretable features do not necessarily run counter to this aim, since while a given feature may be uninterpretable in a certain environment, it can be interpretable in another one. This is the case with the [T] feature in Pesetsky and Torrego 2001, 2004 where [T], interpretable on T, appears as an uninterpretable feature on the nominative subject and the accusative object.

Svenonius 2002a,b reaches a similar conclusion with respect to the correlation between the case marking of objects and subevent ordering (as also noted by Pesetsky and Torrego 2004). In Icelandic, structurally case marked objects can either be accusative or dative. Considering verbs of motion, Svenonius notes that verbs of ballistic motion, as in (84a), typically take dative objects. In (84b) the predicate describes a verb of motion where the subevents are indistinguishable; the causing force accompanies the object throughout the motion. In this case, the object appears with accusative case marking.

- (84)a *kasta* ('throw, fling, hurl'); *henda* ('throw away, discard'); *dúndra* ('kick, smash')
b *draga* ('pull, drag'); *flytja* ('move, carry'); *loekka* ('lower')
(Svenonius 2002b)

Similarly to Spanish animate object case, the ordering of the subevents affects the case marking of the object. If the time of the causer and caused subevents is identical (they totally overlap), objects are accusative (84b). If there is at most a partial temporal overlap between the subevents, as in (84a), the objects are dative. Svenonius 2002a,b argues that this pattern is more general, and holds for predicates other than verbs of motion as well.

Svenonius 2002a assumes that it is the v head which determines the ordering of subevents and licenses the case of objects. Even though the specific functional head involved is different from the T_O of Pesetsky and Torrego 2004, the intuition is the same: the functional head which orders subevents also licenses the case of objects. Thus the different ordering of subevents can go hand in hand with differential object case marking.

The discussion of Pesetsky and Torrego 2001, 2004 is relevant for Finnish case marking for two reasons. First, Pesetsky and Torrego argue that not only nominative, but also structural case in general is the [uT] feature on the nominal. In other words, the case

feature is interpretable on the licensing functional head. In a similar vein, analyzing case in Finnish as [divisible] also reduces the set of purely formal features involved in the grammar, which are not interpretable at either interface. If Finnish case is [divisible], then the case feature is interpretable, at least, at LF.

Second, Pesetsky and Torrego 2004 and Svenonius 2002a,b show that object case alternation can correlate with subevent ordering. Minimally, this semantic condition must be allowed to affect the morphological case on objects. If Finnish case alternation can also be tied to a difference in subevent ordering, then this raises the possibility that all instances of (object) case alternation can be reduced to a difference of subevent ordering.

Despite the attractiveness of the proposal, I argue that it should not be adopted for Finnish case marking. In the remainder of this section, I cite a number of arguments against the account of Finnish structural case in terms of [divisible], and show that the account allowing morphology to be sensitive to semantic properties is superior.

3.4.2 Arguments against case as [divisible]

In the account considered here, the connection between the property of divisibility and partitive case is encoded as the LF and morphological interpretation of the feature [+divisible], respectively. Extending the account of partitive case to all structural cases, it can be assumed that structural case (including nominative and accusative as well as partitive) is [divisible], rather than [uT] in Finnish.⁸² The condition on partitive case licensing in Finnish can then be given as (85). If no partitive case is licensed by the condition in (85), the nominal appears as either nominative or accusative.

- (85) Given a structurally case marked nominal, if one of the Agreeing features is [+divisible], then the morphological case is partitive⁸³

82 The relevant feature is not [udivisible], since the feature [divisible] is interpretable on the nominal.

83 The divisibility (and therefore the [divisible] feature) of the vP is assumed to be shared by the v head. This assumption follows naturally in a Bare Phrase structure (Chomsky 1995), where the label of a projection is identical to the label of the head of the projection (except for features checked within the projection).

The alternative approach raises a number of questions which do not arise with the account proposed earlier. Even though a number of auxiliary assumptions can resolve the problems raised, they involve either a significant revision of existing stipulations, or require certain arbitrary assumptions. Overall, then, the [divisible] account is not superior to the one proposed above earlier in this chapter.

3.4.2.1 *[Divisible] and LF interpretation*

A strong argument against adopting the [divisible] approach is provided by the compositional nature of the semantic property of divisibility, which makes it rather unappealing to maintain the intuition that [divisible] is interpreted at LF.

If one adopts an account of divisibility in terms of the feature [divisible], then the account begs the question of how the feature is valued as [+divisible] or [-divisible] on a specific constituent. For the majority of vPs and DPs there is no optionality in the value of that feature; they are either [+divisible] or [-divisible]. The lack of optionality is shown, for instance, by the unambiguous case marking and interpretation of the Finnish object below. The object can only appear with accusative case marking; a partitive object is ungrammatical, in accordance with the non-divisibility of both the object and the vP.

- (86) Hän ajoi auton / *autoa talliin
he drove car-acc car-part garage-ill
'He drove the car into the garage'

The divisibility of the vP is not determined by the lexical choice of v, which bears the [divisible] feature. Rather, divisibility is determined compositionally, where a number of constituents can affect the divisibility of the vP. These include (a) the lexical verb (the V head) (an instantaneous verb can only head a non-divisible vP); (b) incremental themes; and (c) resultatives and goals, which yield non-divisible vPs, even if the vP is divisible in absence of these.⁸⁴ The subscripts in the following examples refer to the divisibility of the vP.

- (87)a Sirkku blinked_{non-divisible}
 b Sirkku ate strawberries_{divisible}
 Sirkku ate the strawberries_{non-divisible}
 c Sirkku drove the car_{divisible}
 Sirkku drove the car to the garage_{non-divisible}

In other words, if the [+divisible] or [-divisible] feature is assigned to the v head prior to its merger with VP,⁸⁵ then at that point it is unclear whether the vP is interpreted as divisible or non-divisible at LF.

It must be ensured then that the LF interpretation and the [divisible] feature specification of the vP coincide. This can be achieved in at least two ways. First, the value of the [divisible] feature can be determined within syntax, if there is a compositional algorithm within the syntactic component which calculates the divisibility of the vP. In effect, this solution requires the compositional calculus of divisibility to be duplicated; the divisibility of the vP or DP is calculated both within syntax and by the compositional interpretive mechanism in semantics. This replication is redundant, however, and it is more attractive to adopt an approach which requires a unique compositional algorithm.

84 The concern of this section is the determination of the divisibility and the value of the feature [divisible] of the case licensing domain vP. The effect of structurally case marked adjuncts, which do not affect the case marking of objects, is not considered here.

85 In the timing of the assignment of the feature [divisible], I am agnostic as to whether the feature is assigned within the lexicon or upon the introduction of the v head in the lexical array, two options allowed in Chomsky 1995.

The second possible approach, suggested by David Pesetsky, assumes that the value of the [divisible] feature on *v* is assigned at random.⁸⁶ The divisibility of *vP* is calculated at LF, and the derivation crashes if the feature specification of the *vP* and its LF interpretation differ. While this approach has the desired effect, it merely ensures that the divisibility of the *vP* and the value of its [divisible] features match. In this case, it is not the [divisible] feature of the *vP* which is interpreted at LF. Rather, the divisibility of the *vP* is calculated compositionally, and it must be ensured that the [divisible] feature value and the actual divisibility property match. Thus a coherent implementation of case alternation in terms of a [divisible] feature cannot maintain that the [divisible] feature is always interpreted at LF.⁸⁷

The compositional determination of divisibility of the *vP* reduces the appeal of the account of Finnish case in terms of the [divisible] feature. The starting assumption that the feature [divisible] is interpreted at LF was shown not to be tenable.

3.4.2.2 *Arbitrariness in [divisible] assignment*

A further issue which arises in connection with the [+divisible] account concerns the assignment of [divisible] to constituents and the semantic relevance of that feature. The feature [divisible] plays a role in case alternation only when it appears on a *vP* or *DP* constituent. Other constituents, such as *AspP*⁸⁸ or *NP*, may also be semantically divisible. Recall the original assumption that the feature [+divisible] is interpreted as the property of divisibility at LF. If divisibility was always encoded as this syntactic feature, then divisible *AspP* and *NP* constituents would also be specified as [+divisible]. Let us assume for the time being that this is the case.

⁸⁶ This random assignment of [divisible] values differ from the account explored in section 3.1. It was assumed there that specific case is assigned randomly to nominals, and is filtered by semantic conditions as noted in the discussion. In the theory considered here, it is the value of the feature [divisible] which is random. According to the assumptions of this theory noted above, the feature [divisible] is interpreted not only as case, but also as the semantic property of divisibility at LF.

⁸⁷ The divisibility of *DPs* is determined by properties of the *D* head, thus the previous discussion does not apply to the feature specification and semantic interpretation of *DPs*. In that case, it is possible to maintain the intuition that it is the [divisible] feature of *D* which is interpreted at LF.

⁸⁸ *AspP* is discussed in more detail in chapter 5. For the present purposes, it suffices to assume that imperfective event predicates are divisible, and that imperfectivity is encoded in *AspP* rather than *vP*.

In the verbal domain, both vP and AspP can be divisible and thus have the feature [+divisible]. It may be expected, then, that divisible vPs and divisible AspPs (or the heads of these constituents) can equally affect the case marking of objects and structurally case marked adjuncts in Finnish. This is expected if [+divisible] features (including those of v and Asp) can equally license the structural case of objects and can equally be interpreted in the morphological component.

As argued in chapter 5, AspP plays no role in determining morphological case, even though it may have a [+divisible] feature, for instance, if the event predicate is imperfective. It is necessary, then, to restrict the role of the feature [+divisible] in syntax and morphology; only the [+divisible] feature of v can check the case of an object and be interpreted within morphology.

It must be ensured then that the mere presence of the feature [divisible] is not sufficient to license the case of an object; the [divisible] feature must be a feature of v (or, equivalently, vP). While this restriction follows naturally from the account proposed earlier, where morphological case licensing is cyclic and makes reference to Spell-out domains, it needs to be independently stipulated in an account of case alternation based on the feature [divisible].

In conjunction with the discussion in the preceding section, it can be concluded that there is no strong correlation between the divisibility of a constituent and its [divisible] feature as a case checker. On the one hand, it was argued that the [divisible] feature of v, which licenses structural case, is not interpreted at LF. On the other hand, not all constituents which are specified for divisibility – which is arguably encoded by a [divisible] feature – can license a case feature.

A further problem is raised by the licensing of nominative and partitive subjects, whose case feature (in the guise of the feature [divisible]) Agrees with T.⁸⁹ T can license structural case on subjects, as shown by the phi-feature agreement between nominative subjects and finite verbs. TPs, however, are not specified for divisibility; they are neither [+divisible] nor [-divisible]. The independence of divisibility and case licensing further weakens the original hypothesis which equates the feature [divisible] with the case feature.

The semantic property of divisibility is neither sufficient (recall the discussion of divisible AspP and NP) nor necessary (as shown by case licensing by T) to license structural case. The account which capitalizes on the connection between divisibility and case marking, as mediated by the syntactic feature [divisible], thus cannot be maintained.

3.4.2.3 *The object – adjunct asymmetry*

Even if the conclusions of the preceding sections are disregarded, further problems can be cited for the [divisible] account. As argued in chapter 2, the case of structurally case marked objects and adjuncts is licensed by v rather than T. If a [+divisible] v(P) licenses partitive case, then it is predicted that objects and adjuncts will be partitive whenever the vP is [+divisible]. This is, however, not the case: if the vP is divisible, then the object is partitive, but the adjunct appears with non-partitive (accusative or nominative) case marking.

- (88) Hän ajoin autoa tunnin
 he drove car-part hour-acc
 'He drove the car for an hour'

This asymmetry is straightforwardly predicted by the Spell-out based assumption discussed earlier, since adjuncts are outside of vP at Spell-out. The account based on the [divisible] feature, in contrast, needs to adopt additional restrictions on the constituents

⁸⁹ Recall that subjects are partitive when they are divisible themselves, just like objects. Thus the if the partitive case of divisible objects is accounted for by appealing to their [+divisible] feature as the case feature, then this account is also expected to carry over to subjects, contrary to fact.

where the feature licenses partitive case. The correlation between a [+divisible] vP and partitive case on all constituents whose case (or [divisible] feature) is licensed by v cannot be maintained. According to (85), a structurally case marked nominal is partitive if one of the Agreeing features is [+divisible]. This predicts that if the vP is divisible, then both adjuncts and objects appear as partitive, contrary to fact. The divisibility – or in this theory, the [+divisible] feature – of the vP affects only the case of the object, but not that of the adjunct.

3.4.2.4 *Structural and inherent case*

The distinction between structurally and inherently case marked nominals presents a further problem. Since case alternation affects structurally case marked, but not inherently case marked constituents, it must be ensured that the [+divisible] feature is interpreted as partitive case only if the nominal has structural, but not if it has inherent case. If case is the feature [divisible] on nominals, then this distinction cannot be encoded by the [divisible] feature alone, since structurally and inherently case marked constituents can be divisible and non-divisible alike. Again, the correlation between the semantic property of divisibility and case marking is lost.

In order to distinguish structurally and inherently case marked nominals, one can make recourse to a diacritic or feature on the structurally case marked nominal, in addition to the feature [divisible].⁹⁰

In the Spell-out based account proposed above, this diacritic is automatically supplied by the uninterpretable [case] feature of structurally case marked constituents. This feature is valued by v or T and is spelled out as partitive, nominative or accusative. Since only structurally case marked nominals have the feature [case], the distinction between the two types of nominals is automatically achieved.

⁹⁰ A possible assumption is that structural case is [uT] on nominals. This raises questions, however, with respect to the identity of the head checking object case – T, as argued by Pesetsky and Torrego 2004, or v, with some appropriate modifications.

3.4.2.5 [Divisible] and subevent ordering

The alternation in Spanish and Icelandic object case marking, discussed in section 3.4.1, can both be described as involving different subevent orderings. It would be attractive to assimilate Finnish case alternation to Spanish and Icelandic and treat these instances of case alternation uniformly.

As observed earlier in this chapter, the morphological case of Finnish objects can vary in accordance with the divisibility of the event predicate or the nominal itself. At first sight, it appears to be possible to treat the divisibility of the event predicate and subevent ordering alike. If the subevents of the complex event are not identical, then the event predicate is non-divisible. If the subevents are identical, then the event predicate can be divisible, as it is in the relevant Spanish and Icelandic examples.

Divisibility and subevent ordering cut the pie differently, however. A semelfactive event predicate⁹¹, for instance, can be non-divisible even if it does not involve distinct subevents. Thus while all partially overlapping subevents yield a non-divisible event predicate, the converse does not hold.

The interpretation of nominals provides further support for the claim that subevent ordering cannot account for Finnish case alternation. The properties of the nominal, including its divisibility, do not necessarily interact with the event predicate; (89) is a case in point, where the event predicate is divisible in both cases.

- (89)a The guard watched *the house*
b The guard watched *houses*

The semantic property of nominals which correlates with their case marking is independent of the interpretation of the ordering of subevents.

As shown by the interpretation of event predicates and nominals in Finnish, assimilating Finnish case alternation to that in Spanish and Icelandic is not viable. Whether Spanish and Icelandic case alternation can be described in terms of divisibility is left for further research.

91 Semelfactive predicates include *cough*, *blink*, and *knock*, among others (e.g. Smith 1997).

In sum, the alternative account which does not make use of a direct interaction between LF and morphology raises a number of questions. While a number of additional stipulations can overcome the issues raised, none of those assumptions are necessary in the account proposed earlier in this chapter. In addition, it was noted that a closer inspection of the interpretation of the relevant constituents challenges the intuition that a given feature [divisible] is both interpreted as semantic (non-)divisibility and as morphological structural case marking.

3.5 *Summary*

This chapter considered the conditions of partitive and non-partitive structural case alternation in Finnish. It was argued that if the minimal phase where a structural case feature is realized or licensed is divisible, then the case is realized in Finnish as partitive. This generalization covers both divisible nominals, which appear as partitives, and divisible vPs, which license case on objects (whose case feature is licensed within the vP). The generalization derives the appropriate distribution of partitive case which is licensed by divisible nominals and divisible vPs. It also permits a distinction between the adjuncts which affect the divisibility of the event predicate. The adjuncts delimiting the event predicate which are interpreted within the vP phase (goals and resultatives) affect properties of the event predicate and the case of the object as well. The delimiters which are interpreted outside of the vP (durative, measure and multiplicative adjuncts) only affect the event predicate, but not the object.

The interaction between semantic properties and case morphology, as well as the localization of this interaction to phases is predicted by a cyclic Spell-out account, where phases are Spelled out and interpreted upon completion. I noted that the interaction can be derived by either adopting filters on the correlation between divisibility and case marking, or by allowing morphology to interpret semantic properties. I suggested that the latter is more economical and Minimalist in spirit.

Finally, a note concerning the semantic property of divisibility, which interacts with case marking in Finnish. If any compositional semantic property could interact with case marking or other morphological properties, then it would present a learnability issue,

since a large number of semantic properties could be relevant for a specific morphological alternation. I tentatively suggest that the set of semantic properties which may affect morphology is constrained, and that it may be restricted to semantic properties which are encoded in some (non-alternating) lexical entry. The property of divisibility, for instance, is encoded in the entry of the durative *for*-adverb (see section 5.1.2.) and also affects the morphological realization of structural case in Finnish. Constraining the morphologically relevant semantic properties to those which are specified in a lexical entry could restrict the search for the specific property which determines a certain morphological alternation.

Chapter 4 Negated event predicates and partitive case

As noted in the previous chapter, divisible vPs license partitive case on structurally case marked objects. Negative sentences also license partitive case, as the following examples show. Even if the object is accusative in an affirmative sentence, it appears with partitive case marking in the corresponding negative one.

- (1)a Helena kutoi *villatakin*
 H-nom knitted sweater-acc
- b Helena ei kutonut *villatakkia* / **villatakin*
 H-nom not-3sg knitted sweater-part sweater-acc
 'Helena didn't knit a sweater'
 (Vainikka 1989)

I argue below that partitive case licensing by negation cannot be assimilated to partitive licensing by divisibility. In spite of apparent similarities, no unification of these licensing environments is possible, a conclusion which suggests a specific account of aspectual properties of negated event predicates elaborated in the next chapter. I also show that the distribution of partitive case licensed by negation is best described as a structural constraint on licensing.

A number of accounts of negation maintain that negation turns all event predicates into states, referred to as the *stativity hypothesis* (Bennett and Partee 1972, Dowty 1979, Dowty 1986, Link 1987, Verkuyl 1993 and others). States are divisible; thus the stativity hypothesis of negation would assimilate partitive case licensing by negation to licensing by divisible vPs, straightforwardly predicting that negation licenses partitive case.

At first blush, assimilating negated sentences to states is also supported by the fact that all negated event predicates can be modified by an illative adverb, one of the equivalents of a *for*-adverb in Finnish.⁹²

⁹² The possibility of *for*-adverb modification of negated event predicates is not restricted to Finnish, as shown by the English translations. The discussion in this chapter refers to negation licensing divisible event predicates and *for*-adverbs modifying divisible event predicates. The specific domain of divisibility is

Since *for*-adverbs modify divisible event predicates, this supports the uniform treatment of negation and divisible vPs as partitive case licensors.

- (2)a Hän seisonut tässä [kymmeneen minuuttiin]_{ILL}
 he-nom stood here ten-ill minute-ill
 'He stood here for ten minutes'
- b [Kymmeneen minuuttiin]_{ILL} hän ei tunnistanut presidenttiä
 ten-ill minute-ill he-nom not recognized president-part
 'For ten minutes, he didn't recognize the president'

I argue below that contrary to the initial appeal, the stativity hypothesis of negation and a uniform treatment of partitive case licensing cannot be maintained. In this chapter I cite arguments against assimilating these two sources of partitive case from Finnish, showing that negation and divisible domains constitute independent mechanisms of partitive case licensing. I also argue that the partitive case of negation cannot be assimilated to other instances of exceptional case marking in negative sentences in Russian and Polish, where negation licenses genitive case. In the following chapter, I offer more general arguments against the stativity hypothesis of negation. I also provide an account of the adverbial modification facts which made the stativity hypothesis initially attractive.

4.1 *Partitive case and negation*

Negation and divisible vPs license partitive case on a different range of constituents. Since the range of structurally case marked constituents affected is distinct, it is not obvious that a uniform treatment of these two sources of partitive case is possible.

In chapter 3, it was shown that a given structural case feature is morphologically realized as partitive if it is realized or licensed in a divisible phase. This restriction accounts for the distribution of partitive structural case in affirmative sentences, summarized below.

addressed in the following chapter.

Structurally case marked adverbs cannot modify a negated telic event predicate. The restrictions on modification by structurally case marked durative adverbs are also discussed in chapter 5.

Object	Divisible nominal	→	partitive
	Divisible vP	→	partitive
Subject	Divisible nominal	→	partitive
	Divisible vP	+→	partitive
Adjunct	Divisible nominal	→	partitive
	Divisible vP	+→	partitive

Objects are partitive whenever they are divisible. In addition, they also appear with partitive case marking if the vP is divisible. Subjects and adjuncts are partitive only if they are divisible themselves; a divisible vP fails to license partitive case on either subjects or adjuncts.

Negation differs from both divisible nominals and divisible vPs in the range of partitive case markings licensed. In negative sentences, objects and adjuncts obligatorily appear with partitive case.⁹³

- (3)a Helena kutoi *villatakin*
H-nom knitted sweater-acc
'Helena knitted a sweater'
- b Helena ei kutonut *villatakkia* / **villatakin*
H-nom not-3sg knitted sweater-part sweater-acc
'Helena didn't knit a sweater'
- (Vainikka 1989)

⁹³ The nominals in these examples are all non-divisible, to exclude partitive case marking licensed by a divisible DP.

- (4)a Raili hiihti päivän / kilometrin
 R-nom skied day-acc / kilometer-acc
 'Raili skied a day / a kilometer'
- b Raili ei hiihtänyt päivää / kilometriä
 R-nom not-3sg skied day-part / kilometer-part
 'Raili didn't ski a day / a kilometer'
- (Heinämäki 1984)

Subjects show heterogeneous behavior with respect to negation. Preverbal subjects, which are in Spec,TP, are nominative even in the presence of negation. Postverbal subjects, in contrast, are obligatorily partitive.

- (5)a uutise-t / *uutis-i-a ei-vät jatku
 news-pl.nom / news-pl.part not-3pl continue
 'The news will not continue'
- b nyt ei tule uutis-i-a / * uutise-t
 now not-3sg come news-pl.part / news-pl.nom
 'Now there does not come any news'
- (Kiparsky 2001)

The environments where divisibility (either that of the nominal or that of the vP) licenses partitive case are thus different from those where partitive case marking is licensed by negation, making a unified account less attractive.

Heinämäki 1984 also concludes that partitive case licensing by negation is not entirely semantic – that is, not motivated by the divisibility of the vP, which is licensed by negation. Heinämäki 1984 observes that partitive case on objects is licensed by constituent (and contrastive) negation as well as clausal negation.⁹⁴

94 Heinämäki 1984 describes (6) as showing that the partitive object can be outside of the scope of negation. It is not clear, however, that the object is not in the c-command domain of negation in this case. Example (10), however, shows that quantifier objects can, in fact, take wide scope with respect to negation; a partitive object is thus not confined to the c-command domain of negation at LF.

I am using the term *contrastive negation* in the sense of *contradiction negation* of Horn 2001.

- (6) En luenut kirjaa päivässä, vaan kahdessa
 not-1sg read book-part day-in but two-in
 'I did not read the book in one day, but in two'
 (Heinämäki 1984)
- (7)a Sirkku söi ei omena-a mutta muffinssi-n
 S-nom ate not-3sg apple-part but muffin-acc but
 'Sirkku ate not the apple, but the muffin'
- b Sirkku söi muffinssi-n mutta ei omena-a
 S-nom ate muffin-acc but not-3sg apple-part
 'Sirkku ate the muffin, but not the apple'

The appearance of partitive case with constituent negation provides a further argument against assimilating negation partitivity to partitive case licensed by divisible vPs. Constituent negation is unlike clausal negation in that it fails to license divisibility of the event predicate (Verkuyl 1993, a.o.). (8) shows the contrast between clausal and contrastive negation in terms of licensing divisibility. The former, but not the latter, licenses *for*-adverb modification, which diagnoses divisibility.

- (8)a For half an hour, Sirkku didn't find the key [clausal negation]
 (but he found it afterwards)
- b * For half an hour, Sirkku found not the key, but the lock [contrastive negation]

Horn 2001 notes that contrastive negation differs from other instances of negation in various respects. It fails to introduce implicatures, and has entailment properties different from those of ordinary negation. Among other differences, contrastive negation (as opposed to ordinary clausal or constituent negation) fails to license negative polarity items. The lack of polarity item licensing, as well as the lack of divisibility licensing (noted in the following section) both follow from the fact that contrastive negation does not yield a downward entailing interpretation.

- (i) Chris didn't find any bugs in the sacks (clausal negation)
 (ii) Chris found no bugs in any sacks (constituent negation)
 (iii) * Chris didn't find bugs in any sacks – he found mice (contrastive negation)

As shown above, a number of arguments support the claim that partitive case licensed by negation cannot be assimilated to partitive case licensed by divisibility, and divisible vPs in particular. The two sources of partitive case must be treated separately, and the fact that both license morphological partitive case is coincidental.

The conclusion that partitive case is not necessarily licensed by divisibility is in contrast with other approaches, including Vainikka 1989. Vainikka argues that negation is semantically incompatible with a [+completed] value of events, where accusative case requires a [+completed] specification. The [+completed] feature essentially encodes non-divisibility. I argued above that divisibility cannot handle partitive case licensing by negation; the same conclusion carries over to the property of non-divisibility.

Instead of an account which builds on divisibility, I propose that negation licenses partitive case on the constituents which are in its c-command domain:

- (9) All structurally case-marked constituents in the c-command domain of Neg at Spell-out are partitive

Restricting the c-command condition to Spell-out ensures that the c-command requirement is satisfied at the surface structure rather than LF. Since the structural requirement is not operative at LF, objects are free to take wide scope with respect to negation. The partitive object in (10) can take either narrow or wide scope.

- (10) John ei maista-nut kah-ta ruoka-laji-a
 J-nom not taste-participle two-part food-sort-part
 'John didn't taste two dishes'
 [There are four dishes altogether. John tried two of them,
 but he didn't even taste the other two]

Instead of assimilating the instances of partitive case licensed by negation and those licensed by divisibility, I argued that the two must be treated separately. I suggested that a structural restriction on partitive case licensing by negation derives the appropriate range

of partitive marked constituents. To show that this account is viable, the next section considers the structure of negation in Finnish and the distribution of structurally case marked constituents in more detail.

4.2 *Negation in Finnish*⁹⁵

In Finnish, negation is expressed by the verbal element *e*. *E* shows person and number agreement with the nominative subject, similarly to finite lexical verbs (11a). Unlike lexical verbs, it fails to host tense and potential mood⁹⁶ affixes (11b,c).

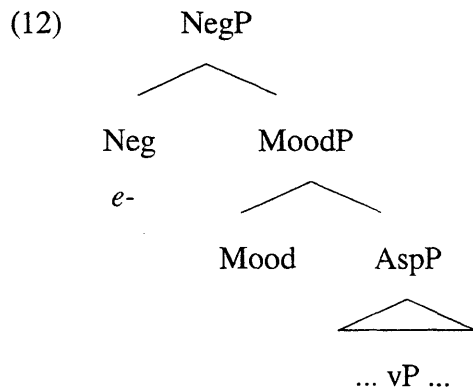
- (11)a *Ette* nuku
 neg-2pl sleep
 'You(pl) won't sleep'
- b *Ette* nukkuneet
 neg-2pl sleep-part.past,pl
 'You(pl) didn't sleep'
- c He *eivät* tietäne että Maija on koto-na
 they neg-3pl know-pot that M-nom is home-at
 'They probably don't know that Maija is at home'
- (Nelson 1998:26)

Following Holmberg and Nikanne 1993, 2002 and Nelson 1998, I assume that negation is merged as Neg, the head of the functional projection NegP. I also follow these authors in assuming that Neg is merged with MoodP. For concreteness, I also assume that Mood takes AspP⁹⁷ as its complement.

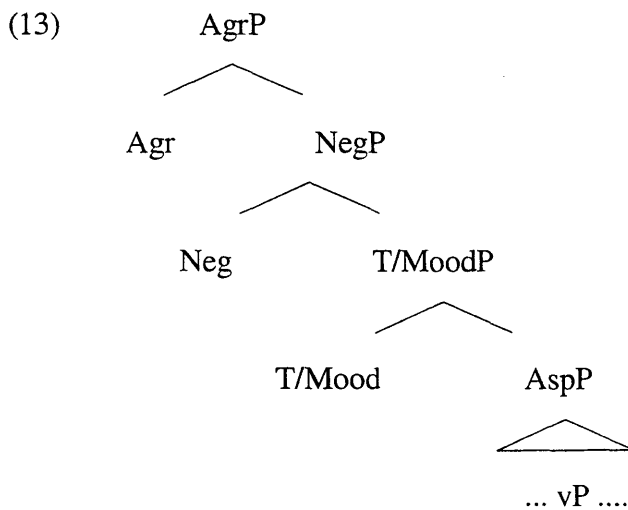
⁹⁵ The discussion in this section is mostly based on Vainikka 1989 and Nelson 1998.

⁹⁶ I follow Holmberg and Nikanne 1993, 2002 and traditional Finnish grammars in using the term *potential mood*. It is worth pointing out that potential mood is similar to the modal *must* (whether deontic or epistemic) in taking obligatory wide scope over negation.

⁹⁷ Following Klein 1994 and others, I assume that the topic time is introduced in Spec,AspP. The notion of *topic time* is discussed in more detail in the following chapter.



Holmberg and Nikanne 1993, building on Chomsky 1993, divorce the T and Agr nodes, where phi-feature agreement between the subject and the object is checked in AgrP. To account for the fact that tense morphemes appear on the lexical verb, and agreement with the subject surfaces on negation, they assume that Neg intervenes between Agr and the complex T/Mood head (the latter encodes tense or mood).⁹⁸

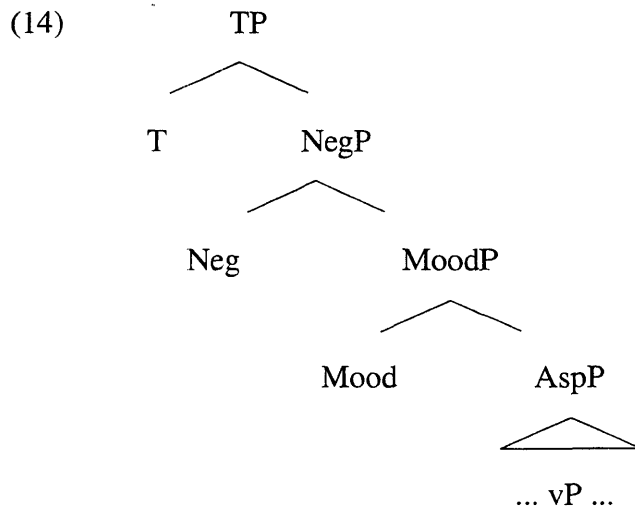


⁹⁸ In contrast to what is suggested by the unique T/Mood head, past and potential mood marking may cooccur. They only appear, however, in a periphrastic construction such as (i).

(i) He eivät liene tietä-neet että Maija on koto-na
 they neg-3pl be.pot know-part.3pl that M-nom is home-at
 'They probably have not known that Maija is at home'

Since Agr projections are absent in Chomsky 1995, 2000, and 2001a,b, no similar structure can be stipulated when adopting these latter implementations of the Minimalist Program. In these frameworks, phi-feature agreement between a finite verb and a nominative subject is encoded in T, which has an unvalued set of phi-features. The T head shows phi-feature agreement as the result of its phi-features being valued by a nominative subject.

Since the separate Agr and T projections of (13) form a single projection in Chomsky 2000, 2001a,b and the Minimalist implementations building on these, negation must appear either above or below TP. I assume the latter, with TP dominating NegP, which dominates MoodP in turn.⁹⁹



⁹⁹ It is worth noting that the logical hierarchical position of the modal does not necessarily determine its syntactic position. For instance, the necessity modal can take scope over the (relative) past tense in (i), making it synonymous with (ii). The syntactic structure of (i) would lead one to expect the reverse reading, with past tense taking scope over the modal.

- (i) There had to be an accident on the bridge
- (ii) There must have been an accident on the bridge

Given this potential syntax – semantics mismatch, if the potential suffix in Finnish behaves similarly to the necessity modal in (i), it is predicted that it can also take scope over tense. The preceding footnote shows that this is indeed the case; the potential mood has wide scope over tense.

The position of the potential Mood and T heads is enforced by the relative position of subject in negative sentences, the negative verb and the mood affix. While this is at odds with standard assumptions concerning the position of mood and tense, the syntactic consideration and the possibility of syntax – semantics mismatch do, however, allow the structure in (14).

Finally, the position of the potential mood affix also raises some questions in light of the ordering of the Oksapmin potential mood suffix, which Cinque 1999 notes as being ordered higher than T. If the potential mood in Finnish can be analyzed as a necessity or possibility modal, then it is merged below T, in accordance with the hierarchy argued in Cinque 1999.

An argument in favor of the proposed structure and the relative position of Neg and T is provided by the position of subjects. As argued by Vainikka 1989, Nelson 1998, Manninen 2003, and others, the preverbal subject moves to Spec,TP. Subjects precede negation, as shown in (15).

- (15) Helena ei kutonut villatakkia
 H-nom not-3sg knitted sweater-part
 'Helena didn't knit a sweater'
 (Vainikka 1989)

Given the structure in (14), it remains to be explained how the tense morpheme appears on the lexical verb rather than negation. I suggest that the lexical verb agrees with T, and displays agreement with T according to the tense specification of the latter. Note that the lexical verb also shows number agreement with the subject (11b). In the structure of Holmberg and Nikanne 1993, shown in (13), phi-feature agreement with the subject is encoded in Agr. In this structure, an agreement feature – specifically, number agreement – can also be realized on the lexical verb without the verb moving to Agr. In other words, Holmberg and Nikanne 1993 must allow number marking to appear on the lexical verb even if it is not in a local relation with Agr. Similarly, I suggest that the tense and number marking on the lexical verb appear as a result of a non-local Agree relation between the lexical verb and T.

The structure in (14) not only represents clausal, but also constituent negation. As previous examples also show, constituent and contrastive negation is homonymous with clausal negation in Finnish:

- (16)a Sirkku on onnellinen, ei surullinen
 S-nom is happy not-3sg sad
 'Sirku is happy, not sad'

- b Sirkku lähti mutta Pulmu ei lähtenyt
 S-nom left but P-nom not-3sg leave
 'Sirkku left, but not Pulmu'
- c Sirkku söi ei omena-a mutta muffinssi-n
 S-nom ate not-3sg apple-part but muffin-acc but
 'Sirkku ate not the apple, but the muffin'
- d Sirkku söi muffinssi-n mutta ei omena-a
 S-nom ate muffin-acc but not-3sg apple-part
 'Sirkku ate the muffin, but not the apple'

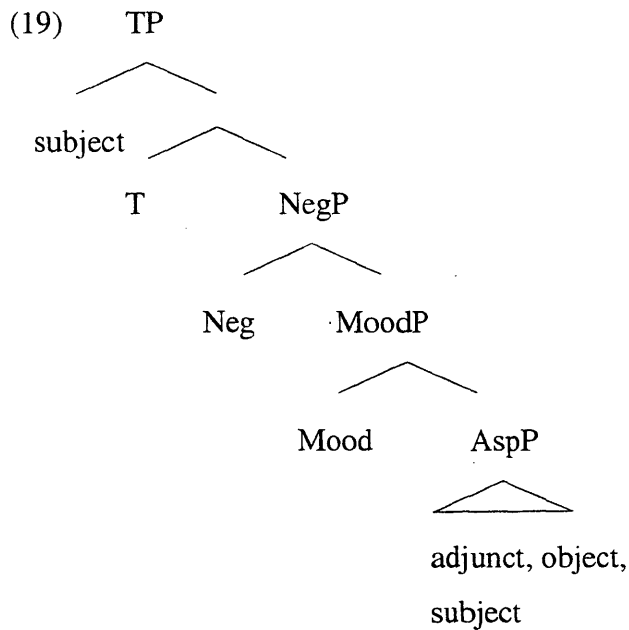
In addition, Finnish lacks dedicated negative quantifiers. Instead, an indefinite appears along with negation, providing further support to the claim that there is a unique form of negation in Finnish.

- (17) Kukaan opiskelija ei luke-nut kirja-a
 any-nom student-nom not-3sg read-part book-part
 'No student read the book'

The structure in (14), along with the generalization on partitive case licensed by negation in (9) and repeated below, derives the appropriate distribution of partitive and non-partitive case.

- (18) All structurally case-marked constituents in the c-command domain of Neg
 at Spell-out are partitive

In the structure in (14), Neg c-commands objects and adjuncts. The partitive case on these constituents thus falls under the description in (18).



For preverbal subjects, it was assumed (following Vainikka 1989, Nelson 1998 and others), that they are located in Spec,TP. Since these subjects are not c-commanded by Neg, they do not necessarily appear with partitive case in negative sentences.

For postverbal subjects, I assume that they appear within vP and are thus c-commanded by Neg. The descriptive generalization in (18) thus adequately captures the distribution of partitive case. In chapter 3, I suggested that postverbal subjects appear in locative inversion constructions. I follow Freeze 1992, Bresnan 1994, Collins 1997, Bissell Doggett 2004 and others in assuming that the preverbal locative adverb is in Spec,TP, the canonical subject position in these structures, and I assume that the postverbal subject is within vP.

- (20) [TP Keittiössä *olivat* [vP vieraat]]
 kitchen-iness were guests-pl.nom
 'In the kitchen were THE GUESTS'

On the assumption that the preverbal subject and the preverbal locative adverb occupy the same position, it can be shown that the preverbal locative position c-commands the position of the postverbal subject. A preverbal thematic subject, as in (21a), can bind a variable in postverbal position. If the locative, which contains the variable, is preverbal, then no bound interpretation is possible (21b). These facts support the proposed locative structure, where the locative asymmetrically c-commands the postverbal subject.¹⁰⁰ (22) shows that in absence of variable binding, the universal quantifier can appear as a (focused) postverbal subject.

(21)a Jokainen opiskelija_i istui tuolillaan_i
 every student-nom sat chair-poss-inessive
 'Every student sat on his chair'

b??Tuolillaan_i istui jokainen opiskelija_i
 chair-poss-iness sat every student-nom
 'In his chair sat every student'

(22) Luokassa oli jokainen oppilas
 class-inessive was every-nom student-nom
 'In the classroom was every student'

Given the relative position of negation and structurally case marked constituents, the generalization in (9) adequately captures the range of constituents where partitive case is licensed by negation.

The following section discusses similar instances of case alternation triggered by negation in Russian and Polish. I show that partitive case licensing in Finnish is distinct from both of these. In addition, the crosslinguistic data provide further support to the claim that the distribution of partitive case is best characterized as structurally restricted at Spell-out, as given in (9).

¹⁰⁰ The proposed structure, where the postverbal subject is located within vP, is consistent with the c-command relations shown by (21). The variable binding examples do not, however, identify the specific structural position of the postverbal subject.

4.3 *Similarities across languages*

Finnish is not unique in showing variation in structural case marking in affirmative and negative sentences. I show below that even though negation licenses exceptional morphological case in a number of languages, the variation among these languages is significant, and Finnish cannot be assimilated to either Russian or Polish.

4.3.1 **Russian genitive of negation**

Russian is well known for licensing the genitive of negation in negative sentences (Timberlake 1975b, Babby 1980, Pesetsky 1982, Babyonshev 1996, Harves 2003, Partee and Borschev 2005, among others), on both objects (23) and unaccusative or passive subjects (24). In affirmative sentences, these constituents are accusative and nominative, respectively.¹⁰¹

(23)a On ne polučil *pis'ma*
he not received letter-gen.neuter.sg
'He didn't receive any letter'

b On ne polučil *pis'mo*
he not received letter-acc.neuter.sg
'He didn't receive the letter'

(Partee and Borschev 2005)

(24)a *Otvét* ne prišel
answer-nom-masc.sg not came-masc.sg
'The answer didn't come'

b *Otveta* ne prišlo
answer-gen.masc.sg not came-neuter.sg
'No answer came'

(Partee and Borschev 2005)

101 Note that the genitive subject does not trigger phi-feature agreement with the finite verb; rather, the verb has a default neuter singular agreement (24b). This lack of overt agreement is reminiscent of the lack of agreement with partitive subjects in Finnish (chapter 2).

As the preceding examples show, Russian genitive of negation differs from the partitive case licensed by negation in Finnish. While in Finnish partitive case marking is obligatory on the range of constituents discussed, Russian genitive of negation is generally optional.¹⁰²

The precise semantic property correlating with case alternation in Russian is subject to debate (as discussed in Partee and Borschev 2005). For the present purposes, let us assume that case marking covaries with the scope of the nominal with respect to negation (following Babby 1980, Pesetsky 1982 and Bailyn 1997). The following example is a case in point.

- (25)a Moroz ne cuvstvovalsja
 frost-nom.masc.sg not be.felt-masc.sg
 'The frost was not felt'
- b Moroza ne cuvstvovalos'
 frost-gen.masc.sg not be.felt-neuter.sg
 'No frost was felt (there was no frost)'
- (Babby 1980:59)

Irrespective of the exact semantic properties correlating with genitive and non-genitive case marking in Russian, the optionality of genitive of negation argues for different treatments of Russian genitive of negation and Finnish partitive of negation.¹⁰³

4.3.2 Polish genitive of negation

Negation also licenses genitive case in Polish, as discussed by Willim 1990, Dziwirek 1998, Blaszcak 2001, and others. Polish differs from Russian in that negation requires obligatory genitive case marking on objects.

¹⁰² The genitive of negation is obligatory in existential sentences, as argued by Brown 1996 and Bailyn 1997.

¹⁰³ The alternation between nominative and genitive / partitive subjects is also different among the two languages. While Russian genitive of negation only affects unaccusative and passive subjects, partitive subjects in Finnish can also include unergative subjects.

- (26)a Ewa czyta *gazety* / **gazet*
 E reads newspapers-acc / newspapers-gen
 'Ewa reads newspapers'
- b Ewa nie czyta *gazet* / **gazety*
 E not reads newspapers-gen / newspapers-acc
 'Ewa does not read newspapers'
- (Błaszczak 2001)

Unlike Russian, genitive objects can freely take scope over negation.

- (27) Jan nie widział wielu *rzeczy*
 J-nom neg see-3sg.past many things-gen
 'John did not see many things'
- (Willim 1990)
- a not > many
 It was not the case that John saw many things
- b many > not
 For many things, John did not see them

The Polish genitive of negation also differs from Russian in not affecting nominative subjects, including both unaccusative and passive subjects. Alternating genitive subjects are ungrammatical in the presence of negation, irrespective of whether the verb displays full phi-agreement or default agreement (28c), (29c).

- (28)a Studenci przyszli na wykład
 students-nom came to lecture
 'The students came to the lecture'
- b Studenci nie przyszli na wykład
 students-nom not came to lecture
 'The students did not come to the lecture'

- c *Studentów nie przyszli / przyszło na wykład
 students-gen not came-3pl / came-neuter to lecture
 'The students did not come to the lecture'
- (29)a Ulotki zostały już rozesłane
 leaflets-nom were already sent
 'The leaflets were already sent'
- b Ulotki nie zostały jeszcze rozesłane
 leaflets-nom not were yet sent
 'The leaflets have not been sent yet'
- c * Ulotek nie zostało rozesłanych/ zostały jeszcze rozesłane
 leaflets-gen not were-neuter sent-pl.gen / were yet sent
 'The leaflets have not been sent yet'
- (Błaszczak 2001)

Apparently in Polish, negation affects the morphological case valued by v. To capture this fact, Błaszczak 2001 proposes that v raises to Neg, which, in turn, affects the morphological case valued by v. It is also worth noting that if negation is contrastive, no genitive of negation is licensed, as (30b) shows.

- (30)a Janek nie kupił *książkę / książki
 J-nom not bought book-acc / book-gen
 'Jan didn't buy the book'
- b Janek kupił nie książkę / *książki (a pióro)
 J-nom bought not book-acc / book-gen but pen-acc
 'Jan bought not a book (but rather a pen)'
- (Dziwirek 1998)

4.3.3 Finnish partitive of negation

Both Russian and Polish genitive of negation show crucial differences compared to the partitive case licensed by negation in Finnish.¹⁰⁴

As noted above, Finnish differs from Russian in that negation obligatorily licenses partitive case in Finnish. The case marking on the objects thus does not show sensitivity to the scope of the nominal with respect to negation, or any other semantic property. In fact, partitive objects can take either narrow or wide scope with respect to negation, as shown by (10), repeated below.

- (31) John ei maista-nut kah-ta ruoka-laji-a
J-nom not taste-participle two-part food-sort-part
'John didn't taste two dishes'
[There are four dishes altogether. John tried two of them,
but he didn't even taste the other two]

Finnish negative partitive case also differs from the genitive of negation in Polish. Recall that while genitive case only appears in the counterparts of accusative objects in Polish, Finnish partitive case extends to (postverbal) nominative subjects as well as objects and adjuncts.

- (32) nyt ei tule uutis-i-a / * uutise-t
now not-3sg come news-pl.part / news-pl.nom
'Now there does not come any news'
(Kiparsky 2001)

¹⁰⁴ A fourth instance of case difference between affirmative and negative sentences is Basque (Paul Kiparsky, p.c.). What is traditionally described as partitive case is licensed by negation in Basque (Laka 1990). Laka 1990 argues, however, that this instance of 'partitive case' is, in reality, a determiner. Furthermore, she argues that this determiner is an NPI. In this respect, the exceptional determiner resembles the Russian genitive of negation rather than partitive case licensed by negation in Finnish.

In addition, as shown in the preceding section, Finnish contrastive, clausal and constituent negation license partitive case alike, while contrastive negation does not license the genitive of negation in Polish.

Thus the partitive case licensed by negation in Finnish is distinct from the genitive of negation in Russian and Polish. The account of partitive case licensing in Finnish negative sentences cannot appeal to the effect of negation on a single functional head, unlike in the case of Polish. Referring to the semantic interaction between negation and partitive constituents is not viable either, even though it captures the distribution of genitive constituents in Russian. Instead, an account of how negation licenses partitive case must be encoded in terms of the relative structural position of negation and the case marked constituent at Spell-out, as given in (9).

4.4 Summary

Negation and divisible phases both license partitive case on structurally case marked constituents. It was argued that even though a unified account of these licensing environments is desirable, it is not possible to unify negation and divisible phases. The two sources of partitive case differ in the range of constituents where partitive case is licensed. Furthermore, contrastive negation, which fails to affect the divisibility of event predicates, still licenses partitive case – providing further support for the independence of divisibility and negation as the two sources of partitive case.

The stativity hypothesis, which proposes that negation converts all event predicates into states, thus cannot be adopted to derive negated event predicates as patterning with divisible vPs. In the following chapter I show that not only is it impossible to invoke the stativity hypothesis to derive the instances of partitive case licensed by negation. I show that the stativity hypothesis, in fact, cannot be maintained.

Chapter 5 Negated event predicates and divisibility

The preceding chapter showed that negation in Finnish must be treated as a partitive licensing environment independent of divisible vPs. The stativity hypothesis, which maintains that negation converts event predicates into states (and therefore divisible predicates), cannot be invoked to account for those instances of partitive case which are licensed by negation. In this chapter I argue that the stativity hypothesis not only fails to yield a uniform account of partitive case licensing in Finnish, but it cannot be maintained either. Mostly based on examples from English, I pinpoint the place where divisibility applies – a claim which, I believe, has crosslinguistic validity.

I argue that negated event predicates are divisible with respect to a time argument; in other words, they have the subinterval property (Dowty 1979). In contrast with atelic event predicates (which are divisible with respect to the event time), negated event predicates are divisible with respect to the topic time, but not necessarily for the event time. The former is responsible for the possibility of *for*-adverbial modification of all eventualities, independently of the properties of the event predicate itself.

Distinguishing divisibility with respect to the event time and topic time makes it possible to account for the similarities between atelic event predicates and negated event predicates (since both are divisible), and distinguish them at the same time (since they are divisible with respect to different arguments). Appealing to divisibility as a general requirement of *for*-adverbs also predicts that in addition to negation, downward entailing arguments also license *for*-adverb modification for all types of event predicates. I show that this prediction is borne out; downward entailing quantifiers and *only* allow *for*-modification just as negation does.

This chapter is organized as follows. Section 5.1 presents an overview of the time intervals in the clausal structure as well as its interaction with adverbial modification. Section 5.2 presents an account of adverbial modification with negated event predicates. Section 5.3 shows that downward entailing quantifiers and arguments modified by *only* also allow any event to be modified by a *for*-adverb. In section 5.4, I survey diagnostics of stativity, a number of which have been cited in support of the stativity hypothesis, and

show that they do not, in fact, show that negated event predicates are necessarily stative. Section 5.5 points out a restriction on *for*-intervals. Structurally case-marked durative adverbs, as in Finnish, do not show flexibility in adverbial modification; unlike inherently case marked or PP adverb, they can only modify the event time, and not the topic time. I argue that this restriction follows from syntactic locality restrictions, and not from a different semantics of these adverbs.

5.1 Background assumptions

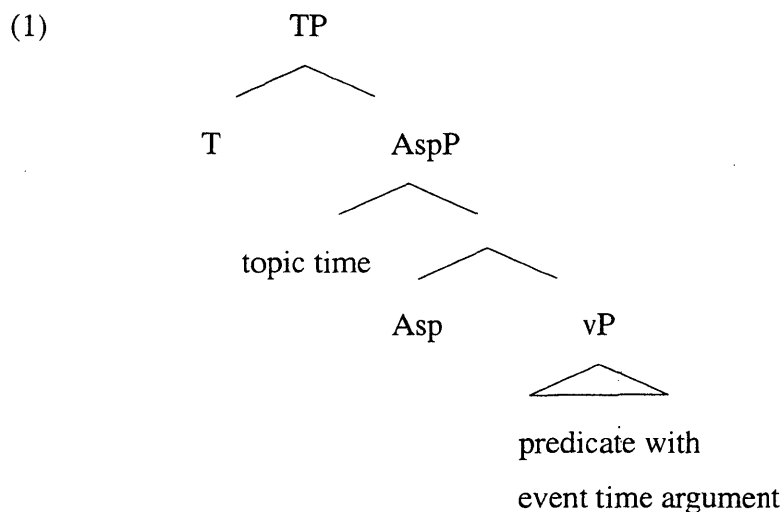
This section lays out the core proposal of the chapter. I start by outlining the temporal structure of finite clauses, including the specific time intervals involved and their position in the structure. After introducing the relevant time intervals, I turn to adverbial modification by durative *for*-adverbs, which are often cited in support of the stativity hypothesis of negation. I suggest a treatment of *for*-adverbs which allows certain flexibility in adverbial modification: *for*-adverbs can measure the length of either the event time or the topic time. I spell out the restrictions on *for*-adverb modification, and show that the restriction to these time intervals follows from them.

5.1.1 Time intervals

I follow the insight of Reichenbach 1947 and Klein 1994, and the specific implementation of Iatridou et al 2001 and Stechow 2002 in adopting a system of three time intervals in finite clauses: *event time*, *topic time* and *time of utterance*. The *event time* is the runtime of the event. The *topic time* is a time interval that can stand in a variety of relations to the event time, according to the viewpoint aspect specification (perfective or imperfective) of the event. Finally, the topic time is ordered with respect to the utterance time, the ordering established by tense marking. With past tense marking, the topic time precedes the time of utterance. With present tense, the topic time includes the utterance time.

Following Klein 1994, Thompson 1996, Kratzer 1998, Iatridou et al. 2001, von Stechow 2002, I assume that event time is associated with vP, the topic time with AspP and the time of utterance with TP. Specifically, I treat these time intervals as arguments of a predicate of times.

The lexical entry of a verbal or adjectival predicate requires a time interval argument, which is interpreted as the event time. The viewpoint aspect of an event is perfective or imperfective, determined by the aspectual head Perf or Imperf which is merged in the functional head Asp. Both perfective and imperfective Asp heads take two arguments: a predicate of times and a time interval. Finally, the utterance time is an argument of T. Tense, located in the T head, orders the utterance time and topic time as described above. The clause structure is illustrated below.



As noted, the perfective and imperfective heads take a predicate of times and a time interval as their arguments. If the event predicate is perfective, then the topic time contains the event time. With imperfective event predicates, the event time contains the topic time. In both cases, the event time is existentially quantified, as shown below.¹⁰⁵

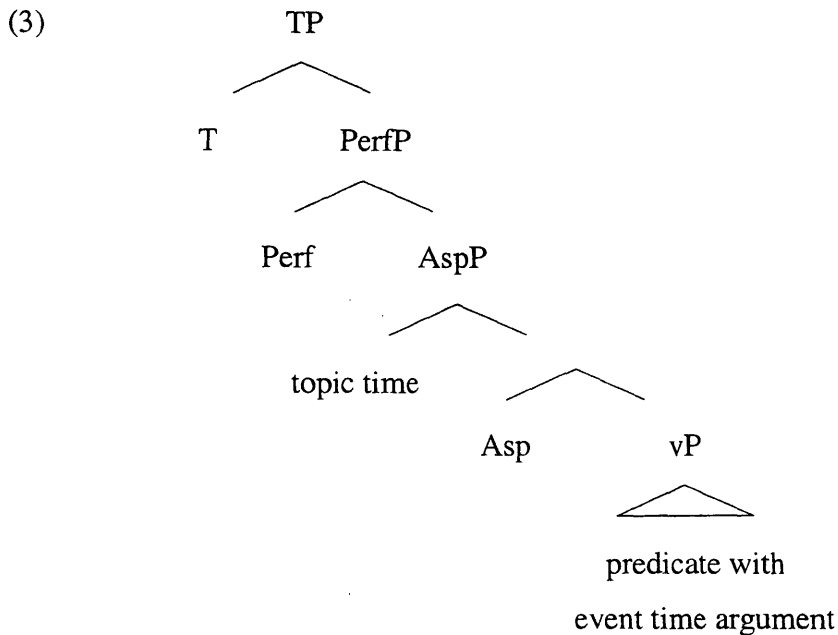
¹⁰⁵ With imperfective specification, the event does not need to culminate:

(i) Fred was crossing the street when he suddenly turned back

Imperfectives thus need to be modalized (e.g. Dowty 1979, Landman 1992). Since this is not crucial for the present purposes, I ignore modalization in the discussion, except where explicitly noted.

- (2)a [[perfective]] = $\lambda P_{\langle st \rangle} . \lambda t . \exists t' . [t' \subset t \ \& \ P(t')]$
 b [[imperfective]] = $\lambda P_{\langle st \rangle} . \lambda t . \exists t' . [t \subset t' \ \& \ P(t')]$
 (Iatridou et al. 2001, von Fintel and Iatridou 2002)¹⁰⁶

Perfects are straightforwardly accommodated in the structure outlined above. The perfect head is optional, and merged as the Perf head whenever present. The perfect takes AspP as its complement, and PerfP, in turn, serves as the complement of T.



With respect to the properties of the perfect, I also follow Iatridou et al 2001 and von Fintel and Iatridou 2002, slightly adapting their formalization. The perfect takes a predicate of times argument (P) and a time interval argument (t). t is ordered with respect to the utterance time by tense; it precedes the utterance time with past tense and coincides with the utterance time with present tense marking. t is the right boundary of a time interval t' , for which the predicate argument of the perfect holds. The left boundary of the interval t' is unspecified, but it can be delimited by perfect level adverbs.¹⁰⁷

¹⁰⁶ Similar definitions are proposed by Klein 1994, Kratzer 1998 and Stechow 2002.

¹⁰⁷ Some approaches, such as Iatridou et al 2001, assume that perfect-level adverbs (either overt or covert) are always present.

- (4) $[[\text{perfect}]] = \lambda P_{\langle st \rangle} . \lambda t . \exists t' : \text{RB}(t, t') \ \& \ P(t')$
 (von Fintel and Iatridou 2002)

The predicate argument P of the perfect is AspP , a predicate of times derived from perfective or imperfective event descriptions by abstracting over the topic time. In effect, perfects require either t' to contain an event time (with perfective event descriptions) or an event time to contain t' (with imperfectives). In other words, t' can be equated with the topic time, the time interval argument of perfective or imperfective.¹⁰⁸

In the system of time intervals adopted here, at most four time intervals can be present in a non-perfect finite clause. The event time is the time interval argument of a lexical predicate. Topic time is introduced by the perfective or imperfective in Asp , and it either contains or is contained by the event time. Perfect, whenever present, introduces a time interval which establishes the right boundary of the topic time. Finally, tense introduces the time of utterance. The following subsection considers how *for*-adverbial modification affects these time intervals in general.

5.1.2 Modification of time intervals

As noted in the introduction, *for*-adverbs can be treated as general time adverbs. The distribution of *for*-adverbs is syntactically unconstrained, but the adverbs impose semantic restrictions on their arguments, which are discussed in detail below.

Following Hinrichs 1985 and von Fintel 1997, I assume that *for*-adverbs take three arguments: a measure phrase, a predicate of times and a time interval. The predicate of times argument must be divisible with respect to the time interval argument, as discussed in chapter 3.

¹⁰⁸ In this formalization, I depart from von Fintel and Iatridou 2002 in assuming that the time interval is an argument of the perfect.

- (5)a Fred slept for two hours
- b *for* (two hours) (Fred sleep) (i)
- c $[[\text{for}]] = \lambda T . \lambda P . \lambda t . [\forall t' \subset t [\exists t'' [t' \subseteq t'' \subset t \ \& \ P(t'')]] \ \& \ |t| = T]$
(von Fintel 1997 based on Hinrichs 1985)
- d $[[\text{for}]] = \lambda T . \lambda P . \lambda t . [t = \oplus_{NT} \{t' : P(t')\} \ \& \ |t| = T]$
(von Fintel 1997)

The divisibility constraint applies to a predicate with a time interval argument. The *for*-adverb is thus expected to modify not only an event predicate, but also other predicates of times, including viewpoint aspect, perfect and tense.

As noted in chapter 3, divisibility cannot be trivially satisfied. This restriction forces the time interval to be durative – if the interval is instantaneous, then it lacks a proper subinterval.¹⁰⁹ On the one hand, this requirement ensures that no instantaneous event predicate can be modified by a *for*-adverb, since these predicates are only true for an atomic, instantaneous time interval. On the other hand, no time interval argument of a *for*-adverb can be instantaneous.

Given that *for*-adverbs take a predicate of times as one of their arguments, it may be expected that these adverbs can equally measure the duration of event times, topic times, the right boundary of the perfect time span, and the time of utterance. This is, however, not the case: *for*-adverbs are restricted to modifying the event time or the topic time, but not the time of utterance.

The ban on modifying the utterance time has two sources. First, *for*-adverbs only modify durative intervals, as noted above. Let us adopt the idea of Bennett and Partee 1972 that the time of utterance is an instantaneous moment. If the time of utterance is instantaneous, then it cannot serve as an argument of a *for*-adverb.

¹⁰⁹ The atomicity of the interval is not understood in an ontological sense, since time is dense. Instead, a time interval can be treated as atomic within the linguistic system. The time interval described as 3:27 or the event time of an achievement is, for instance, treated as atomic.

In addition to the specific instance of modification by a *for*-adverb, the modification of the time of utterance is excluded in general. Hornstein 1990 argues that the time of utterance cannot be modified due to its deictic nature. In general, deictic elements cannot be modified, as the following examples (partly from Hornstein 1990) show.

(6)a Fred arrived at two o'clock

[*At two o'clock, when the sentence is uttered, John arrived (at some previous time)]

b *Here, which is near Detroit, is far from here

c *I, who Bill adores, am hungry

The time interval argument of perfect aspect, which is the right boundary of the topic time, is also exempt from *for*-adverb modification.¹¹⁰

This restriction is expected with the present perfect. The right boundary of the topic time coincides with the time of utterance. In this case the modification of the former is excluded by appealing to the lack of modification of the time of utterance. In the following example, the *for*-adverb can only modify the result state, and not the perfect time.

(7) Fred has arrived for an hour

¹¹⁰ I am ignoring result or consequent state modification, since it is available with perfects and non-perfects alike. I assume that in these cases, instead of the complex event it is the result subevent that is modified (Ramchand 2004).

(i)a Fred has opened the store for two hours

b Fred opened the store for two hours

(ii)a Fred has left for two weeks

b Fred left for two weeks

It is not clear whether it is desirable to treat uniformly the durative adverbs modifying a result state and those modifying the event time. In a number of languages, including German, Finnish and Hungarian, the two types of adverbs are lexicalized differently.

For-adverb modification is also impossible for the time interval that determines the right boundary of a past perfect event predicate. In (8), the *for*-adverb can only be interpreted as modifying the duration of the result or consequent state. The relevant interpretation, where *for an hour* is the duration of a time interval which precedes the utterance time and constitutes the right boundary of the topic time, is not available.

(8) Fred had arrived for an hour

I assume that the ban on the perfect time modification is due to the instantaneous nature of the perfect time argument *t*.¹¹¹ *For*-modification is thus excluded, since these adverbs require a durative time interval argument.

The claim that the right boundary cannot be modified by *for*-adverbs because it is instantaneous is supported by its modification by punctual adverbs. Punctual adverbs, unlike *for*-adverbs, can modify the right boundary of perfects. This is only possible with past (or future) perfect event predicates. With present perfects, modification by a punctual adverb is ruled out (the Present Perfect Puzzle, Klein 1992).

(9) *Fred has eaten at three o'clock

In contrast with present perfects, which resist modification by a punctual adverb, past perfect event predicate can cooccur with these adverbs. The interpretation of punctual adverbs is ambiguous with past perfect event predicates (Hornstein 1990, Thompson 1996):

(10) Fred had eaten at three o'clock

¹¹¹ The right boundary is not necessarily punctual. In theory, it could also be durative, if some designated point in the interval or any interval could serve as the right boundary of the topic time. The possibility of durative boundaries is shown by durative perfect level adverbs – such as *since 1990* – which serve as the left boundary of the topic time.

On one reading, the punctual adverb modifies the event time; on the other, the punctual adverb modifies the right boundary of the topic time. In the latter reading, Fred ate some time before three o'clock, and by that time, he had finished eating.

The ambiguity of punctual adverbs with past perfect event predicates shows that the right boundary in perfects is available for modification. Unlike punctual adverbs, *for*-adverbs cannot modify this time since the right boundary is instantaneous.

Let us consider the remaining possibilities of *for*-adverb modification: modification of the event time and the topic time. Illustrating event time modification is straightforward; the event time of any atelic event predicate (state or activity, in the Vendlerian terms) can be modified:

- (11)a Fred was sick for two years
 b Fred ran for two hours

If the *for*-adverb modifies the topic time, then the event predicate can be non-divisible, since the two predicates of times are independent. An instance where the topic time can be modified by a *for*-adverb is provided by imperfectives and progressives.

Recall from (2b), repeated below, that the topic time of the imperfective is included in the event time.

- (12) [[imperfective]] = $\lambda P_{\langle st \rangle} . \lambda t . \exists t' . [t \subset t' \ \& \ P(t')]$

This entails that every subinterval of the topic time is also included in the event time. Thus the predicate of times which applies to the topic time is divisible, since the predicate which holds of the topic time also holds of subintervals of the topic time. The current account predicts that an imperfective AspP can serve as the predicate argument of a *for*-adverb, following abstraction over times. The time interval argument of the adverb is interpreted as the topic time.¹¹²

¹¹² If the event time of an imperfective event predicate is modified (either with or in absence of an adverb modifying the topic time), then only a modalized, futurate reading is available, but not an ongoing interpretation:

- (13)a For ten minutes, Fred was running to the store
 b For six months, Fred was learning Chinese

To summarize the discussion so far: it was argued that a predicate of times can serve as the argument of a *for*-adverb if it is divisible. Divisibility must be satisfied non-trivially; the predicate must also be true of the time interval argument of *for* as well as a proper subinterval of the interval. These requirements can be met by the event time or the topic time, if abstraction over times yields a predicate argument from AspP and vP. *For*-adverbs thus show flexibility in measuring the duration of either time interval, if the predicate applying to that time interval is divisible.

5.2 *For-adverbs and negated event predicates*

Affirmative perfective telic event predicates are non-divisible and therefore cannot be modified by *for*-adverbs.

- (14)a #Fred arrived for two hours
 b #For an hour, John crossed the street¹¹³

Their negated counterparts, in contrast, can appear with these adverbs.

-
- (i) Fred was writing the paper [in a week] ([for two days])
 (but then he realized that he would not be able to finish it by then)
 (ii) Fred was running [for two hours] ([for half an hour])
 (but then he realized that he lacked stamina)

Related differences between ongoing and futurate progressives are discussed by Copley 2002. She argues that the event time is not introduced by the progressive operator (ALL_b for Copley 2002), but by a separate operator, $SOME_t$, adapted from Bennett and Partee 1972, which can cooccur with the progressive operator. $SOME_t$, applying to the denotation of the ongoing progressive, binds the event time and yields the desired reading. Since this difference between futurate and ongoing progressives is not relevant for the present discussion, I will ignore this distinction here.

¹¹³ A possible reading of the examples in (14) is that of a modified result state. This reading is, however, not relevant for the present discussion. For some speakers, a different, imperfective-like interpretation is also possible for (14b) (David Pesetsky, p.c.), where the event is interpreted as not culminated. I disregard the possibility of this (possibly coerced) reading here, and focus on the event time modification reading of the *for*-adverb.

- (15)a For two hours, Fred didn't arrive
 b For an hour, John didn't cross the street

I argue that the difference above arises from the properties of the predicate applying to the topic time. The predicate of times formed from a negated event predicate is divisible, and can thus be modified by a *for*-adverb, as shown above. In absence of negation, the predicate is non-divisible; hence the markedness of (14).

It can be shown that *for*-adverbial modification is licensed by divisibility of the viewpoint aspect predicate. The properties of the event time are unaffected, since the event time can be modified by an *in*-adverbial.

- (16) For an hour, Fred didn't cross the street in five minutes
 (= for an interval that is an hour long, there was no event of Fred crossing the street in five minutes during that interval)

Let us consider how the *for*-modification of negated event predicates is derived. I assume, following Pollock 1989, Laka 1990 and Zanuttini 1997, among others, that negation is merged as the head of the functional projection NegP. I also assume that NegP appears between TP and PerfP, as shown by the order of auxiliaries below.¹¹⁴

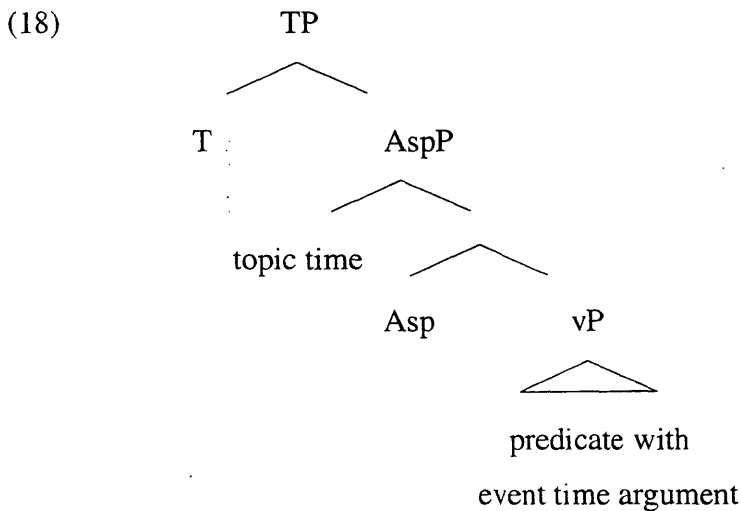
- (17)a Fred should *not* have been crossing the street then
 b [TP should [NegP not [PerfP have [AspP been [vP ...]]]]]

¹¹⁴ Modals are assumed to appear in T at Spell-out.

The predicate argument of the *for*-adverb is divisible only if the adverb is merged above negation. If this is not the case, then negated event predicates behave identically to affirmative ones; perfective telic event predicates will not be modified by *for*-adverbs in this case. When merged above negation, the *for*-adverb has a divisible predicate argument: if there was no event of Fred crossing the street within an interval t , then for all proper subintervals of t there is an interval t' containing that subinterval such that Fred did not cross the street in t' .

The *for*-adverb is thus merged above negation in (15). Let us assume that it adjoins to maximal projections – in this case, the lowest position where the adverb can be merged is NegP. The adverb takes the predicate of times formed from NegP as its first argument. The time interval argument, the second argument of the adverb, must also be merged higher than the position of negation.

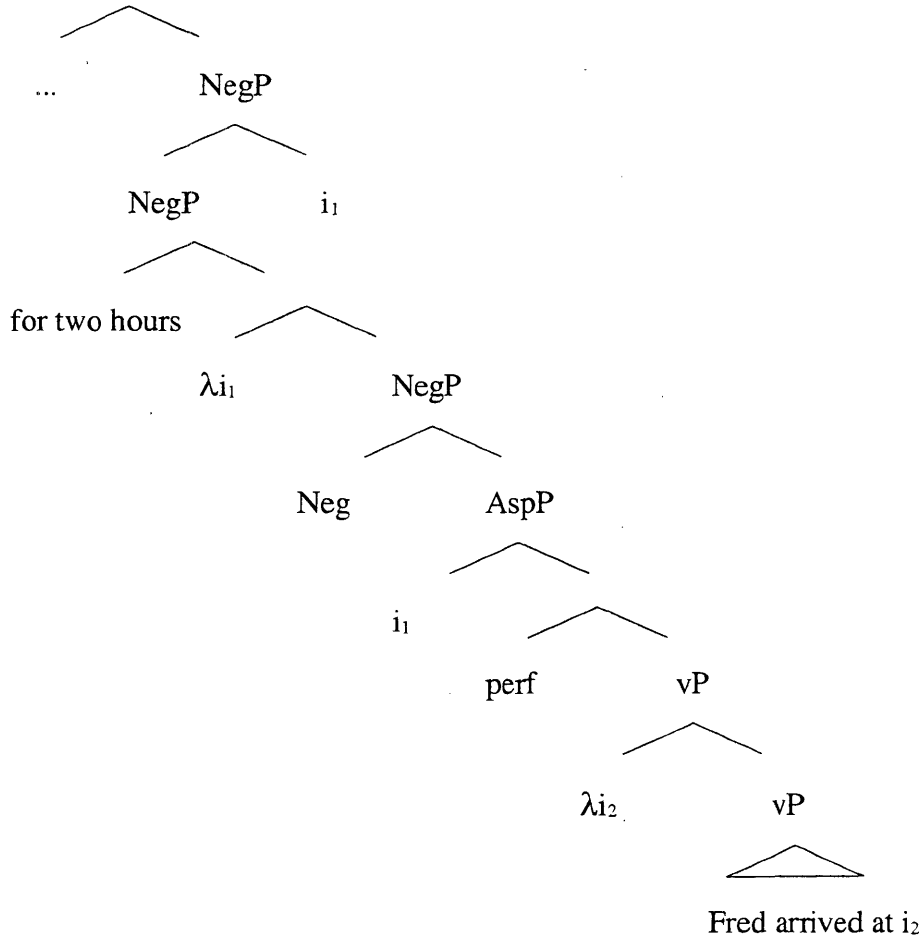
These requirements are at odds with the assumptions concerning time intervals discussed above. It was assumed that the event time is merged within the vP and topic time, an argument of the perfective or imperfective head, is merged in AspP.



The only time interval merged above NegP is the utterance time, which was shown to be unavailable for modification. In order to resolve this paradox, I assume that the adverbial modification triggers λ -abstraction over the time interval argument of Asp, similarly to λ -

abstraction by the viewpoint aspect operators discussed above. Following λ -abstraction, the *for*-adverb takes a time interval argument which is interpreted as the topic time.

(19) TP



λ -abstraction can only apply to the topic time, but not the event time; the paraphrases below show that the *for*-adverb licensed by negation can only modify the former.

(20)a For two hours, Fred didn't sleep

- b There is an interval which is two hours long and there is no event of Fred sleeping during that interval
[topic time]

- c # There is some interval, and within that interval there is no event of Fred sleeping such that the event lasts two hours
[event time]

A clause-initial adverb is preferably interpreted as modifying the topic time, while this interpretation is also available for *for*-adverbs following the verb.

- (21) Fred didn't arrive for two hours

The preference for clause-initial *for*-adverbs to modify topic time is not constrained to negative sentences, but holds in general. In affirmative sentences as well, a clause-initial topicalized adverb is interpreted as modifying the topic time.

- (22) For two weeks, John has been in Boston

- a #there is a time span whose right boundary is the time of utterance, and within that time span there is an eventuality of John being in Boston for two weeks¹¹⁵
[event time]
- b there is a time span whose right boundary is the time of utterance and whose left boundary is two weeks ago, and the eventuality of John being in Boston holds throughout that interval
[topic time]

Let us summarize the discussion so far. I argued that negation allows the topic time to be modified by a *for*-adverb. Adverbial modification is possible because the predicate of times that serves as an argument of the adverb is divisible: it asserts that there is no event of a specific kind within the topic time. The time interval argument of the *for*-adverb, merged following λ -abstraction over the topic time, is interpreted as the topic time.

¹¹⁵ David Pesetsky (p.c.) notes that the missing reading becomes available if the auxiliary is focused.

5.3 *Quantifiers and divisibility*

As noted earlier, a necessary condition for modification by *for*-adverbs is divisibility. Negation licenses modification of a telic event predicate by *for*-adverbs, since the predicate applying to the topic time is divisible. Since divisibility is not limited to negated event predicates, it is predicted that other environments can also license *for*-adverbial modification of the topic time. Downward entailing quantifiers and arguments modified by *only* also license *for*-adverbial modification of the topic time of all event predicates.

5.3.1 Downward entailing quantifiers

With an instantaneous event predicate, the quantificational *fewer than two people* yields divisibility for the topic time (23a). Non-downward entailing quantifier subjects, as in (23b) and (23c) fail to license divisibility.

- (23)a For two years, fewer than ten people received a degree in virology¹¹⁶
b #For two years, (exactly) ten people received a degree in virology
c #For two years, more than ten people received a degree in virology

The *for*-adverb modifies the topic time. As argued in the discussion of negation, the event predicate is non-divisible even when *for*-adverb modification is licensed. The non-divisibility of the event predicate is shown below by *in*-adverb modification, where the *for*- and *in*-adverbs modify the topic time and the event time, respectively.

- (24) For ten years, fewer than ten people [received a degree in virology in two years]

In addition to subjects, other arguments, including objects and goals, illustrated below, also license divisibility. As in the preceding examples, *for*-adverbial modification is licensed only by downward entailing quantifiers.

¹¹⁶ The discussion equally applies to the (prescriptively) more marked quantifier *less* in these examples.

- (25)a For two hours, Fred found fewer than ten shells on the beach
 b # For two hours, Fred found (exactly) ten shells
 c # For two hours, Fred found more than ten shells
- (26)a For two weeks, John told the news to fewer than five people
 (but afterwards he told it to everyone he met)
 b # For two weeks, John told the news to (exactly) five people
 c # For two weeks, John told the news to more than five people

In the examples involving downward entailing quantifiers, divisibility holds for the predicate of times which applies to the topic time. To account for divisibility, I assume, following Heim and Kratzer 1998, that (non-subject) quantifiers undergo quantifier raising to repair a type mismatch. I also assume that quantifier raising targets any node of type *t*. Within the clause structure assumed here, the nodes that can be targeted by quantifier raising are vP, AspP, PerfP and TP.

If quantifier raising of a downward entailing quantifier targets a node below the *for*-adverb, then the divisibility requirement is satisfied for the predicate that serves as the argument of the adverb. In the following example, the perfective event predicate is divisible.

- (27) For two hours, fewer than five guests arrived

Quantifier raising in (27) can target either vP or AspP. In both cases, it must target a position below the place where the durative adverb is merged.

Divisibility holds for the predicate which applies to the topic time in (27). The topic time is a time interval within which there was an event of fewer than five guests arriving. Given this topic time, it is true for all subintervals of the topic time that they are part of a time interval *t*, *t* a subinterval of the topic time, such that fewer than five guests arrived within *t*.

5.3.2 Arguments modified by *only*

In addition to downward entailing quantifiers, arguments modified by *only* also allow *for*-adverb modification for all events.

- (28)a For two years only five people received a degree in virology
- b For two years only Fred received a degree in virology
- c # For two years (exactly) five people received a degree in virology

The licensing of *for*-adverbs by *only* raises a problem, since the predicate argument of the adverb is non-divisible. The predicate does not hold for all subintervals of the topic time, as the following situation shows. Given a time interval t that is two years long for which it holds that *only Fred received a degree in virology* at t , it is not the case that for all subintervals t' of t , there is a subinterval t'' such that $t' \subseteq t'' \subset t$ and *only Fred received a degree in virology* is true at t'' . This is illustrated in the following scenario.

- (29) John received a degree in virology on August 30, 2001.
 Fred received a degree in virology on August 31, 2001
 Peter and Frank received a degree in virology on August 30, 2003
- (30) For two years (between August 30, 2001 and August 30, 2003) only Fred received a degree in virology
 (t is the time interval between August 30, 2001 and August 30, 2003)
- (31) For some subintervals t' of t , such as the time span between March 30, 2003 and Aug 30, 2003, there is no subinterval t'' of t such that $t' \subseteq t''$ and $t'' \subset t$ and *only Fred received a degree in virology* is true at t''

In order to account for the acceptability of the *for*-adverbial in examples with *only*, I introduce the notion of *Strawson entailment* (von Fintel 1999). Strawson entailment, elaborated below, helps to define Strawson divisibility, which can be used to account for *for*-adverbials licensed by *only*. I argue that *only*-arguments yield a predicate of times that

is Strawson divisible. *For*-adverbs require the predicate argument to have the property of Strawson divisibility rather than that of divisibility proper. In this way, *only*-arguments, like downward entailing quantificational arguments, license *for*-adverb modification.

Von Fintel 1999 proposes an account of the downward entailing property of *only*. He assumes that downward entailment is only checked for those conclusions which have a semantic value that is defined. If the conclusion is not defined (does not have a truth value) then it is not relevant for Strawson downward entailment.

- (32)a flounder \subset fish
 b Only Fred ate fish (assertion)
 c Fred ate flounder (defined)
 d Only Fred ate flounder (entailment)

In the preceding example, the assertion that *Only Fred ate fish*, since *Fred ate flounder* is defined, entails that *only Fred ate flounder*. By the notion of Strawson entailment, *only* is Strawson downward entailing.¹¹⁷

Let us assume that Strawson entailment can be extended to the property of divisibility. Strawson divisibility, building on the notion of divisibility as in Hinrichs 1985, von Fintel 1997, can be defined as given below.

(33) Strawson divisibility

A predicate P of times is Strawson divisible iff whenever P(t) for an interval t, then for all $t' \subseteq t$, such that the predicate is defined at t' , $\exists t'' [t' \subseteq t'' \subset t \ \& \ P(t'')]$

In order to account for the *for*-adverb modification licensing by *only*, it is necessary to adopt the notion of Strawson divisibility. It must also be assumed that *for*-adverbials require their predicate argument to be Strawson divisible. With these modifications, examples such as (28b), repeated below, are straightforwardly derived.

¹¹⁷ On the assumption that negative polarity items must be in a Strawson downward entailing environment (von Fintel 1999), licensing by *only* is expected.

(i) Only John ate any fish

(34) For two years only Fred received a degree in virology

As in the case of downward entailing quantifiers, the predicate applying to the topic time is Strawson divisible. For a topic time t , if it is true that *only Fred received a degree in virology* at t , then for all subintervals t' of t where *Fred received a degree in virology* is true, there will be a subinterval t'' of t containing t' such that *only Fred received a degree in virology* is true at t'' .

In order for the account to yield the desired results, it is also necessary to have an appropriate view of *only*. It must be ensured that even for an instantaneous predicate, once an argument of the predicate is modified by *only*,¹¹⁸ the resulting predicate can hold of a durative interval. In the example under discussion, *receive a degree in virology* is instantaneous. *Only Fred received a degree in virology* is, in contrast, durative. It is true at all intervals that include the (instantaneous) event time of receiving the degree. The denotation of the *only*-example is given below.

(35) Only Fred received a degree in virology

$\lambda t' . \text{only Fred } [\lambda x . \exists t \subseteq t' . x \text{ received a degree in virology at } t]$

Given the notion of Strawson divisibility and the view of *only* outlined above, one can account for topic time modification by *for*-adverbs.

As shown in this section, downward entailing quantifiers and *only* license *for*-adverbial modification of the topic time interval, just like negation does. These constructions are Strawson downward entailing, and thus yield the Strawson divisibility for the predicate applying to the topic time. The Strawson divisible predicate, in turn, satisfies the requirement of the *for*-adverb, which can take the predicate and the topic time as its arguments.

¹¹⁸ More precisely, if the first argument of *only* is interpreted as an argument of its second argument.

5.3.3 Other approaches

The account proposed above, which denies that negation affects the properties of the event predicate as it applies to the event time, shares a number of properties with previous approaches. Three of these are discussed in more detail. I argue that while some of these theories may appear to be incompatible with the proposed account, they can, in fact, be simultaneously true.

5.3.3.1 A DRT approach

Zucchi 1991, unlike the preceding approach, offers a DRT account of negated event predicates and their interaction with adverbial modification. Similarly to the present proposal, Zucchi 1991 treats *for*-adverbs as quantificational elements with universal force and not as event predicates. The universal force applies to subintervals; if a predicate modified by a *for*-interval is true for an interval t , then the same predicate is true for all subintervals of the interval t .

Another property that Zucchi 1991 shares with the account advocated here is the treatment of negated event predicates. Both approaches argue that negated event predicates should not be treated like states. Rather, a negative sentence such as *Fred did not arrive* asserts that no eventuality of Fred's arriving occurred. Zucchi 1991 suggests specific DRS construction rules for the *for*-adverb and negated event predicates, which make it possible to account for the modification of the latter by *for*-adverbs. By these construction rules, *Fred didn't arrive for two hours* is true iff there is an interval two hours long such that there is no event of Fred arriving in that interval. The truth conditions for unmodified negated event predicates as well as those modified by *for*-adverbs are shared by Zucchi 1991 and the present approach.

Zucchi 1991 and the account advocated here differ not only in the specific implementation of the theory. I explicitly identify the time intervals involved and derive generalizations about the position of adverbs and the availability of adverbial modification. In the following section, I also present additional data which corroborate the approach to negated event predicates advocated by Zucchi 1991. The licensing of *for*-adverb modification by certain quantificational arguments, discussed above, provides further support for a non-stativity account of negation.

5.3.3.2 *Nominal and event predicate properties*

Zucchi and White 2001 focus on a different aspect of divisibility. They note that a number of expressions do not behave with respect to aspectual composition as they would be expected to, given the aspectual accounts of Dowty 1979, Hinrichs 1985, Krifka 1989, 1992 and others. Nominals such as *a sequence*, *a quantity of milk*, and *a bush* are divisible (non-quantized, in the terminology used by Zucchi and White 2001). A *sequence*, for instance, is divisible since a sequence is composed of (possibly trivial) sequences; similarly, any part of a quantity of milk is also a quantity of milk. In spite of being divisible, *a sequence of numbers* can appear as an incremental theme in a non-divisible event predicate, as shown by the *in*-adverb modification of the event time.

(36) Lisa wrote a sequence of numbers in a few minutes

Contrary to Zucchi and White 2001, and in accordance with Hay, Kennedy and Levin 1999, the event predicate has a divisible interpretation with a divisible object (37a) and a non-divisible object (37b) alike. The divisible event predicate interpretation with a non-divisible object arises as the result of the non-maximal interpretation of the event, as discussed in section 3.2.1.3.

(37)a Lisa wrote *a sequence of numbers* for a few minutes

b Lisa wrote *a short story* for a few minutes

The correlation between the properties of an incremental theme, and those of the event predicate headed by a predicate with an incremental object (which has the property of mapping to objects and uniqueness of objects (Krifka 1992, Zucchi and White 2001)) thus breaks down in both directions: it is not the case that the divisibility of the incremental theme covaries with the divisibility of the event predicate. First, as argued by Hay, Kennedy and Levin 1999, a non-divisible incremental theme can appear in a divisible event predicate (also (37b)). Also, as noted by Zucchi and White 2001, citing B. Partee (p.c. to Krifka) and Mittwoch 1988, a divisible incremental theme can appear in a non-divisible event predicate (36).

In addition to indefinites like *a sequence*, quantificational expressions such as *fewer than ten N* also present this problem. This quantificational expression is divisible, on the assumption that the definition of divisibility applies to nominals of the type <et,t> (cf. section 3.1 for a discussion of this issue). If *fewer than ten N* is divisible, then it is expected to appear in divisible event predicates only. Similarly to *a sequence*, however, the quantifier can appear in a non-divisible event predicate, even if it is interpreted as an incremental theme.

- (38)a Lisa found *fewer than ten errors* in ten minutes / # for ten minutes
b Lisa ate *fewer than ten cherries* in ten minutes / for ten minutes

Before addressing the source of the discrepancy between the properties of the object and the event predicate, it is worth noting that the quantifier *most* presents similar problems for Zucchi and White 2001, but not for the account proposed here. *Most N* behaves like *fewer than ten N* in terms of the properties of the event predicate; both can appear in a non-divisible event predicate.

- (39)a Lisa found *most errors* in ten minutes / # for ten minutes
b Lisa ate *most cherries* in ten minutes / for ten minutes

Most N is not divisible, even if the property of divisibility is not restricted to nominals of type $\langle e, t \rangle$. Given six of ten cherries, for all subsets of the six cherries, it is not the case that there is a proper subset of these cherries that falls under the denotation *most cherries*. In fact, there is no such proper subset.¹¹⁹ Given divisibility as the relevant notion, the quantifier *most* presents no problem, and will be disregarded in the following discussion.

Zucchi and White 2001, in contrast, assume that the relevant semantic property is that of quantization.¹²⁰ *Most N* is non-quantized, just like the non-quantized and divisible nominals *fewer than ten N* and *a sequence*. Given ten cherries overall, both nine cherries and seven cherries are in the denotation of *most cherries*, and the latter can be a proper part of the former. *Most N* thus also shows an unexpected behavior if the relevant semantic property is quantization.

Let us return to the problematic behavior of some divisible nominals. Given divisibility as the relevant notion, the nominals problematic for a divisibility-based account are indefinites (*a sequence*, *some cherries*) and certain quantificational expressions (*fewer than ten errors*). The behavior of the latter is all the more puzzling since it was argued above that downward entailing quantifiers yield divisible predicates of times, a discrepancy that we will address below.

Let us consider the effect of quantificational nominals first. If the property of divisibility is restricted to nominals of the type $\langle e, t \rangle$, as argued in chapter 3 for the Finnish data, then the quantificational *fewer than ten N* is not divisible, voiding the problems raised by Zucchi and White. If divisibility should be applicable, as assumed by Zucchi and White 2001, then a maximality account can enforce a non-divisible interpretation for downward entailing quantifiers.

119 On the assumption that the atomicity of *cherries* is preserved, unlike in the case of bare plurals (cf. Hinrichs 1985).

120 Following Krifka 1989, 1992, Zucchi and White 2001 assume the following definition of quantization:

(i) $\forall P [QUA(P) \leftrightarrow \forall x \forall y [P(x) \ \& \ P(y)] \rightarrow \neg y \subset x]$

That is, if a predicate *P* is quantized, then no argument of *P* can be a proper part of another argument of *P*.

Adapting the proposal of Krifka 1989, 1992, Zucchi and White 2001 suggest that any event of Lisa eating fewer than ten cherries can be one of two types. Either the sum of all cherries eaten must be fewer than N, or the maximal event, which includes all events occurring at the subintervals of a reference time, cannot contain an event of eating cherries.¹²¹

(40) Lisa ate fewer than ten cherries

Thus for (40), the relevant events are either (a) an event where the maximal number of cherries eaten is fewer than ten, or (b) the events occurring at the subintervals of the relevant time interval include no event of eating cherries. Events of neither type (a) nor type (b) are divisible; thus (40) is non-divisible, as desired.¹²²

The maximality approach, where the object must denote the maximal set of participants, can also account for the non-divisible interpretation of indefinites, illustrated below.

- (41)a Lisa wrote a sequence of numbers
b Lisa ate some cherries

The maximal, non-divisible interpretation of *a sequence of numbers* in (41a) yields a non-divisible event: the event of writing a sequence at the event time *t* is the event whose patient is maximal among the sequences written within *t*. Similarly, the interpretation of *some cherries* in (41b) is non-divisible if it has a maximal interpretation. The non-divisible interpretation is the result of the maximal interpretation of the nominal.¹²³

121 The first condition requires that there exist an event of eating fewer than ten cherries, but it is also possible that no such event exists. Hence the disjunction is required.

122 Given that the object is an incremental theme, it can also have a non-maximal interpretation and appear in a divisible event predicate.

123 Zucchi and White 2001 argue that the maximal interpretation must be encoded in the semantic rather than the pragmatic component because of the markedness of *for*-adverbial modification with non-divisible objects:

(i) John wrote a sequence for ten minutes

As argued by Hay, Kennedy and Levin 1999, these examples are not anomalous, but pragmatically marked due to the maximality implicature. I assume that the status of *for*-adverb modification fails to support an account phrased in terms of semantic conditions alone.

An alternative account of indefinites explored by Zucchi and White 2001 builds on the account of indefinites of Heim 1982 and Kamp 1981. According to these theories, indefinites lack inherent existential force; they merely introduce variables, and the variables are bound by closure rules. Prior to existential closure, the indefinite *a sequence* applies to a variable *x*, which is bound by the existential closure or some other quantifier. Crucially, if the divisibility of the event predicate is evaluated prior to existential closure, as shown in (42), then the event predicate is non-divisible.

(42) $\lambda e . \text{write}(e) \ \& \ \text{Ag}(e, \text{Lisa}) \ \& \ \text{Pat}(e, z) \ \& \ \text{sequence}(z)$

The event predicate is non-divisible, since independently of variable assignment, given an event of Lisa writing a sequence *z*, no proper part of that event is an event of writing the same sequence *z*. For indefinites then, either a maximality approach or *for*-modification prior to existential closure yields a non-divisible event predicate.

Under both approaches explored by Zucchi and White 2001, bare plurals and mass nouns, as in (43), lack a (maximal) non-divisible interpretation because they denote kinds rather than individuals.

- (43)a Lisa ate cherries
b Lisa drank apple juice

With these considerations in mind, let us turn to durative adverbial modification licensed by downward entailing quantifiers, explored in the previous sections. As argued above, downward entailing quantifiers license divisibility of the predicate applying to the topic time (44a). As shown by Zucchi and White 2001, they also allow a non-divisible predicate applying to the event time (44b).

- (44)a For an hour, Lisa found fewer than five errors
b Lisa found fewer than five errors in ten minutes

The two interpretations of downward entailing quantifiers are compatible if maximal interpretation only plays a role in determining the interpretation of the event predicate, the predicate which applies to the event time. No maximality effects can be observed in the predicate applying to the topic time; in this case, a subinterval of the topic time can freely contain no event of Lisa finding any errors, or an event of Lisa finding fewer than the maximal number of errors found.

The interpretation of indefinites differs from that of downward entailing quantifiers; with indefinites, a clause-initial *for*-adverb can only be interpreted as modifying the event time.

- (45)a #For an hour, Lisa wrote a sequence
b Lisa wrote a sequence in ten minutes

The absence of the *for*-adverb modifying the topic time follows from the existence of a sequence. Recall that the event time of a perfect event predicate is a subinterval of the topic time. The existence of a sequence is asserted within the event time, but not outside of it. In other words, the topic time is not divisible: apart from the topic time, it contains a subinterval which excludes the event time and also a sequence. The relevant difference between downward entailing quantifiers and indefinites is that indefinites assert the existence of an individual, while downward entailing quantifiers do not (as also mentioned above). Independently of the account of indefinites adopted – be it a maximality account or one based on existential closure – they never license the divisibility of the predicate applying to topic time.

The lack of maximality interpretation with respect to the topic time allows divisibility of the higher predicate of times. The aspectual effects discussed by Zucchi and White 2001, which pertain to the predicate which applies to the event time, and those mentioned above can thus be simultaneously encoded within a single system.

5.3.3.3 Cumulative interpretation

The interpretation of event predicates with downward entailing quantifiers discussed above differ from the one described by Moltmann 1991, despite the obvious similarities. Moltmann argues that *for*-adverbial modification is always possible if an argument is modified by a vague (rather than a downward entailing) quantifier, and impossible with absolute quantifiers. Two sets of examples (her (43) and (44)) are reproduced below.

- (46)a For several years John took a lot of pills / few pills
b # For several years John took those pills / all the pills
- (47)a For several years John had a lot of success / little success
b # For several years John had that success / all success

Moltmann notes that the (46a) is true if for every contextually relevant part t of an interval t' that is several years long, there are a lot of / few pills relative to t that John took. Similarly, (47a) is true if for every relevant subinterval t of several years there is relative to t a lot of / little success that John had.

Crucially, the relevant quantities of pills and success are determined relative to the subintervals of the larger event, which lasts several years. Let us consider *for several years, John took few pills*. In this case, even though the sum of pills taken during each subinterval is few, the overall sum of the pills can be rather large. For instance, if John takes two pills each day for several years (days being the relevant subintervals), then he ends up having taken a large number of pills over the course of these years.

Moltmann's examples involving vague quantifiers are unlike the quantificational examples discussed above. In the latter, the quantifier arguments have a cumulative interpretation; the quantifier is interpreted with respect to the maximal interval. Furthermore, I showed that only downward entailing quantifiers license this reading.

The relevant difference between the quantifier examples discussed in this paper and those in Moltmann 1991 is the length of the time interval. The examples discussed by Moltmann, (46) and (47), involve iterative or habitual interpretation. These interpretations are plausible, given the length of the *for*-interval relative to the event time.

Moltmann 1991 does not account for the ungrammaticality of absolute quantifiers in these types of examples, but iterative or habitual interpretation may play a role in establishing this difference.

In contrast, the examples of *for*-adverbial modification with downward entailing quantifiers do not involve iteration or habituality. Finding a total of few or fewer than ten shells during the two-hour interval in (48) is sufficient. The downward entailing quantifier directly yields divisibility for the predicate of times, which can serve as the argument of a *for*-adverb.

(48) For two hours, Fred found fewer than ten shells on the beach

To conclude, a downward entailing quantifier argument can license *for*-adverb modification of the topic time, irrespectively of the properties of the event predicate. The precondition of *for*-adverb licensing is that quantifier raising – if it is applicable – cannot target a position higher than the durative adverb. If the downward entailing quantifier is interpreted below the durative adverb, then the resulting predicate is divisible.

Finally, let us briefly consider the notion of homogeneity and the definition of *for*-adverbs as assumed by Moltmann 1991. The definition of divisibility and that of *for*-adverbs also differs in Moltmann 1991 and the present approach. Moltmann 1991 argues that the semantic requirements of *for*-adverbs (and measure adverbs in general) follow from an appropriate denotation of the adverbs. I argue below that the discussion in Moltmann 1991 does not show convincingly that the properties follow from her definition of *for*-adverbs. While the divisibility requirement follows from the lexical entry of *for*-adverbs that she proposes, the non-trivial satisfaction of the subinterval property needs to be assumed separately. In addition, the formulation of *for*-adverbs that Moltmann advocates fails to account for those instances where *for*-adverbs measure the topic time rather than the event time.

Moltmann 1991 argues that both of the required properties – which she refers to as the homogeneity requirement and the 'sufficiently many events' requirements¹²⁴ – follow from her account of measure adverbs. Moltmann 1991 formulates (49a) as (49b).

(49)a For two hours John drank the wine

b $\exists t (\text{two hours}(t) \ \& \ \forall t' (t' P t) \rightarrow \exists x (\text{wine}(x) \ \& \ \text{drink}(e, [\text{John}], x) \ \& \ \text{at}(e, t'))))$,

where the relation P denotes a contextually determined part notion, allowing for granularity.

The homogeneity of the event time follows similarly to the present account. Moltmann derives cumulativity and divisivity for (49a) by showing that there is always an event of the appropriate type for both the sum of the times of two events (cumulativity) and for a part of an event time (divisivity). This holds generally for all event predicates that can be modified by a *for*-adverb.

However, as argued above, *for*-adverbs can modify not only the event time, but also the topic time. This ambiguity in modification does not follow straightforwardly if an event-based account, such as in (49), is invoked. A different approach to *for*-adverb modification, which relies on time intervals and predicates of times rather than events, derives both possibilities of modification.

With respect to the 'sufficiently many events' requirement, Moltmann 1991 argues that it is derived by the universal force of the measure phrase. Since for every (relevant) part *t* (where the relevant part relation is P) there must be an event *e* at *t*, there must be as many events as there are relevant subintervals.

However, a contextually determined part relation does not necessarily require a proper subinterval of the interval; the context may restrict the part relation in such a way that no proper parts are required. If such a part relation were possible, then the homogeneity relation could be trivially satisfied – contrary to fact. I suggest that the universal quantification over contextually relevant subintervals is not sufficient to derive

124 In present terms, the homogeneity requirement is the requirement of cumulativity and divisivity, as noted below. The 'sufficiently many events' requirement precludes the trivial satisfaction of the homogeneity requirement.

the 'sufficiently many events' requirement. Rather, it must be explicitly required that there be (at least) two time intervals for which the predicate holds. This restriction, as noted, excludes the modification of instantaneous time intervals by *for*-adverbs, since the former cannot have a proper subinterval.

The possibility of adverbial modification of the topic time, as well as the application of the property of divisibility to the predicate applying to the topic time questions the validity of the stativity hypothesis. Under the account outlined above, the *for*-adverbial modification of negated event predicates (as well as other event predicate types not covered by the stativity hypothesis) is straightforwardly derived. In the following section I show that the stativity hypothesis is not only superfluous to account for adverbial modification, but is, in fact, impossible to maintain.

5.4 *Negation and stativity*

This section discusses the purported stativizing effect of negation (Bennett and Partee 1972, Dowty 1979, Dowty 1986, Link 1987, Verkuyl 1993, de Swart and Molendijk 1999, among others). The stativity hypothesis of negation maintains that clausal negation stativizes all events. Under this account, negation yields a negative state, where the derived negative state is characterized by the non-occurrence of a specific type of event. I argue, in line with Moltmann 1991, Zucchi 1991 and Kamp and Reyle 1993 that negation fails to convert events into states.

To provide support for the non-stativity of negated event predicates, I consider how various diagnostics of stativity fare with negated event predicates. I argue that negation does not convert event predicates into states, since it does not affect the properties of the event predicate which includes the verb along with its arguments and lower adjuncts. Negation does yield, however, homogeneity at the level of topic time, as argued above.

5.4.1 Arguments for non-stativity

Negated events pattern with their affirmative counterparts rather than states with respect to a number of diagnostics. Under the account of negation as a stativizer, these differences between states and negated events are unexpected. The lack of inherent stativity does not predict these differences, especially since the English progressive, a derived state, patterns with inherent states with respect to these diagnostics.

5.4.1.1 *Present tense interpretation*

States and perfective event predicates (activities, accomplishments and achievements) differ in the interpretation of the present tense form. With present tense morphology, only states can denote an event that is ongoing at the utterance time; present tense event predicates have either a habitual or a future interpretation.

- (50)a Fred is sick (ongoing interpretation is possible)
b Fred is asleep
c Fred is reading a book
- (51)a Fred reads a book (habitual or future interpretation)
b Fred runs along the railroad tracks

What is unexpected, given the hypothesis that negation is a stativizer, is that negation fails to yield an ongoing interpretation for all events. Negated dynamic event predicates are unlike states; they do not denote an ongoing event. Rather, similarly to their affirmative counterparts, they only allow a habitual or future interpretation.

- (52)a Fred doesn't read a book (habitual or future interpretation)
b Fred doesn't run along the railroad tracks

5.4.1.2 Discourse structure

The role of events in advancing or failing to advance narrative time is also often cited as distinguishing states and non-states. Typically, dynamic event predicates advance narration and states provide background information (Dowty 1986, Kamp and Reyle 1993, Katz 2003).

(53)a John woke up. The sky was clear and the washing was on the line

b John woke up. The sky cleared and he put the wash out to dry

(Katz 2003)

In (53a), a single moment – that of John's waking up – is described. The states in the second sentence elaborate on that moment. (53b), in contrast, describes a sequence of three consecutive events.

The two events in (54a, 55a) are also consecutive. Bill's smiling and jumping are interpreted, respectively, as following (and possibly being a consequence of) Mary's looking at him. In contrast, imperfectives are state-like in not having a consecutive event interpretation. (54b, 55b) are interpreted with Bill's smiling and jumping having begun (and possibly continuing after) Mary looked at Bill. The two events are not consecutive; rather, the imperfective 'frames' the first event.

(54)a Mary looked at Bill. He smiled

b Mary looked at Bill. He was smiling

(55)a Mary looked at Bill. He jumped

b Mary looked at Bill. He was jumping

Negated event predicates can also describe an event which follows the one described in the previous sentence, showing a non-stative behavior.

- (56)a Mary looked at Bill. He didn't smile
(Kamp and Reyle 1993)
b Mary looked at Bill. He didn't jump

The second sentence of the pairs in (56) is interpreted as stating that Bill did not smile or jump as a reaction to Mary's looking at him; the expected reaction of Bill's smiling or jumping did not happen. This reading can be contrasted with the interpretation of the negated imperfectives in (57).

- (57)a Mary looked at Bill. He wasn't smiling
(Kamp and Reyle 1993)
b Mary looked at Bill. He wasn't jumping

The interpretation of the negated imperfective is similar to that of states; (57) states that Bill had not begun smiling or jumping before (and continued throughout) while Mary was looking at him.

As the event ordering interpretation shows, negated event predicates are unlike states. The interpretation of negated event predicates – a consecutive or a framing interpretation – is determined by the perfective or imperfective viewpoint aspect, respectively. States, in contrast, receive a simultaneous interpretation when appearing with perfective morphology.¹²⁵

¹²⁵ Hinrichs 1986, Hatav 1997 and Borik 2002, among others, argue that it is not stativity, but rather delimitedness of the event predicate which is relevant. Delimited event predicates (shown in (i)) are interpreted consecutively, and non-delimited event predicates (as in (ii)) give rise to a possibly overlapping interpretation.

(i) [It was a lovely performance] The entertainer told jokes for fifteen minutes, sang for half an hour and danced for another half an hour

(ii) [It was a lovely performance] The entertainer told jokes, sang and danced

These examples involve conjoined event predicates, which may show a behavior different from the types of examples discussed earlier, where the two event predicates appear as separate sentences. Even though the conjoined events constitute a different structure, negated event predicates can describe consecutive events when conjoined with another event. In the following example the negated event predicate is interpreted most naturally as following the eventuality described in the first conjunct.

(iii) She talked to her financial advisor and did not sell the stocks she owned

While the exact source of the different behavior of states and dynamic event predicates is unclear, negated dynamic event predicates clearly pattern unlike states. This difference is unexpected if negation is a stativizer, especially given the parallel behavior of lexically stative predicates and progressives, which are derived states.

5.4.2 Agentivity

A number of diagnostics cited in support of the stativity account identify, in fact, agentivity. In general, an agentive interpretation is marked for states as well as negated dynamic event predicates, for the latter also if the affirmative event predicate has an agent subject. Agentivity diagnostics applying to negated event predicates are marked because of the markedness of an agentive interpretation of negated event predicates. In spite of this markedness, negated dynamic events differ from states; while agentivity diagnostics can apply to all negated event predicates, they can only apply to a handful of states (following a reinterpretation of the subject theta role, elaborated below). This difference follows if negation is not a stativizer. It remains unexpected, however, if negated dynamic event predicates and states are all stative.

5.4.2.1 Imperatives

Imperatives constitute a diagnostic of non-stativity which is often cited (Lakoff 1970, Dowty 1979). Generally, non-statives can appear as imperatives and statives cannot:

(58)a #Like chocolate!

b Eat chocolate!

Similarly to modification by agentive adverbs and the interpretation of the complement of *must*, imperatives diagnose agentivity rather than stativity. The imperative requires an addressee who has the event under their control.

If all negated event predicates are states, then they are not expected to occur as imperatives. This is not the case, however. As the following examples show, negated

event predicates can, in general, easily appear as imperatives.

- (59)a Don't shout!
- b Don't eat broccoli!

In the previous examples, the imperative expresses a command that requires the addressee not to do something. At first blush, this may show that negated event predicates are not states. However, the availability of negative imperatives does not provide a conclusive argument against the stativity account.

The connection between the presence of a lexically determined agent argument and the availability of imperatives is not perfect. A number of non-agentive predicates can appear as imperatives:

- (60)a Roll down the hill!
- b Arrive on time!

I assume that a coercion process accounts for examples similar to the previous ones. The lexically non-agentive subject argument has a coerced interpretation, where it is reinterpreted as a causer of the unaccusative event predicate.

The possibility of coercion can also account for the fact that a handful of states, but crucially not all of them, can also appear as imperatives. Again, the subject argument is reinterpreted as a causer.

- (61)a Be quiet!
- b Sleep!
- c Love thy neighbor!

It was shown that imperatives are possible with predicates which have an agent argument. It is also possible for other predicates to have a coerced reading, where the coerced reading – with a causer interpretation of the subject argument – makes imperatives felicitous. Given the possibility of coercion, the acceptability of imperative negative event predicates fails to provide an argument against stativization by negation. Even though negated event predicates show a behavior similar to affirmative states in appearing as imperatives, they do not differ from states in this respect.

The acceptability of imperative negated event predicates is compatible, however, with a non-stative account of negation. In fact, it is predicted that these imperative forms are acceptable. In contrast, imperative negated event predicates pose a problem for the stativizing account. Under that account, the difference between imperative negated event predicates and imperative states – where negated event predicates can generally appear as imperatives, while only a handful of states can do so – remains to be accounted for.

5.4.2.2 Complement of force and persuade

States and dynamic event predicates can also be distinguished based on their acceptability as the main predicate of the complement of *force* and *persuade*. Dynamic event predicates are generally acceptable and states are ungrammatical:

- (62)a Fred forced Jim to leave
- b Fred forced Jim to eat the chocolate
- (63)a ?Fred forced Jim to like chocolate
- b ? Fred forced Jim to know the answer

Similarly to imperatives, the diagnostic identifies agentive and non-agentive event predicates rather than states and non-stative event predicates. The markedness of an event predicate with an inanimate subject shows that not all dynamic event predicates are grammatical.

- (64) ?Fred forced the rock to roll off the hill

Negated event predicates can serve as the complement of either of these matrix predicates, showing that clausal negation does not obligatorily yield states:

- (65)a Fred forced Jim not to eat chocolate
- b Fred persuaded Jim not to leave

As also noted in connection with imperatives, the grammaticality of negated event predicates in the complement of *force* and *persuade* does not argue against the stativity hypothesis. The grammaticality of the previous examples is straightforwardly predicted if negation is not a stativizer, as argued earlier. It is also possible, however, that negation yields derived states. In turn, the matrix predicates in question can trigger a coercion, with the negated state reinterpreted as an agentive event predicate. The latter account is also supported by the coercion of some states, as shown below.

- (66)a Fred forced Jim to be quiet
- b Fred persuaded Jim to sleep

Like imperatives, the negated complements of *force* and *persuade* fail to distinguish between the two accounts outlined above and thus do not provide an argument either in support of or against the stativity account. Nevertheless, the same tentative argument can be raised in support of the non-stativity account of negation. If negation is assumed to be a stativizer (contrary to the independent arguments cited in preceding sections), then the contrast between negated event predicates and inherent states still needs to be addressed. In general, negated event predicates can be embedded under *force* and *persuade*. Among states, however, this is possible for only a limited subset. The following states, among others, are marked as the complements of *force* and *persuade*:

- (67)a #Fred forced Jim to be sick
- b # Fred persuaded Jim to be drunk

If a stativizing account of negation were adopted, then this difference between inherent states and negated event predicates would remain a question. The non-stativizing approach to negation, in contrast, readily predicts the difference in acceptability between negated event predicates and states.

5.4.2.3 Complement of *must*

Giorgi and Pianesi 1997 note that states and non-states show a diverging behavior when appearing as the complement of *must*. States (68) have an epistemic interpretation and non-stative event predicates (69) are interpreted deontically.

- (68)a You must have a cold
- b You must love strawberries
- (69)a You must roll the ball
- b You must pay for your food

When appearing in the this environment, negated event predicates (activities, accomplishments and achievements) receive a deontic interpretation.

- (70)a You must not roll the ball
- b You must not play with your food

In fact, rather than distinguishing states from dynamic events, the interpretation of the complement of *must* identifies predicates with an agentive argument. The dynamic predicate with experiencer subject has an epistemic interpretation.¹²⁶

- (71) You must realize the answer

¹²⁶ A deontic interpretation is also possible; I assume that this arises from an optional reinterpretation of the predicate. Deontic interpretation is also possible with some states, which is also consistent with the possibility of reinterpreting the subject theta role, as noted above:

- (i) You must sleep eight hours

The lack of epistemic interpretation in (70) thus shows that negation fails to affect the theta roles assigned by the predicate.

5.4.2.4 Agentive adverbs

Modification by agentive adverbs such as *intentionally*, *deliberately* and *voluntarily* also identifies agentive event descriptions. These adverbs require the presence of an agent argument, as the contrast between the agentive events in (72) and the unaccusatives in (73) shows.

(72)a Fred pushed the glass off the table deliberately

b Fred hit the car intentionally

(73)a #The glass fell off the table intentionally

b #The car broke intentionally

Negated event predicates can be modified by agentive adverbs, suggesting that negated event predicates are not necessarily inherent states:

(74)a Fred didn't push the glass off the table deliberately

b Fred didn't hit the car intentionally

The previous examples, even though they allow modification by agentive adverbs, fail to provide a convincing argument against the stativity of negated event predicates. If negation is higher than the adverb, then any stativizing effect induced by negation occurs above the adverb position. At the point where adverb modifies the event predicate, the latter can still be agentive:

(75) NOT [Fred hit the car intentionally]

In fact, the scope relations in the previous examples are as sketched in (75). Negation has wide scope over the agentive adverb, as the following paraphrases show.

- (76)a Fred didn't push the glass off the table deliberately
- a' It is not the case that Fred pushed the glass off the table deliberately
 - b Fred didn't hit the car intentionally
 - b' It is not the case that Fred hit the car intentionally

Given the relative scope of the adverb and negation, it is still possible that negation yields a stative event predicate and affects the theta roles assigned. At the same time, it allows for modification by the agentive adverb below negation. Thus the adverb facts above fail to provide an argument either for or against the view of negation as a stativizer.

The preceding data do not settle the question of whether negation is a stativizer or not. The same agentive adverbs, however, when merged in a sentence-medial position, favor a non-stativizing account. In the remainder of this section, I show that agentive adverbs can take scope over negation, and that *for*-adverb modification is still possible in these cases. In other words, *for*-modification can arise in absence of the purported stativizing effect of negation.

In a negative sentence, the relative scope of the agentive adverb and negation correlates with their relative position. If the adverb is in a clause-final position, then it takes narrow scope with respect to negation. Whenever the adverb is in a clause-medial position, preceding negation, then it is the adverb that has wide scope.

In the following examples, a brief context in (c) brings out the salient reading, showing that the linear order of the adverb and negation corresponds to their relative scope.

- (77) Neg > deliberately
- a Fred didn't read the notice deliberately
 - b # Fred deliberately didn't read the notice
 - c (he just saw it from the corner of his eye)

- (78) deliberately > Neg
- a # Fred didn't read the notice deliberately
 - b Fred deliberately didn't read the notice
 - c (he pretended that he hasn't seen it)

Negation can also make modification by an agentive adverb felicitous, if the predicate does not assign an agent theta role. In this case, a felicitous reading is possible only if the agentive adverb takes scope over negation.

- (79)a #Fred recognized his creditor deliberately
- b # Fred didn't recognize his creditor deliberately
 - c Fred deliberately didn't recognize his creditor
(he just walked on)

The preceding data show that negated event predicates are not necessarily non-agentive, since they can be modified by agentive adverbs. In addition, it was argued that the relative order of negation and agentive adverbs mirrors the scope relations. Clause-final adverbs have narrow scope, and clause-medial adverbs, wide scope with respect to negation.

Building on the previous observations, it can be shown that the stativity is not necessary for *for*-adverb modification. It is possible for a negated telic event predicate to be modified by an agentive adverb and a *for*-adverbial at the same time:

- (80) For a few minutes, Fred deliberately didn't recognize his creditor
- (81) For a few minutes, Frank deliberately didn't notice the obvious mistake

For-adverbial modification is thus not tied to stativity. Negation licenses *for*-adverbial modification of telic event predicates, and an agentive adverb takes scope over negation at the same time. This conclusion provides further support to the claim that negation yields divisibility, but not stativity.¹²⁷

¹²⁷ Pseudoclefts have also been cited as yet another argument for the similarity of inherent states and negated event descriptions (e.g. Dowty 1979, Katz 2003). Affirmative states are marked in the following

The consideration of stativity diagnostics – which identify, in a number of cases, agentivity rather than stativity – supports the claim that negation is not a stativizer, since it does not convert all event predicates into states. The behavior of both inherently stative predicates (e.g. *sleep*) and derived states (progressives) differ from negated dynamic event predicates. The stativity hypothesis of negation is thus not only unnecessary to account for the homogeneous properties of negated event predicates, but cannot be maintained.

5.5. *A syntactic restriction on temporal adverbs*

In the discussion of adverbial modification of negated event predicates in Finnish, it was noted that modification by structurally case marked durative adverbs is not licensed by negation. In terms of the account offered above, this translates into the restriction of structurally case marked durative adverbs to modify the event time but not the topic time. I argue that this restriction is independent of the semantic properties of the adverbial, and does not need to be stipulated. Rather, it is due to the locality of adverbial modification on the one hand, and that of case licensing on the other.

cleft construction, while an affirmative dynamic event predicate is grammatical.

- (i)a What Fred did was eat the chocolate
 b ? What Fred did was be quiet

In fact, this diagnostic also identifies agentive predicates rather than states. States are excluded by the lexical semantic properties of *do*, which requires the embedded eventuality to be agentive.

- (ii)a ? What Fred did was know the answer
 b What Fred knows is the answer

The verb *do* in clefts is a main verb rather than an auxiliary, as shown by the obligatorily *do*-support in negative sentences (also Potts 2001).

- (iii)a *What Fred didn't was eat the chocolate
 b What Fred didn't do was eat the chocolate

In imposing an agentivity requirement, main verb *do* is similar to the light verb *do*; the latter only appears in a complex predicate with an agent argument.

- (iv)a Fred had / *did a good rest
 b Fred *had / did a good job

As expected based on the discussion of previous agentivity tests, negated dynamic events are not necessarily marked with *do* clefts (contrary to Katz 2003).

- (v) What Fred did was not eat the chocolate
 (otherwise, he didn't keep a diet)

A negated dynamic event can appear in a *do*-cleft. Cleft constructions are thus similar to the other agentivity diagnostics discussed above, and show that the theta roles assigned by a predicate are not necessarily affected by negation.

5.5.1 Adverbs restricted to event time modification

As argued earlier, *for*-adverbs and their equivalents can modify either the event time or topic time. One of the arguments of a *for*-adverb is a divisible predicate of times. This is the only, semantic restriction that adverbs impose. In addition to the predicate of times, *for*-adverbs take a time interval and a measure argument. Depending on the position where the *for*-adverb is merged, the time interval argument can be either the event or the topic time. Modification of each of these time intervals is illustrated below.

(82) Event time modification

Fred ran for half an hour

(83) Topic time modification

a For half an hour, Fred didn't notice the president

b For three years, fewer than five people graduated in virology

(84) Topic time modification with perfects

a For half an hour Fred hasn't noticed the president

b For three years fewer than five people have graduated in virology

For-adverbs thus impose only a semantic selection requirement and are free to modify any appropriate time interval if the requirement is met. Other durative adverbs, which can modify the event time of an atelic event predicate, have a more restricted distribution. They cannot modify the topic time even if the predicate applying to the topic time is divisible.

It is structurally case marked durative adverbs which are subject to this restriction. Temporal adverbs can have structural case marking in a number of languages, including Finnish, Greek, Korean, Russian and Hungarian, and these adverbs can modify only the event time but not the topic time.¹²⁸

¹²⁸ Structurally case marked durative adverbs can also modify the result state, but do not behave uniformly in this respect. A bare adverb in German can modify the result state of the event, just as the English *for*-adverb can (i). A Hungarian structurally case marked durative, however, cannot (ii), but a sublative durative adverb is grammatical (iii).

(i) Manuela ist zwanzig Minuten in das Wasser gesprungen
M is twenty minutes in the water jumped
'Manuela jumped into the water for twenty minutes' (staying in the water for twenty minutes)

Event time modification is illustrated below for Hungarian, where the accusative adverb can modify a state or activity, but cannot modify the event time of a telic event predicate. Considering only event time modification, the accusative time adverb patterns with *for*-adverbs.

- (85)a János két órát aludt
 J-nom two hour-acc slept
 'John slept for two hours'
- b János két órát futott
 J-nom two hour-acc ran
 'John ran for two hours'
- c # János két órát meg érkezett
 J-nom two hour-acc perf arrived
 '#John arrived for two hours'

Even if the divisibility requirement is satisfied, the topic time cannot be modified by structurally case marked adverbs. In the following example, event time modification is impossible, since the event is instantaneous. Clausal negation yields a divisible predicate of times applying to the topic time. As the English translations show, the topic time can be modified by the *for*-adverb, but not by the structurally case-marked one.

- (86)a # János két órát nem érkezett meg
 J-nom two hour-acc not arrived perf
 'For two hours, John didn't arrive'
- b # János két órát nem találta meg a kulcsot

-
- (Piñón 1999)
- (ii) # Manuela húsz percet be ugrott a vízbe
 M-nom twenty minute-acc in jumped the water-in
 'Manuela jumped in the water for twenty minutes'
- (iii) Manuela húsz percre be ugrott a vízbe
 M-nom twenty minute-onto in jumped the water-in
 'Manuela jumped in the water for twenty minutes'
- (Piñón 1999)

J-nom two hour-acc not found perf the key-acc
'For two hours, John didn't find the key'

It can be shown that the structural case marking of the adverb is responsible for the restriction to event time modification. Hungarian has an alternative, postpositional form of the *for*-adverb. As expected, this adverb can modify the event time of an atelic event predicate:

- (87)a János két órán át aludt
J-nom two hour-on across slept
'John slept for two hours'
- b János két órán át futott
J-nom two hour-on across ran
'John ran for two hours'
- c # János két órán át meg érkezett
J-nom two hour-on across perf arrived
'*John arrived for two hours'

In addition, the postpositional adverb can also modify the topic time:

- (88)a János két órán át nem érkezett meg
J-nom two hour-on across not arrived perf
'For two hours, John didn't arrive'
- b János két órán át nem találta meg a kulcsot
J-nom two hour-on across not found perf the key-acc
'For two hours, John didn't find the key'

Durative adverbs can also be structurally case-marked in Korean (Maling 1989, Wechsler and Lee 1996). The Korean (89) (H. Ko, p.c.) and Finnish (90) show the same pattern as Hungarian. The durative adverb with accusative case marking cannot modify the topic time of the negated event predicate. For the PP durative adverb, this possibility is readily available.

(89)a *Sip-pwun tongan*, ku-nun taythonglyeng-ul alapo-ci-mos-hay-ss-ta
 ten-minute for he-top president-acc recognize-cl-not-do-past-dec
 'For ten minutes, he didn't recognize the president'

b # *Sip-pwun-ul*, ku-nun taythonglyeng-ul alapo-ci-mos-hay-ss-ta
 ten-minute-acc he-top president-acc recognize-cl-not-do-past-dec
 'For ten minutes, he didn't recognize the president'

(90)a [*Kymmeneen minuuttiin*]_{ILL} hän ei tunnistanut presidenttiä
 ten-ill minute-ill he not recognized president-part
 'For ten minutes, he didn't recognize the president'

b # [*Kymmenen minuttia*]_{PART} hän ei tunnistanut presidenttiä
 ten-part minute-part he-nom not recognized president-part
 'For ten minutes, he didn't recognize the president'

The next section offers an account of this restriction of structurally case marked adverbs. I argue that this restriction is due to the locality of Agree. The adverb must be local to *v*, an Agreeing head which licenses its case feature. Locality requires the adverb to be adjoined to *vP*. Since *vP*-adjoined adverbs can only modify the event time, the topic time modification of structurally case marked adverbs is ruled out.

5.5.2 The source of the restriction

As shown above, structurally case-marked durative adverbs can only modify the event time. This restriction arises as a consequence of the locality of case licensing and that of adverb modification, discussed in detail below.

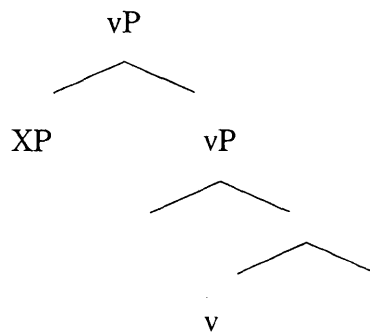
5.5.2.1 Locality of case licensing

It was argued above that the case feature of structurally case marked adjuncts is licensed by *v*. In order for *v* to license the case feature of the adjunct, the two must be sufficiently local for an Agree relation to be established between the two.

In Chomsky 2000, 2001a,b the search space of the probe, where it can establish an Agree relation, is restricted to its *c*-command domain. If an appropriate goal is found within the *c*-command domain, which also satisfies further conditions on locality and activity, then the Agree relation is established between them.

According to the restriction on the search space, *v* can only license the case feature of a constituent in its *c*-command domain. In chapter 3 it was argued, however, that the case feature of structurally case marked adjuncts in Finnish is licensed outside of *vP*, hence outside of the *c*-command domain of *v*. In order for the case of these adjuncts to be licensed, the search space must be extended to include adjuncts of the probe as potential goals.

(91)



In spite of the relaxation of the locality requirement, the structurally case marked adjuncts must still be local to the case licenser, since they are required to be adjoined to the maximal projection of *v*. The structural case marking thus entails a locality restriction on case feature licensing.

A further point worth noting is that the case licensing of adverbs requires multiple Agree. Since it is possible for both an object and an accusative object to be present (92), it must be allowed that *v* license multiple case features.

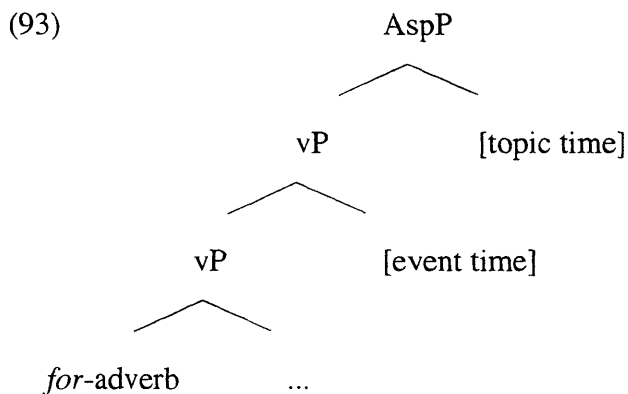
- (92) János két órát olvasta a könyvet
 J-nom two hour-acc read the book-acc
 'John read the book for two hours'

I assume, as noted in chapter 1, that it is possible for a head, in this case *v*, to license multiple case features. Following Ura 2000, Hiraiwa 2000, 2001 and Bobaljik and Branigan (to appear), I assume that a single feature can establish an Agree relation with multiple features if it specified as such. If the relevant feature of *v* can establish multiple Agree relations, then it can check the case feature of the object as well as that of the adjunct.

5.5.2.2 Locality of adverb modification

Apart from the locality of case licensing, the locality of adverb modification also plays a role in restricting the modification of structurally case marked adverbs.

Specifically, I assume that adverbs can only modify a time interval that is local at the position where the adverb is externally merged. If a durative adverb is adjoined to *vP*, then the only time interval available for modification is the event time (93).¹²⁹



The relevant locality restriction on adverbs can be stated as follows:

¹²⁹ I am assuming the account of *for*-adverbs outlined in section 5.1. *For*-adverbs take two arguments: a predicate of times and a time interval. The predicate of times is the *vP* or *AspP*, following λ -abstraction over times. The time interval argument is merged as an adjunct to *vP* or *AspP*, respectively.

- (94) A *for*-adverb can modify a time interval t only if the minimal maximal domain containing the external merge position of the adverb also contains the time interval^{130, 131}

This restriction excludes the modification of a time interval which is introduced by a head higher than the position where the adverb is merged. Specifically, an adverb adjoined to vP cannot modify the topic time, which is merged within the AspP projection.

The restriction of structurally case marked adjuncts, where they can only measure the duration of the event time rather than that of the topic time, thus follows from independent restrictions. Locality constraints on the licensing of structural case and adverbial modification enforce the adverbial to be adjoined to vP and measure the event time. A uniform account of the semantics of adverbial modification can be maintained for durative adverbs, independently of their case marking.

130 Restricting the locality of modification to external merge positions allows for movement of adverbs, such topicalization, where the locality restriction applies to the external merge position and not the derived one.

131 This restriction expresses a necessary, but not sufficient constraint on adverbial modification, since locality must be constrained to exclude modification of constituents too deep in the tree. The locality restriction of Thompson 1996 achieves this effect; she suggests that adverbs must be in the modification domain of the constituent that they modify (the modification domain of α includes the constituents adjoined to the maximal projection of α). In the account proposed here, this restriction is too severe. The adverb takes two arguments, a predicate of times and a time interval. While the adverb is adjoined to the maximal projection of the predicate of times, the time interval t is adjoined to the same maximal projection as well, as shown below.

(i) $[_{AspP} [_{AspP} [_{AspP} AspP] \textit{for half an hour}] t]$

The locality restriction, which also accommodates this scenario, can be given as the requirement that adverbs (and further arguments of the adverb) be in the modification domain of some argument of the adverb. This requirement will automatically ensure that (94) is satisfied.

5.6 *Summary*

This chapter expanded on the conclusions from the preceding chapter, where it was argued that one cannot appeal to the stativity hypothesis of negation to arrive at a unique environment where partitive case is licensed in Finnish.

In this chapter I argued that the stativity hypothesis is not only irrelevant for partitive case licensing, but further considerations argue against adopting it. These considerations are not specific to Finnish, but have crosslinguistic relevance.

Adverbial modification, which appears to provide a strong support for the stativity hypothesis, is better explained by permitting adverbial modification of the topic time. I showed that the property of divisibility, which is relevant for *for*-adverb modification, can equally apply to predicates with an event time argument and those which take the topic time as an argument. I also showed that in addition to negation, other constructions (for which no stativization has been proposed) also license divisibility, and therefore *for*-adverbial modification of the topic time.

In addition, I noted a restriction on the modification of structurally case marked durative adverbs. I argued that no special assumption needs to be made for these adverbs, but structurally case marked adverbs share the semantics of their inherently case marked or PP counterparts. Their restriction to event time modification follows from locality constraints on adverbial modification and case feature checking.

Finally, I discussed stativity diagnostics, which have been cited in support of the stativity hypothesis, in detail. I concluded that negated event predicates pattern with their affirmative counterparts rather than states with respect to these diagnostics. This leads to the conclusion that the stativity hypothesis of negation cannot be maintained.

Chapter 6 **Alternative accounts**

A number of theories have been proposed previously to account for case alternation in Finnish; this chapter presents a number of these. For reasons of space, the discussion of the accounts glosses over many details and concentrates on the aspects crucial to distribution of case marking. For all the theories considered, I argue that the account presented in chapter 3 handles the data better and provides a more attractive account than these approaches.¹³² The overview of the alternative accounts supports the claim that the account of Finnish case alternation, where the divisibility of phases affects case marking, is not just an adequate theory of morphological case in Finnish, but also the most adequate of the theories considered.

6.1 *Partitive is inherent case*

Belletti 1988 argues that Finnish partitive case is inherent case on an indefinite constituent. This approach to case alternation faces several problems. First, this kind of inherent case is distinct from the established occurrences of inherent case in several respects. Rather than being connected to a given thematic role, it is tied to the definiteness of the case-marked argument, as described by Belletti 1988. In addition, this inherent case needs to be optional, since it does not always appear on an argument bearing a specific theta role. The proposed inherent case must be assigned if the argument is indefinite, but not if it is definite, while neither dependence on definiteness nor optionality is a usual hallmark of inherent case.¹³³

Finally, partitive case can also appear on definite arguments whenever the event is divisible or the clause contains negation, as argued in chapters 3 and 4. The purported inherent case is thus not restricted to indefinite constituents.

¹³² A number of the arguments mentioned in this chapter have also been suggested by Kiparsky 1998, Schmitt 1998, Nelson 1998, Arehart 2001 and others.

¹³³ The account of partitive case proposed in chapter 3 assumes that the instances of partitive case which alternate with some non-partitive case marking (accusative or nominative) is structural rather than inherent case. Instances of alternating structural case, where some semantic effect correlates with the specific case marking, were also argued for by Torrego 1998 and Svenonius 2002a,b (see section 3.4).

- (1) krijotitin juuri näirä kutsukortteja perjaintaina kun soitit
write-past.1sg just these-part invitations-part on-Friday when call-past.2sg
'I was just writing these invitations on Friday when you called'

It must be noted that the present approach to case alternation shares some points with Belletti's account. It was argued earlier that structural case is spelled out as partitive in divisible phases. Thus, in both approaches, it is some semantic property that licenses partitive case (in the present approach, the relevant semantic property is divisibility rather than Belletti's indefiniteness). A further difference is that divisibility must hold of phases, rather than just of the case marked constituent, as in Belletti's account. Also, as argued in chapter 2, partitive case is treated as a type of structural case, unlike Belletti's problematic inherent case.

6.2 *Accusative objects and completed events*

As shown in chapter 3, the interpretation of nominals can license partitive case marking on the nominal, independently of the interpretation of the event predicate. This generalization is at odds with the account of partitive and accusative case alternation in object position in Vainikka 1989 .

Vainikka 1989 argues that structural case marking in Finnish can be described by appealing to the structural position of the case marked constituent. A constituent occupying a specifier position (except for the specifier of TP) has genitive case. If the constituent occupies the complement position of N or A, then it appears with elative case marking, and is partitive when it is the complement of a P head.

Whenever the case marked nominal is the complement of V, it can show an alternation between partitive and accusative case.¹³⁴ According to Vainikka, partitive is the default case in the complement position of V. Accusative appears exceptionally, when the verb is interpreted as completed. In that case, the verb has a [+completed] feature, and the feature directly assigns accusative case.¹³⁵

¹³⁴ The latter can surface as accusative, nominative or genitive case, as described in chapter 2. In Vainikka 1989, the specific morphological form is regulated by a somewhat different algorithm described there.

¹³⁵ Vainikka 1989 argues that the partitive case licensing by negation is due to the incompatibility of

Note, first of all, that it is not clear how the verb is interpreted as completed when it appears with an accusative object. Let us assume that rather than the verb, it is the completion of the event predicate which is encoded by the feature [+completed] on the verb. The [+completed] specification of the verb (whether of the V or v head), however, cannot be equated with either the semantic property of completeness, contrary to the suggestion by Vainikka 1989, or with non-divisibility. As argued in detail in section 3.4, the divisibility of the event predicate cannot be encoded as a feature on a head with the feature semantically interpreted as divisibility, since divisibility is compositional.

Vainikka 1989 assumes a strong correlation between accusative case and completion: according to her, accusative case is only possible if the verb is completed, and a completed verb always assigns accusative case. It was argued in section 3.1 that the event predicate can be completed (or non-divisible, in the terminology adopted here) and appear with a partitive object even if the object itself is divisible. The strict correlation between a [+completed] verb or event predicate and an accusative object then cannot be maintained.

The treatment of the alternation between accusative and partitive object case marking argued for by Vainikka 1989 thus cannot assume that the feature [+completed] is semantically relevant. In addition, the account covers only the instances of case alternation which can be ascribed to properties of the event predicate. A non-divisible object of a divisible event predicate, which has partitive case, remains unaccounted for in this approach.

6.3 *Weak case*

De Hoop 1992 (and Ramchand 1997, building on her work) argues that the alternation between accusative and partitive objects reflects a difference between *strong* (universal) and *weak* (existential) case. Some relevant properties of de Hoop 1992's analysis are the following: (a) strong quantifiers and specific constituents may not bear weak case, and (b)

negation and the feature [+completed] on verbs. This account, as argued in chapter 4, cannot be maintained, since negated event descriptions can be completed (or non-divisible). In addition, this treatment predicts that the distribution of partitive case licensed by negation and [-completed] verbs is identical, but this is not the case, as shown in the previous chapter.

constituents that have weak case cannot scramble either at the surface structure or at LF. The scrambling of constituents bearing weak case is precluded by a licensing requirement, which only licenses weak case in a D-structure position.

The assumptions above account for, among others, the interpretation of scrambled and non-scrambled constituents in Dutch (de Hoop 1992) and the properties of nominals in Scottish Gaelic (Ramchand 1997). When applied to Finnish case alternation, however, they lead to problems.

De Hoop 1992 proposes that in Finnish partitive is weak case and accusative is a strong case. This view of Finnish case predicts, among others, that strong quantifiers cannot appear with partitive case marking. Strong quantifiers do, however, appear with partitive case, if the strong quantifier is an object of a divisible event predicate or if it appears with negation.

- (2) Presidentti ampui [*kaikkia lintuja*]_{PART}
president shot all-part birds-part
'The president shot at all the birds'

Specific constituents can also appear with partitive case, contrary to the predictions based on properties of the weak case:

- (3) Katsoin häntä
looked-1sg him-part
'I was looking at him'
(Kangasmaa-Minn 1984)

In addition, partitive quantifiers can take inverse scope over a quantifier that linearly precedes them, contradicting both the assumption that constituents with 'weak' case cannot scramble at LF, and that partitive universal quantifiers are predicate modifiers. The partitive case marking of a strong quantifier and inverse scope are illustrated below.

- (4) [kaksi miestä]_{NOM} söi joka kakkua
 two-nom man-part ate every cake-part
 'two men ate (from) every cake' (two > every; every > two)
 (Schmitt 1998)¹³⁶

The possibility of partitive case on strong quantifiers and the inverse scope of these shows that partitive case should not be treated as an instance of weak case. As argued in chapter 3, Finnish partitive case marking varies with divisibility rather than with the scope and scrambling properties of nominals or the strength of quantifiers.

Adopting the account of chapter 3, the wide scope reading and case marking of the object in (4) – and any object of a divisible vP – can be derived by appealing to the interaction of the case licensing configuration and divisible phases. The case feature of the object is licensed within vP, since the object is merged within vP, leaving a copy after movement, and its case feature is licensed by v. vP is a Spell-out domain; thus the semantic properties of the vP or the object itself can affect the morphological case marking. Following Spell-out, the quantifier can raise covertly and adjoin to a higher position. In this case, the scope of the quantifier is determined by the highest position it occupies at LF. Even though the object is Spelled out and is semantically interpreted in more than one place, earlier interpretations can be ignored in the final representation. As noted in chapters 1 and 3, this revision of semantic interpretation is required by the assumption that Spell-out transfers the syntactic object to both the LF and PF interfaces.

Finally, the correlation between the argument structure of the verb and morphological case it licenses in Finnish also fails to correspond to the account of De Hoop 1992. De Hoop argues that transitive verbs can license either strong or weak case, but unaccusatives can only license weak case. If weak case in Finnish is equated with partitive case, then it is predicted that unaccusatives can only appear with partitive adjuncts (recall that adjunct case is licensed by the v head licensing object case). This prediction is, however, not borne out, as the accusative measure phrase below shows.

¹³⁶ The preposition *from* indicates that the object *every cake* is only partially affected. As shown in section 3.2, in line with Hay, Kennedy and Levin 1999, it is possible for a lexically non-divisible incremental theme to be interpreted as partially affected. In this case the object is divisible and is partitive, in accordance with the generalization that divisible nominals are partitive.

- (5) Pallo pyöri [yhden metrin]_{ACC}
 ball-nom rolled one-acc meter-acc
 'The ball rolled one meter'

In sum, the account of partitive – non-partitive case alternation in terms of weak and strong case faces a number of problems.

6.4 *Partitive case with imperfective events*

Several descriptive grammars, including Karlsson 1983, propose that partitive case appears on objects in imperfective events and accusative case, in perfective events. At first sight, examples such as (6) appear to support this characterization of case alternation.

- (6)a Krijotitin juuri [näitä kutsukortteja]_{PART} perjantaina
 write-past.1sg just these-part invitations-part on-Friday
 kun soitit
 when call-past.2sg
 'I was just writing these invitations on Friday when you called'
- b Kirjoitin [näitä kutsukortit]_{ACC} perjantaina
 write-past.1sg these-acc invitations-acc on-Friday
 'I wrote these invitations on Friday'

The distribution of partitive case, however, cannot be described by appealing to imperfectivity only. First, the imperfective account of case alternation does not address those occurrences of partitive case that are licensed by the divisibility of the nominal itself. If the object is divisible, then it can always have partitive case, as shown in chapter 3. If the occurrences of partitive case are relegated to imperfectivity, then this source of partitive case cannot be covered by the proposed account.

Furthermore, even those occurrences of partitive case which are licensed by properties of events cannot be all accounted for by the imperfective hypothesis. For most lexical verbs in Finnish, it is lexically specified whether the event predicate headed by the verb in question is divisible or not, and there is no optionality in the interpretation of the vP or the case marking of an object.¹³⁷ Some adjuncts – including resultative and goals – may affect the divisibility of such vPs, as shown in chapter 3, but optionality is lacking if the vP is not modified by adjuncts. In (7a), where the event predicate is divisible, a non-divisible object must appear with partitive case marking. The event predicate in (7b) is non-divisible, hence the non-divisible object is obligatorily accusative.¹³⁸

- (7)a Matti koskett-i kirja-a / *kirja-n
 M-nom touched book-part / book-acc
 'Matti touched a/the book'
- b Ostan auto-n / *auto-a
 buy-1sg car-acc / car-part
 'I'll buy a/the car'

The delimited or non-delimited nature of a derived event predicate¹³⁹, which is modified by adjuncts, can also determine the case marking on the object. The unmodified, divisible event predicate in (8a) licenses partitive case on the object. With a goal adjunct, the complex event predicate is non-divisible. As such, it licenses accusative case marking on the object (8b).

137 Exceptions to this generalization were discussed in chapter 3, and are also addressed below. For a handful of stative predicates, including *omistaa* ('own') and *muistaa* ('remember'), none of these accounts hold, since they can occur with accusative (non-divisible) objects. These predicates, as well as the account proposed by Kiparsky 1998 to account for them, are discussed in section 6.6

138 In a negative sentence, both objects are partitive. The partitive case marking in negative sentences is independent, however, of the properties of affirmative event predicates, as argued in chapter 4.

139 In this chapter I refer to the divisibility or non-divisibility of event predicates. In light of the discussion in chapter 3, this should be interpreted as referring to the divisibility of the denotation of vP rather than the (maximal) event predicate itself.

- (8)a Hän ajoi *auto-a* / **auto-n*
 he drove-3sg car-part car-acc
 'He drove the car'
- b Hän ajoi **auto-a* / *auto-n* talliin
 he drove-3sg car-part car-acc garage-ill
 'He drove the car to the garage'

As shown above, the divisibility of an event predicate can determine whether the object appears with accusative or partitive case marking. Once the divisibility of the event predicate is determined, then only one of the two cases is possible.

There are no similar restrictions on imperfective and perfective forms. As shown by the English examples below, durative event predicates can appear as perfective and imperfective, independently of the divisibility of the (perfective) event predicate.

- (9) a. Tuula crossed the street
 b. Tuula was crossing the street

The freedom in specifying an event predicate as either perfective or imperfective is at odds with the restriction of object case marking in (7) and (8). The restriction of object case marking thus argues against an account of partitive case in terms of imperfectivity.

In spite of the lack of optionality discussed above, a number of verbs can appear with either partitive or accusative objects (Vainikka 1989, Kiparsky 1998, 2005), as illustrated in (10).

- (10)a Ammuin karhun
 shot-1sg bear-acc
 'I shot the bear'

b Ammuin karhu-a
shot-1sg bear-part
'I shot at the bear'
(Kiparsky 2001)

The event predicates headed by these verbs also fail to support an imperfective account of partitive case licensing. The verbs which display this variable behavior head either a divisible or a non-divisible vP event predicate. The case marking of the object is consistent with the divisibility of the vP, and is independent of the perfectivity of the event. Thus variable case marking fails to support an imperfective account of partitive case.

As noted in section 3.2.1, two types of verbs show this variable behavior. The first type consists of verbs with an incremental theme argument, which can license either accusative or partitive case. This variability is consistent with the variable interpretation of incremental themes crosslinguistically. The themes are either interpreted maximally, with the entire argument affected – yielding a non-divisible interpretation – or partially, when a divisible interpretation arises. The second type of predicates with either accusative or partitive objects optionally involve a resultative, which may be left implicit. In absence of a resultative, the vP is divisible, while with a resultative interpretation, the vP is non-divisible. The correlation between vP divisibility and object case marking can thus be maintained.

The proposed account, where perfectivity does not affect case marking or the surface form in Finnish, predicts that Finnish does not show the imperfective paradox. In those languages where the imperfective is overtly marked, the imperfective of telic event descriptions shows the imperfective paradox (Dowty 1979).

(11) Lisa was driving to the store (around two o'clock)

The term *imperfective paradox* refers to the fact that even though the culmination of the event is conveyed by the event predicate, the event does not need to culminate:

(12) Lisa was driving to the store, but her car broke down halfway

The culmination of the event is, however, implicated by imperfectives. As argued by Dowty 1979, the progressive can be treated as an operator which relates non-culminated events in the actual world to culminated events in inertia worlds. Inertia worlds are accessible worlds which coincide with the actual world until before the interruption of the event (if there is one), and continue in a normal and expected way after that. Thus even if the event does not culminate in the actual world, it still culminates in the inertia worlds.

Since the actual world, if not explicitly specified otherwise, is an inertia world, the implicature arising from imperfectives is the culmination of the progressive event. Let us assume for the purposes of this discussion that imperfectives, like progressives, are modalized and give rise to the same implicature.¹⁴⁰

If the case licensed on the objects of a predicate is variable, a partitive object fails to implicate a culminated event. Rather, it is the lack of culmination which is implicated. This interpretation arises from the fact that objects are accusative only with a more specific interpretation, where the event is culminated.

The account of Finnish case alternation proposed in chapter 3 and the one based on perfectivity thus make different predictions. Given a predicate which allows both partitive and accusative objects, the former predicts a partitive object to implicate the non-culmination of the event. The latter, in contrast, implicates that the event has culminated. Even though the accounts differ in the implicatures which they predict, it remains to test whether the implicatures are as expected based on the account advocated here.

140 The imperfective interpretation is not paradoxical if a two-component theory of aspect (e.g. Smith 1997) is adopted. In such a theory the culmination of the event is encoded in its situation aspect specification. Progressivity or imperfectivity is encoded in the viewpoint aspect component, which is distinct from situation aspect.

Finally, an additional consideration argues against an account based on the perfective – imperfective distinction: in languages where perfective and imperfective aspect differ overtly, the equivalents of event predicates with partitive objects are perfective (Sabine Iatridou, p.c.). This also indicates that (im)perfectivity does not play a role in the determination of Finnish structural case.

I conclude that imperfective aspect cannot account for the appearance of partitive case in Finnish. The majority of verbs appear with either accusative or partitive objects, a fact straightforwardly described by the account proposed in chapter 3, but not by the imperfective hypothesis. The verbs whose object is either accusative or partitive either appear with an optional resultative, or show variable behavior in other languages as well, due to the interpretation of an object argument homomorphic with the event.

6.5 Unbounded predicates, maximal events and partitive objects

Kiparsky 1998 offers an account of the aspectual conditioning of partitive case on objects. He introduces *unboundedness* as the relevant condition, where unbounded predicates have partitive objects. Unbounded VPs are defined in Kiparsky 1998 as follows.

- (13) A VP predicate is unbounded if it has either an unbounded head or an unbounded argument¹⁴¹

The generalization in (13) is undeniably true for Finnish, but it is also somewhat misleading. It is misleading if the statement is interpreted as encompassing all the (non-negative) environments that license partitive case.¹⁴² The definition of unboundedness suggests a symmetrical system, where unbounded predicates license partitive case on the same range of elements as unbounded arguments.

141 It is worth pointing out that the property of unboundedness cannot be interpreted as semantic unboundedness for VPs in all cases. With instantaneous predicates such as *notice*, a bare plural object does not necessarily yield an unbounded interpretation of the VP itself.

142 Kiparsky 1998 does not discuss other sources of partitive case other than the ones licensed by an unbounded VP.

This is, as is shown in Kiparsky 2001 and in chapter 3 as well, is not true. An unbounded VP (a divisible vP, in present terms) licenses partitive case only on objects. If the nominal is unbounded or divisible, then partitive case appears on any structurally case marked nominal, including objects, subjects and adjuncts as well. The range of partitive marked constituents in the two cases is different, but the difference is unexpected given Kiparsky's generalization.

Depending on the specific syntactic analysis of adjuncts and subjects, these may be outside of the VP; and thus, strictly speaking, not fall under the preceding generalization.¹⁴³ Even in this case, Kiparsky's generalization does not cover the full range of partitive occurrences, but accounts for a proper subset of the data.

Another aspect of Kiparsky's account which is worth addressing is his characterization of the notion of boundedness, which Kiparsky defines as follows

(14) A predicate P is *unbounded* iff it is divisive and cumulative but not diverse.

a P is divisive iff

$$\forall x [P(x) \wedge \neg \text{atom}(x) \rightarrow \exists y [y < x \wedge P(y)]]^{144}$$

b P is cumulative iff

$$\forall x [P(x) \wedge \neg \text{sup}(x,P) \rightarrow \exists y [x < y \wedge P(y)]]$$

c P is diverse iff

$$\forall x \forall y [P(x) \wedge P(y) \wedge x \neq y \rightarrow \neg (x < y) \wedge \neg (y < x)]$$

The diversity condition (14c) requires that no unbounded predicate apply to atomic arguments only, and the properties of divisivity and cumulativity encode a downward and upward homogeneity of the predicate, respectively. Note that if an unbounded predicate P cannot be atomic, then the cumulativity condition, as defined in (14b), is trivially satisfied (Kai von Fintel, p.c.). Similarly, if atomicity is interpreted with respect to an argument

¹⁴³ For postverbal subjects, Kiparsky 1998 assumes that they are within the VP, and hence can appear with partitive case. However, the semantic condition of the event predicate does not affect objects and (postverbal) subjects equally, as discussed in detail in chapter 3.

¹⁴⁴ It is not immediately clear whether an argument can be atomic, as the formulation $\neg \text{atom}(x)$ suggests, or whether an argument can only be atomic with respect to a given predicate (which can be formulated as $\neg \text{atom}(x,P)$), similarly to the supremum element in (14b).

and a predicate, then the property of divisibility is also trivially satisfied. The standard definition of divisibility (e.g. Krifka 1989, 1992, 1998) and that of Hinrichs 1985 and von Stechow 1997, discussed in chapter 3, are stronger than the divisivity property defined by Kiparsky 1998, since they involve universal quantification over parts of arguments. Given this difference between divisibility on the one hand, and Kiparsky's properties of divisivity and cumulativity on the other, it appears sufficient to adopt divisibility as a condition on homogeneity. Cumulativity, as defined by Kiparsky 1998, encoding upward homogeneity, is superfluous.

Building on Kiparsky 1998, Arehart 2001 proposes a different account of the interaction of VP interpretation and case marking. He assumes that rather than unboundedness, it is the notion of maximality which plays a role. Arehart 2001 assumes that the functional head Asp can function as a maximality operator on the VP, as shown below.

$$(15) \quad \text{MAX}([\text{VP}]) = \lambda e . [[\text{VP}]](e) \ \& \ \forall e' [(\text{VP}(e') \ \& \ e \leq e') \rightarrow e = e']^{145}$$

The maximality operator yields a maximal VP, where if the maximal VP is true of an event e , then there is no event e' which properly includes e for which the maximal VP also holds. In addition to its semantic contribution, the maximality operator also licenses accusative case on the object; in absence of the operator, the object is partitive. The maximality operator is merged with VP and consequently with v . It follows from the position of the operator that it can only affect the interpretation of the VP subevent.

$$(16) \quad [_{\text{VP}} \ v \ [_{\text{AspP}} \ \text{ASP}_{\text{MAX}} \ [_{\text{VP}} \ V \ \dots \]]]$$

The adoption of the maximality operator ensures that the event predicate non-divisible, since it yields the maximal event. The intuition that object case alternation correlates with

145 Arehart 2001 assumes an ontology with events, where maximality is determined in terms of events. Interpreting maximality in terms of time intervals, specifically event times, is a trivial modification that still allows the maintenance of Arehart's original insight and conforms to the ontology assumed in this dissertation.

the interpretation of the event predicate is thus straightforwardly encoded in the approach.

Since the maximality approach is based on the set of data discussed by Kiparsky 1998, it inherits the problems with the scope of the account. The maximality approach addresses the correlation between the case marking of objects and the event predicate interpretation, but it fails to account for the variable case marking and interpretation of subjects. In addition, it assumes that the maximal interpretation is introduced by the maximality operator, rather than being compositionally determined. The independent stipulation of the maximal interpretation raises concerns similar to those raised earlier. It was argued in section 3.4.2 that the interpretation of the event predicate must be compositionally determined and it cannot be encoded as a positive or negative value of a [divisible] feature. The conclusion carries over to the maximality account; the interpretation of the vP (or VP, as assumed by Arehart 2001) must be compositionally determined rather than enforced by the maximality operator.

In conclusion, Kiparsky 1998 assumes that there is a symmetric relation between the interpretation of VPs and objects and their effect on case marking. While it is true that the interpretation of both of these constituents can affect morphological case, they fail to behave similarly. The interpretation of VPs only affects the case of objects and the interpretation of nominals affects all structurally case marked constituents. Since the symmetrical nature of these conditions is a crucial assumption of Kiparsky 1998 (and is adopted by Arehart 2001), it cannot offer a uniform account for these two sources of case alternation.

6.6 Degrees and case

Kiparsky 2005 expands on an observation in Kiparsky 1998, where he suggests that modification by degree adverbs is a diagnostic for unboundedness. He notes that only intrinsically unbounded predicates can be modified by degree adverbs such as (*some*) *more*, *a lot*, *very much*, *a bit*, or *slightly*. As discussed in section 6.5 in more detail, Kiparsky 1998 argues that the semantic property of predicates, which correlates with object case marking, is unboundedness. The property of unboundedness is different from telicity and – according to the definitions suggested – essentially encodes a loose

condition of both upward and downward homogeneity.

If the object is partitive, then either the verbal or the nominal predicate is unbounded, yielding unboundedness for the complete VP. As a result, the VP is susceptible to degree adverb modification, according to Kiparsky 1998, 2005. The following examples from Kiparsky 1998 illustrate degree adverb modification for English. The Finnish equivalents of unbounded predicates license partitive case, while the equivalents of English bounded predicates do not.¹⁴⁶

(17) Verbal predicates

a Unbounded verbal predicates

The sportsman shot at a bear some more

I looked for the key a lot

Fred used the book somewhat

b Bounded verbal predicates

The sportsman killed the bear some more

I found the key a lot

Fred finished the book somewhat

(18) Nominal predicates

a Unbounded nominal predicates

a lot of *bears*

a lot of *coffee*

b Bounded nominal predicates

a lot of *bear*

a lot of *many bears*

(Kiparsky 2005)

¹⁴⁶ The relevant predicates are italicized.

The definition of unboundedness proposed in Kiparsky 1998 does not, however, predict a correlation between unboundedness and degree modification (I. Heim, p.c.), especially if degree adverbs are interpreted as modifying a degree argument, since a homogeneous predicate does not necessarily allow degree modification.

6.6.1 The interpretation of degree adverbs

To pinpoint the source of the correlation between degree adverb modification and case marking, let us consider the interpretation of the degree adverb and the properties of the predicates in more detail. The degree adverbs used to identify unbounded predicates by Kiparsky 1998, 2005 are multiply ambiguous. *Some more* (as in (17a), (18a)) and *a bit* can modify a time interval rather than a degree argument. With this interpretation, the adverb identifies cumulative predicates, predicates which satisfy part of the conditions on unboundedness established by Kiparsky 1998. *A lot* is ambiguous between modifying a degree argument (as in *Lisa likes strawberries a lot*), a time interval argument (*Lisa slept a lot*) and a multiplicative interpretation (*The sportsman shot a lot*).¹⁴⁷ When modifying a nominal, the degree adverbs have some non-degree, quantificational interpretation.

To account for the heterogeneous interpretation of degree adverbs, Paul Kiparsky (p.c.) suggests that they uniformly measure a scale associated with a scalar argument or a vector.¹⁴⁸ This account extends the proposal of Hay, Kennedy and Levin 1999 concerning scalar arguments of predicates. Kiparsky 2005 appears to follow Winter 2001, Zwarts 2003 and others in assuming that the measure and scalar treatment may be applied to spatial and temporal meanings, which can be analyzed in terms of vector space semantics. Zwarts 2003 extends the basic vector space account of spatial measures, and applies it to describe the semantics and modification of times, shapes parts and size. This scalar or vector space approach does not account straightforwardly for all instances of degree adverb modification as in (17) and (18); it remains to be shown, for instance, whether multiplicatives can also be treated along these lines.

147 Iterated events modified by an overt multiplicative adverbs were shown in chapter 3 not to license partitive case on objects. Within the approach outlined earlier, partitive case marking on the object correlates with non-resultative rather than an overtly specified iterative reading.

148 Given this assumption, it is not clear whether degree adverbs are expected to behave differently from measure phrases.

In addition, adopting vector space semantics and the Hay, Kennedy and Levin 1999 approach to Finnish case makes the wrong predictions. The approach treats scalar arguments uniformly; a delimited scalar argument yields a non-divisible event description. As the Finnish data show, scalar arguments behave identically with respect to telicity, and consequently, with respect to temporal adverbial modification. However, object case marking, as shown in section 3.2, exposes a difference among scalar arguments. Only incremental themes allow an alternation between accusative and partitive object case in accordance with the maximal or non-maximal interpretation of the object. Degree achievements (such as *lyhentä* 'shorten') and motion verbs (including *ajaa* 'drive') also have a scalar dimension which can be delimited by a measure phrase. As shown in chapter 3, these scalar dimensions differ from incremental themes; even if a measure phrase delimits the degree of change or the spatial distance, the delimitation fails to affect object case marking. Thus extending and generalizing a scalar account to account for object case alternation leads to the identification of telic event predicates with event predicates that license accusative objects. This conclusion is factually incorrect, and is also argued against by Kiparsky 1998, 2005. In other words, a different characterization of degree adverb modification or case licensing is needed.

6.6.2 No necessary correlation between degree adverbs and case

In spite of the issues noted above, the correlation between partitive case licensing and modification by an overt degree adverbs may still be a valid generalization. However, a further consideration argues against adopting modification by degree adverbs as a diagnostic for unboundedness, since the appearance of degree adverbs can affect the case marking on the object.

- (19)a tunnen hänet
 know-1sg he-acc
 'I know him'

- b tunnen *häntä* vain vähän
know-1sg he-part only little
'I know him only a little'
(Kiparsky 2005)

The pattern shown above is more widespread and not restricted to *tuntea* ('know'). Kiparsky 1998, 2005 lists a number of verbs which appear in atelic, divisible event predicates with accusative objects. According to Kiparsky 1998, 2005, it is modification by degree adverbs which correlates with object case marking. If the atelic predicates appear with accusative objects, then it is expected that the event predicates cannot be modified by degree adverbs. This is, however, not the case. As the English examples show below, a number of the atelic verbs listed by Kiparsky 1998, 2005 can in fact cooccur with degree adverbs.

- (20)a I *believe* you somewhat
b We can *hear* you a bit
c We're *aware* of that somewhat
d They said they *understand* the problem somewhat
e He knows Liisa / Chinese a bit
f I *remember* him a bit

In the presence of these degree adverbs, the object of the atelic event predicates is partitive (Paul Kiparsky, p.c.). Once again, it is clear that degree adverb modification does not identify predicates which license partitive case, but can affect object case marking.

In terms of the account presented in chapter 3, it is predicted that the divisibility of the predicates varies according to the presence or absence of the degree adverb. This account is untenable, since the event predicate is divisible in both cases. Note, however, that all divisible event predicates which license accusative case on their objects are stative. An account of these exceptional predicates, keeping with the spirit of the

divisibility approach advocated here, can then capitalize on the stativity of these exceptional predicates. I suggest that the the difference in object case licensing boils down to the nature of the case licensing *v* head, which differs for the dynamic events discussed earlier and the exceptional stative predicates of Kiparsky 1998, 2005. For these states, it may be the case that divisibility is not interpreted with respect to the event time, but with respect to the interpretation of some other argument of the state.¹⁴⁹

In absence of an overt degree adverb, accusative objects are licensed with a maximal interpretation of the relevant argument. The object can also bear partitive case with a non-maximal interpretation:

- (21) Muistan hänet / häntä
 remember.1sg he-acc / he-part
 'I remembered him'

If maximal or non-maximal interpretation is relevant rather than the presence of a degree adverb, then the following pattern is also predicted. The adverb *täysin* ('completely') can only occur with an accusative object:

- (22)a Muistan hänet / *häntä täysin
 remember.1sg he-acc / he-part completely
 'I remembered him completely'
- b Muistan häntä / *hänet vähän
 remember.1sg he-part / he-acc little
 'I remembered him a little'

In sum, the modification by degree adverbs as a diagnostic does not follow from the proposed definition of unboundedness of Kiparsky 1998, 2005, and appears to call for a generalized account in terms of measure interpretation. However, if all predicates with a scalar argument or vectorial modifier alike, then accusative objects are predicted to

¹⁴⁹ For (20a,b), for instance, the relevant argument is not the overt object itself, rather the proposition *what you say* or *what you believe*.

appear in a wider range of environments than they are actually attested. The approach also yields wrong predictions with respect to modification by adverbs such as *completely*. The account proposed in chapter 3, in contrast, accounts for object marking with dynamic event predicates by restricting divisibility to vPs with respect to the event time. For a number of states discussed in Kiparsky 1998, 2005, it is also divisibility, connected to maximal interpretation, which is relevant for object marking. In these cases, however, the relevant notion of divisibility is not determined with respect to a time interval, but with respect to some other argument.

Before concluding this section, let us consider the arguments cited by Kiparsky 2005 against accounts which are not framed in terms of degree modification, and see how the present approach fares with respect to those.

The first argument offered by Kiparsky is directed specifically towards accounts of Finnish case alternation (such as Schmitt 1998) which assume that partitive case is licensed internal to the VP, but accusative case is licensed in a higher functional projection such as AspP or AgrOP. Kiparsky 2005 notes that the coordination of partitive and accusative nominals argues against such a distinct treatment of nominals. No such difference in licensing positions is assumed in the Spell-out based account, thus the argument does not carry over.

The second argument, based on accusative case licensing by divisible (atelic) events, was addressed above. It was noted that an account based on degree adverb modification also needs to be amended to identify the classes of predicates appropriately. Furthermore, the degree adverb-based account yields the wrong predictions for modification by adverbs such as *completely*. It is maximal or partial interpretation, rather than degree adverb modification, that needs to be invoked.¹⁵⁰

150 Kiparsky 2001, 2005 also cites constructions with the event predicate embedded under the matrix predicate *koettaa* ('try') in support of a correlation between degree adverb modification and case marking.

(i) Koetin tappaa karhua (* tunnissa)
 tried-1sg kill-inf bear-part hour-iness
 'I tried to kill the / bear (in an hour)'

The object of *tappaa* ('kill') can appear with partitive rather than accusative case marking, which is interpreted, according to Kiparsky 2005, to show that divisibility and case marking are independent. Note, however, that the embedded event predicate cannot be interpreted as non-divisible, and is not susceptible to *in*-adverbial modification if the object is partitive.

Following David Pesetsky (p.c.), I suggest that (i) is an instance of lexical restructuring in the sense of Wurmbrand 2001, and the V head of *tappaa* ('kill') is optionally directly merged with the V head of *koettaa*

6.7 An optimality-theoretic account

Kiparsky 2001 offers a detailed description and an optimality-theoretic account of the Finnish data. Without presenting an extensive discussion of the system, let me point out some differences between his approach and the one proposed here.

Arguing for a treatment encouched in an OT framework, Kiparsky 2001 derives the attested case patterns from the interaction of markedness and faithfulness constraints. He assumes that arguments are generated with the feature values [\pm HR] (= highest thematic role); [\pm LR] (= lowest thematic role) and [\pm SC] (= structural case). An inherently case-marked subject of a transitive predicate, for example, would be [+HR, -LR, -SC]. The subject is assigned the highest theta role ([+HR]), which is not the lowest theta role (that is assigned to the object), thus the subject is [-LR]. The subject is also inherently case marked, hence the negative specification of the feature [-SC].

The lexical properties encode abstract case features, which are mapped onto the actual morphological realization (also encoded by feature values) by markedness and faithfulness constraints. In addition, the features [\pm HR] and [\pm LR] are also used to encode the position of constituent; the PP in a locative inversion construction, for example, has a [+HR] positional specification, while the postverbal subject has a [-HR] positional specification – both of which contrast with the abstract feature values of these constituents.

('try'). In this case, divisibility, as relevant for case marking, is determined for the complex predicate only, since *tappaa* fails to project a vP on its own. An account in terms of lexical restructuring is supported by the absence of similar partitive subjects in a comparable construction, where the embedded subject is overt (ii). The presence of a subject precludes lexical restructuring, thus the properties of the embedded vP remain unaffected. If the matrix predicate in (ii) is *koetta* ('try'), then the embedded object is obligatorily partitive.

- (ii) Liisa antoi Mattin kutsua naapurinsa / *naapuriaan
L-nom let M-gen invite-inf neighbor-poss.acc / neighbor-poss.part
'Lisa let Matti invite his neighbor'

Thus for any given constituent, the features [\pm HR] and [\pm LR] have to be specified for abstract case, morphological case (derived from the abstract case specification) and positional case. The value of the positional and abstract / morphological features can be distinct, and these values are not related by any mapping procedure. The morphological case specifications suggested by Kiparsky 2001 are the following:

- (23) a Nominative: []
 b Partitive: [+LR], [-HR]¹⁵¹
 c Accusative: [-HR,-LR]
 d Genitive: [+HR]

These feature combinations yield the specific morphological form for nominals. In those environments where pronouns have a specific accusative case, R-expressions are either nominative or genitive. The alternation between the two cases is regulated by Jahnsson's Rule (adapted from Kiparsky 2001), which is an explicit constraint in Kiparsky's system.

(24) Jahnsson's rule

Verbs which have no overt subjects have nominative objects, verb
 with overt subjects have genitive objects¹⁵²

151 Kiparsky 2001 lists partitive case as the spell-out of the morphosyntactic and morphological feature [-HR]. However, all R-expression partitive constituents have the feature specification [+LR] rather than [-HR] (see the discussion in the main text below). Thus I assume that [-HR] yields partitive for pronouns (where [-HR] is protected from *[-HR] by a high-ranking maximality constraint) and R-expressions are partitive if they are [+LR]. A possible alternative account, which requires that all [+LR] constituents are also [-HR], capitalizes on the interpretation of feature specifications. In this account, partitive case requires the feature specification to include [-HR] (and possibly also [+LR], with the more specific [-HR,-LR] being spelled out as accusative). In addition, the constraint *[-HR] (see below) is interpreted exhaustively, banning [-HR] only if no [LR] value is specified. It is not clear, however, under what conditions [LR] can be left unspecified in order to avoid overgeneralization of partitive case.

152 As noted in chapter 2, I follow Vainikka 1989, Maling 1993, Nelson 1998 (contrary to Kiparsky 2001) and others in assuming that Jahnsson's rule does not describe different realizations of accusative case. Rather, the accusative case of R-expressions is a dependent case. In the presence of a nominative subject, the object is accusative (a case marking that is morphologically identical to genitive).

A high-ranking faithfulness constraint specific to pronouns ensures that they appear with the abstract case features specified. Two markedness constraints, *[-HR] and Jahnsson's Rule dominate the general feature faithfulness constraint (*MAX* [αF]). The markedness constraints thus block [-HR] (morphological accusative) case on R-expressions. The choice between a nominative or genitive case on R-expressions is regulated by Jahnsson's Rule.

Partitive case can appear on an R-expression if it has the feature [+LR], as noted above. The partial ranking assumed by Kiparsky consists of a high-ranking faithfulness constraint, which preserves the abstract feature specification of pronouns. This dominates the following constraints:

(25) *[-HR] >> Jansson's Rule >> MAX [αF]

With these features, constraints and constraint rankings, let us consider how Kiparsky 2001 achieves partitive case licensing on objects. For partitive case licensed by properties of the event predicate, Kiparsky 2001 assumes that these objects have the morphological specification of [-HR, +LR]. The [+LR] specification can be assigned to the object because it has the lowest thematic role assigned by the predicate. Non-partitive objects have the abstract case specification [-HR, -LR]. In this case, the lowest thematic role is assigned to a (possibly covert) resultative argument. The object surfaces as either nominative or genitive, thanks to the constraints *[-HR] and Jahnsson's Rule.

Whenever partitive case is licensed by properties of the nominal, it is a covert quantificational element that introduces a [+LF] feature on the object in Kiparsky 2001's system. This [+LR] feature assignment assimilates partitive case to the previous type of partitive objects. Finally, negation-induced partitive case is dealt with similarly; the Neg head licenses [+LR] feature on the object.

The OT implementation of Kiparsky 2001 needs a large array of instruments to account for the attested case patterns in Finnish. For instance, it requires three types of features ([\pm HR], [\pm LR] and [\pm SC]), which can have three distinct values for abstract, morphological, and positional case. In addition, the encoding of partitive case

environments is somewhat arbitrary, since the licensing of the [+LR] feature by quantifiers and negation is not obviously connected to a thematic hierarchy.

Furthermore, the approach assumes that all three types of partitive environments (event-, nominal- and negation-related) can be dealt with identically, by the [+LR] specification on objects. As it was argued at length in the preceding chapters, the distribution of the three sources of partitive case are distinct. In addition, the licensing properties of the partitive of negation and other sources of partitive case are fundamentally distinct. These distinctions also remain unaddressed in Kiparsky's framework.

6.8 Accusative case as telicity

Kratzer 2004 presents an account of Finnish object case, which she extends and modifies for Russian, German and English. Building on Pesetsky and Torrego 2001, 2004, Kratzer 2004 argues that accusative case in Finnish is checked by a verbal inflectional feature [acc], which is in fact an interpretable [telic] feature. Thus only the objects of a telic predicate can be accusative, otherwise objects appear with partitive case marking.

6.8.1 Telicity as culmination

One of the differences between Kratzer's proposal and the one advocated here is the notion of telicity. For Kratzer 2004, telicity is relevant for identifying predicates that license or fail to license accusative case (telic and atelic predicates, respectively). As argued in chapter 3, it is not the telicity of the event predicate which is relevant for case marking, but the divisibility of a smaller constituent, vP.

Furthermore, in contrast with usual analyses, Kratzer 2004 argues for a definition of telicity in terms of culmination rather than the algebraic property of cumulativity or divisibility. For her, an event is telic if it culminates with respect to a bounded scale, which can be contributed by the direct object (as in *climb a mountain*) or another contextually specified scale (such as the path in *shoot the bear*). According to Kratzer 2004, the culmination-based account is enforced by the fact that *for*-adverbials, which

diagnose quantization properties of events, fail to identify telicity. *For*-adverbials can occur with all non-quantized, divisible events, and thus do not single out events which are atelic in the sense of Kratzer 2004.

(26)a Sie hat *tagelang* Fausthandschuhe gestrickt
she has for-days mittens-acc knit
'She knit mittens for days'

b Sie hat *tagelang* an Fausthandschuhen gestrikt
she had for-days at mittens-dat knit
'She was knitting mittens for days' (Kratzer 2004)

Kratzer 2004 points out that (26a) and (26b) behave alike with respect to *for*-adverbial modification, masking the crucial distinction that (26a) implies that there were mittens that were knit, while no such implication arises for (26b). A culmination-based account can distinguish between these examples: culmination with respect to mittens is implied in (26a), but not in (26b). Thus by the definition of Kratzer 2004, (26a) is telic and (26b) is atelic.

The difference in telicity is explicitly shown by the second pair of examples. The event is not quantized in either (27a) or (27b). Yet an *in*-adverbial is possible in the first case, but not in the second. This shows, according to Kratzer, that *in*-adverbials pick out culminated or telic events, not quantized or non-divisible events, as generally assumed.

(27)a Sie kann *in weniger als drei Tagen* wunderschöne Fausthandschuhe
she can in less than three days wonderful mittens-acc
stricken
knit
'She can knit (a pair of) wonderful mittens in less than three days'

b * Sie kann *in weniger als drei Tagen* an wunderschönen Fausthandschuhen
 she can in less than three days at wonderful mittens-dat
 stricken
 knit
 'She can be knitting wonderful mittens in less than three days'
 (based on Kratzer 2004)

I suggest that the data presented by Kratzer are not damning for an approach to telicity which is based on the quantization or divisibility of event descriptions rather than culmination. Note, first of all, that if these instances of temporal adverbial modification were sensitive to cumulativity and non-quantization, respectively, then no difference would be expected between (26a) and (27a), where the object is an accusative bare plural, in the number of mittens completed.

This is, however, not the case. The object *Fausthandschuhe* ('mittens-acc') can be interpreted as referring to a single pair of mittens in (27a), but not in (26a). The unavailability of *for*-adverbial modification with this interpretation is consistent with the claim of Kratzer 2004 that durative *for*-adverbs only apply to non-quantized, cumulative predicates, if two interpretations of *Fausthandschuhe* are distinguished. I suggest that on the one hand, *Fausthandschuhe* can refer to a single pair of mittens; in this case, the interpretation is quantized. On the other hand, it can refer to either multiple pairs of mittens or several individual mittens; the interpretation is non-quantized in this case. The non-quantized interpretation is susceptible to *for*-adverbial modification, as predicted by Kratzer 2004 as well as other accounts of durative modification (e.g. as discussed in section 3.2.1). The non-quantized interpretation, in contrast, is unavailable in (26a).

If the predicate is modified by an *in*-adverb, as in (27a), then the contextually salient interpretation of a single pair of mittens being knit is readily available. With this interpretation, the event has both the property of culmination, as required by Kratzer 2004, and the property of quantization or non-cumulativity, as required by previous approaches to temporal modification. In a scenario where more than a single pair of mittens or several single-handed mittens are knitted, a contextually salient number is

required with *in*-adverb modification. For instance, it must be required that four pairs of mittens or six left-handed mittens be knitted, and this can be achieved in less than three days. In other words, the predicate is interpreted as quantized or non-cumulative in these cases as well, since the bare plural is interpreted as a contextually given numeral expression.

While the event must be culminated with respect to the individual pair(s) of mittens or individual mittens in the presence of an accusative object, the mere presence of culmination does not license *in*-adverbial modification. Rather, the interpretation requires a maximal number of (pairs) or mittens or a single pair of mitten, resulting in a quantized (or non-cumulative, non-divisible) reading whenever the event predicate is modified by an *in*-adverb. If *in*-adverbial modification is sensitive to telicity, then – as the preceding discussion shows – it is possible to maintain an algebraic definition of telicity. Given the algebraic conditions for *in*-adverb licensing, I assume that the property of telicity – as well as the property correlating with Finnish case alternation – can be defined in terms of divisibility.

6.8.2 Nominal-related partitive case and null determiners

The second major difference between the present approach and the one advocated by Kratzer 2004 concerns the treatment of partitive nominals that occur with telic event predicates. Kratzer 2004, similarly to the account presented in chapter 3, argues against a uniform, symmetric treatment of object partitive case. Recall that Kiparsky 1998 argues that both an unbounded head and an unbounded argument can yield an unbounded VP, which is the precondition for partitive case marking on objects. Kratzer 2004 points out that indefinite plurals and mass nouns always have partitive case, independently of the verb and properties of the event predicate.

In addition, partitive case can also appear DP-internally, on the complement of a numeral, as shown below.

- (28) Ammu-i-n [kaksi karhu-a]_{ACC}
 shoot-past-1sg two-acc bear-part
 'I shot two bears' / 'I shot at two bears'

Capitalizing on the partitive case marking of the complements of numerals, Kratzer 2004 assumes that a similar account is available for all instances of partitive case which do not arise with an atelic event. She assumes that all instances of partitive case, which are ascribed to properties of the nominal, are due to the presence of an unpronounced D with the same affect on case marking as *kaksi* ('two').¹⁵³

Before discussing this treatment in more detail, a brief note about null determiners is in order. Kratzer 2004 assimilates the instances of partitive case with a null D to DPs with an unpronounced D in Romance. The latter are restricted to governed positions, and Kratzer 2004 assumes (following Kiparsky 1998) that Finnish null determiners are restricted to VP-internal positions. No common account is possible, though, for Italian null D heads and Finnish partitive nominals. As it was shown earlier, nominal-related partitive case can occur with any structurally case-marked nominal, including subjects in Spec,TP. The possibility of a null D, required under Kratzer's account, must then be given a different explanation.

Divorcing the two types of partitive case, those licensed by properties of the event predicate and by those of the nominal, masks the common traits exhibited by both. As argued earlier in chapter 3, divisibility – of the event predicate or the nominal – is the notion that unifies these sources of partitive case.

Another concern for the nominal-related partitivity account proposed by Kratzer 2004 is that the null determiner must be rather specific. While it is true that the complement of a nominative, accusative or partitive determiner can be partitive, this by no means holds for all determiners. Even in the case of determiners that take a divisible complement, the case of the complement is not always partitive. The following example shows that the quantifier *moni* ('many') can appear with a nominative rather than partitive NP complement:

¹⁵³A similar explanation is proposed in Kiparsky 2001.

- (29) [*moni kaku*]_{NOM} päältä kaunis, vann on silkkoa sisältä
 many-nom cake-nom surface beautiful but is crappy inside
 'Many cakes are nice on the surface but crappy inside'

Furthermore, if the complement of a numeral or quantifier receives a genuine partitive interpretation, the case marking on the complement is not partitive, but rather relative:

- (30) [*kaksi pojista*]_{NOM}
 two-nom¹⁵⁴ boys-relative
 'two of the boys'

Thus under the account of Kratzer 2004, it is necessary to stipulate the existence of a null determiner, with licensing conditions other than in Romance. In addition, this determiner can only appear with mass nouns and bare plurals, that is, divisible nominals.¹⁵⁵ Under the account proposed in chapter 3, the restriction of partitive case to divisible nominals and event predicates is accounted for. Under the approach of Kratzer 2004, the correlation between the two sources of partitive case licensing remains accidental.

6.9 Summary

A number of approaches to partitive case marking in Finnish were described above. I argued that the account outlined in chapter 3, which assumes a cyclic Spell-out and an interaction between Spell-out domains, is superior to these theories of case alternation in Finnish. The proposed account either achieves wider empirical coverage, or offers a more natural account of structural case marking.

154 The nominative and accusative forms of *kaksi* ('two') are homonymous. The numeral *one* shows an overt difference between nominative and accusative.

155 A singular count noun object can also appear with partitive case, if the noun is interpreted as a kind term. This is predicted by and noted in the account in chapter 3; the object has a divisible interpretation, and is thus expected to appear with partitive case marking.

(i) puuttarhuri istutt-i kaikkialle tätä ruusu-a
 gardener-nom planted everywhere this-part rose-part
 'the gardener planted this rose everywhere' (Kiparsky 1998)

Chapter 7 Conclusion and extensions

7.1 *Summary*

In this dissertation I argued that in order to account for the alternation between structural and inherent case in Finnish, it is necessary to assume that the interaction of the phonological and semantic interfaces is not always mediated by syntax. I argued that it must be allowed that morphology be sensitive to semantic properties. This can be encoded by stipulating semantic filters, or by permitting that morphology, a grammatical component on the PF branch outside of the syntactic computational system, interpret semantic properties directly. As I showed in chapter 3, divisibility, a compositional semantic property calculated cyclically (following the Spell-out of phases in the course of the derivation), determines the alternation between partitive and non-partitive structural case marking.

It was argued that the relevant domain where divisibility is determined is not the event predicate, but the vP, which excludes temporal and measure adverbs. Scalar arguments and temporal and spatial adjuncts, which have been analyzed in like terms, show a heterogeneous behavior with respect to case licensing in Finnish. The difference between these elements shows that while their semantic properties may be uniformly described, they exhibit a variability which can be relegated to a syntactic difference.

Considering the effects of negation on case licensing in Finnish, I noted that the distribution of morphological case in the presence of negation differs from the morphological effects of divisibility in affirmative sentences. The difference among affirmative and negative sentences is in line with the claim that negation does not yield a divisible event predicate (Moltmann 1991 and Zucchi 1991). I offered a number of arguments against an account of negation as an aspectual operator, which yields divisible event predicates. I also outlined a treatment of temporal adverbial modification which accounts for the acceptability of durative adverbs modifying negated event predicates.

Furthermore, I noted that durative adverb modification, an argument often cited in support for negation as an aspectual operator, is licensed in other Strawson downward entailing environments as well. Downward entailing quantifiers licensing durative adverb modification of non-divisible event predicates provide a further argument against negation as an aspectual operator.

Finally, I considered a number of alternative accounts of partitive and non-partitive structural case alternation in Finnish. I concluded that none of the alternatives proposed have wider empirical coverage or makes predictions comparable to the approach advocated here. Thus I believe that to account for Finnish case alternation, it is necessary to allow semantic properties to affect morphology; either by assuming filters or by permitting PF to interact directly with the LF interface and the semantic component. I suggested that the latter account is more advantageous, since it is more economical and generates less non-convergent derivations.

7.2 Extensions

The revised view of grammar, where morphology can interpret information conveyed by both syntax and semantics, makes a number of predictions with respect to the theory of grammar. On the one hand, divisibility, the property relevant at both interfaces, does not need to be – and as argued in chapter 3, should not be – encoded as a syntactic feature. The non-existence of the feature [divisible] raises the possibility that other features, which are interpreted at both interfaces, be eliminated from the computational system. One of the features interpreted at both PF and LF which come to mind is [focus]. The [focus] feature is similar to the purported [divisible] feature in that it mediates between the phonological and semantic interpretation of constituents. In spite of this similarity and recent arguments for the elimination of the [focus] feature, I argue that this feature cannot be eliminated from syntax. Thus at least for some features, it must be allowed that they be interpreted at both interfaces.

On the other hand, it was argued earlier that semantic factors, specifically divisibility, can affect late insertion in morphology. This approach can be extended to constituents other than structural case marking, including polarity items. If the distribution of certain constituents is semantically determined, then these constituents can be encoded in the lexicon and be introduced in syntax as underspecified elements. Late insertion, sensitive to semantic information, inserts the phonological features and derives the appropriate distribution.

7.2.1 Focus

As argued in chapter 3, allowing a direct interaction between the LF and PF interfaces permits a successful account of partitive case alternation in Finnish. Since focus is interpreted in the semantic as well as the phonological component, it is a prime candidate for being described as involving a direct interaction between the interfaces, rather than a dedicated [focus] feature, which achieves the same effect. I suggest that this is, contrary to appearances, not the case, and focus features must be present throughout the derivation.

The specific realizations of focus constructions show a rather varied distribution crosslinguistically. In all languages, however, there is a correlation between the position of nuclear stress, a prosodic phenomenon, and the constituent interpreted as focus in the semantic component: nuclear stress appears on (a subconstituent of) the constituent interpreted as focus.¹⁵⁶

In Minimalist accounts of focus constructions and their predecessors within the Government and Theory framework, the correlation between PF and LF properties is encoded by the syntactic feature [focus]. The [focus] feature has been adopted in a number of accounts, including Vilkuna 1995 on Finnish, Brody 1990, 1995 on Hungarian, and Tsimpli 1995 on Greek, among others. If the [focus] feature behaves like other features which are not (exclusively) interpreted at PF, then it is already present on

¹⁵⁶ The phenomenon of *focus projection* can result in a subconstituent of the focused constituent having nuclear stress. The conditions of focus projection, as well as the precise phonological correlations of focus (nuclear stress or pitch accent) are not addressed here.

the constituent when it is externally merged.¹⁵⁷ Following Spell-out, the feature is interpreted at PF as well as at LF. Apart from being interpreted at the interfaces, the [focus] feature can also trigger overt or covert movement of the focused constituent to a licensing focus head in the complementizer domain.

A number of authors, including Zubizarreta and Vergnaud (to appear), Reinhart 1995, (to appear), and Szendrői 2001, 2003 argue that it is redundant to assume a dedicated feature to mediate between semantics and phonology. They build on the observation – also argued for by Arregi-Urbina 2002 for Basque and Ishihara 2003 for Japanese – that focus-driven movement ensures that the focused constituent appears in the position of default nuclear stress at surface structure.¹⁵⁸ Since the target of focus movement can be identified in terms of the default nuclear stress position, it is less redundant to identify focus in terms of prosodic properties rather than with the help of a [focus] feature. This possibility is adopted by the authors mentioned above, albeit in different forms. The arguments offered against the [focus] feature and the two solutions offered to eliminate it are discussed below.

7.2.1.1 Against a focus feature

Szendrői 2001, 2003 offers a number of arguments against adopting the feature [focus]. Her arguments concern the difference between the [focus] feature and properties of other features assumed in Minimalist frameworks. According to Szendrői, the feature [focus] differs from other features in the following respects: (a) it is not necessarily a lexical property of the focused constituents; (b) there may be a mismatch between the prosodic

¹⁵⁷ Ishihara 2003, in contrast, assumes that the feature [focus] is not present when the focused constituent is inserted in the syntactic structure. Rather, it is assigned by a focus head located in the complementizer domain, which is free to assign [focus] within its c-command domain. How the specific focused constituent is determined still remains a question in this account.

¹⁵⁸ As argued by Szendrői 2001, 2003, Arregi-Urbina 2002 and Ishihara 2003, this can be achieved by either moving the focused constituent to the position where nuclear stress is assigned or by moving other constituents from that position. Another available strategy is to distort the default mapping of prosodic constituents in such a way that nuclear stress, aligned with the edge of a prosodic constituent, falls on the constituent interpreted as focus.

and semantic interpretation of [focus], since the constituent with focus interpretation is not necessarily identical to the constituent which has nuclear stress; and (c) the semantic interpretation of foci, unlike nuclear stress, is not the property of a constituent but is a relation between a sentence and the focused constituent.

Unlike Szendrői 2001, 2003, I do not believe that these properties of a [focus] feature argue against its existence. The arguments merely show that the [focus] feature, if it exists, differs from some of the other features assumed. In order to derive the properties of [focus] features noted by Szendrői, it is possible to adopt a number of assumptions. With respect to (a), the [focus] feature may be assigned at random when a lexical item is inserted in the lexical array. This has been independently suggested for optional features, including phi-features for verbs, by Chomsky 1995.¹⁵⁹ To account for (b), one can refer to focus projection, a process independently needed in some form. Finally, (c) merely describes different ways in which a given feature is interpreted at the interfaces. This difference holds for a number of features, including those which are interpreted at one interface, but not at the other.

The initially convincing argument against adopting the feature [focus] is provided by Zubizarreta and Vergnaud (to appear), Reinhart 1995, (to appear) and Szendrői 2001, 2003, who point out that adopting the feature is redundant. The existence of the [focus] feature lacks independent justification, and is apparently motivated only by the need to establish the relation between the prosodic properties of focus and its interpretation of information structure. As argued by these authors, no feature is necessarily needed to mediate between prosodic and semantic interpretation. Rather, the semantic component can interpret a given constituent as focus if it is identified as such. According to

¹⁵⁹ In later implementations of the Minimalist Program, the phi-features of the verb are unvalued, with the values established by an Agreeing phi-complete constituent. The optional [focus] and phi features are not entirely parallel: a [focus] feature is optional, while a finite verb must have some kind of phi-feature specification. In addition, the [focus] feature may be obligatorily present on a certain lexical item or banned from appearing there. Focus-sensitive elements, for instance, can be assumed to be lexically marked as having a [focus] feature. Focus markers in languages where focused constituents obligatorily appear with such markers, may be treated along the same lines as focus-sensitive elements. Other lexical items, including weak pronouns, can be lexically specified as being incompatible with a [focus] feature.

Zubizarreta and Vergnaud (to appear), a focused constituent is directly identified by some independently justifiable property: nuclear stress, an overt operator (e.g. *only*) or morphological marking.

The argument against the feature [focus] is not as strong as the arguments against the feature [divisible] discussed in chapter 3. For the [divisible] feature, it was shown that it is impossible to maintain the intuition that the feature is interpreted at both the LF and PF interface. Nevertheless, the redundancy of the [focus] feature argues against adopting it. There are two recent implementations of a system without such a feature, outlined below.

7.2.1.2 Prosody in syntax

To ensure that the feature [focus] is redundant, Zubizarreta and Vergnaud (to appear) suggest that certain prosodic information – including phrasal stress, deaccenting and prosodic phrasing – is available for interpretation within the syntactic component. In addition, the Nuclear Stress Rule (NSR), which determines the position of nuclear stress, also operates within syntax.

The conclusion that some prosodic information is found in syntax rather than exclusively at PF is enforced by a typology of nuclear stress positions and the effect of prosodically motivated movement. Following Zubizarreta 1998, Zubizarreta and Vergnaud (to appear) point out while syntactic structure plays a crucial role in determining the locus of nuclear stress in a number of languages (as argued by Cinque 1993), this does not carry over to all languages. As argued by Hayes and Lahiri 1991, the position of nuclear stress in some languages, including Bengali, is determined by prosodic phrasing rather than by the syntactic structure directly. Zubizarreta 1998 suggests that this determination of nuclear stress extends to Romance languages.

In addition, Zubizarreta 1998 argues that movement in Romance can be driven by prosodic considerations. Specifically, she argues that the movement operations which result in the clause-final position of the subject are driven by the requirement that nuclear stress appear on the subject.¹⁶⁰ This prosodically determined movement can affect binding relations, as noted by Suñer 2000. Following movement, the coreferential dative pronoun c-commands the R-expression within the complex subject, resulting in a condition C violation.

- (1)a El mes pasado [la madre de Juan_i] le_i envió varias cartas
 the month past the mother of J him-dat sent several letters
 'Last month Juan's mother sent several letters to him'
- b El mes pasado le_i envió [la madre de Juan_i] varias cartas
 the month past him-dat sent the mother of J several letters
- c *El mes pasado le_i envió varias cartas [la madre de Juan_i]
 the month past him-dat sent several letters the mother of J
 (Suñer 2000)

Since binding relations are interpreted at LF, two strategies are available to account for the effect of prosodically driven movement on binding. One possibility is to allow a direct interaction between PF and LF, where the output of PF movement is interpreted at LF. Alternatively, the Nuclear Stress Rule – along with the prosodic constituency required for establishing nuclear stress in Bengali and Romance – can be relegated to a part of syntax. In this case, the output of syntax is interpreted at both LF and PF without the direct interaction of the interfaces.

¹⁶⁰ Prosodically driven movement does not preclude the existence of movement operations which are not triggered by prosodic factors, but can result in a non-default constituent bearing nuclear stress and being interpreted as focused. The approaches which aim to eliminate a [focus] feature assume, however, that all foci have nuclear stress, including those foci whose movement is triggered by prosodic requirement. A displaced constituent is interpreted as focus only if it has nuclear stress (e.g. *MACADAMIA NUTS they're called* (Lambrecht 1994)). A displaced constituent without nuclear stress but a marked prosody may be a contrastive or S-topic (Büring 1997, a.o.).

Zubizarreta and Vergnaud (to appear) discard the first possibility. Instead, they assume, as noted above, that part of the phonological information is encoded in syntax. This permits the prosodically driven movement to take place in syntax and have a semantic effect as well, while maintaining the separation of the interfaces.

As argued in the preceding chapters, an interaction between LF and morphology can account for case alternation in Finnish, and is more attractive than a viable alternative. The interaction among interfaces, which is not mediated by syntax, raises the possibility that prosodically driven movement applies at PF and has a semantic effect as well, on the assumption that PF information is accessible at LF.¹⁶¹ This approach, where prosody is not encoded as part of syntax, is argued for by Reinhart 1995, (to appear), Neeleman and Reinhart 1998 and Szendrői 2001, 2003, among others, and is discussed in the following section.

7.2.1.3 Focus and interface interaction

Theories more radical than that of Zubizarreta and Vergnaud (to appear) propose that the semantic component can interpret not only the output of syntax, but also information determined at PF. This position is the flipside of the direction of interface interaction argued for earlier in this dissertation, where I proposed that properties determined at LF are accessible for interpretation in the morphological component on the PF branch.

As noted above, Reinhart 1995, (to appear) and Szendrői 2001, 2003, similarly to Zubizarreta and Vergnaud (to appear), argue that a [focus] feature is redundant. They follow Cinque 1993 (who revives Chomsky 1971) in assuming that focus is determined on PF structures, specifically, by the position of nuclear stress at PF. If LF can access prosodic information determined at PF, they argue, then the [focus] feature can be eliminated.

¹⁶¹ This approach requires that information at both interfaces be available for interpretation at the other interface. While the account of case alternation required an interpretation of semantic information on the PF branch, the focus account also calls for the interpretation of phonological information at LF.

Contrary to the proposal of Reinhart and Szendrői, I suggest that it is not sufficient to assume a unidirectional interaction between the PF and LF interfaces to account for the semantic interpretation and prosodic properties of foci. It must be allowed that PF – specifically, the placement of nuclear stress – have access to semantic information as well.

Cinque 1993, Reinhart 1995, (to appear) and Szendrői 2001, 2003 argue that the Nuclear Stress Rule determines the default position of nuclear stress.¹⁶² Once the default position of nuclear stress is determined, the focus set is computed, which includes the potential focused constituents (in effect, the focus set encodes focus projection). The focus set determines the set of contexts where the given utterance is appropriate; it is appropriate if one of the elements of the focus set is interpreted as semantically focused. Whenever this is not the case, then the nuclear stress is shifted to ensure that the focused constituent contains the nuclear stress. Stress shift is subject to economy constraints and applies only when necessary, since it is an operation which undoes the result of the derivation of default nuclear stress.

The accounts of Reinhart 1995, (to appear) and Szendrői 2001, 2003 effectively match up the constituent semantically interpreted as focused and a constituent containing nuclear stress. It is not true, contrary to what the discussion suggests, that the phonological form exclusively determines semantic focusing. If this was the case, then there would no instance of the nuclear stress appearing in a position other than the default position. The relevance of the semantic notion of focus is also shown by the formulation of the focus set of Reinhart 1995, (to appear); default nuclear stress placement determines a set of focus interpretations which can be matched to the default prosodic form. In other words, it is not the case that the prosodic form exclusively determines the semantic focus interpretation.

¹⁶² Destressing, conditioned by the accessibility of the antecedent of a constituent, can affect the placement of the default nuclear stress. If the constituent where nuclear stress would fall is accessible and hence destressed, then nuclear stress is displaced.

According to Reinhart 1995, (to appear), the specific interpretation of focus is determined by the context, or, as assumed by Cinque 1993, by discourse grammar. Thus independently of the way semantic focus is encoded, it is clear that there is a notion of focus involved, which is interpreted in the semantic component and is independent of the notion of phonological focus or nuclear stress.

The semantic focus can be marked by a diacritic; a feature [focus], or a focus marker F (Jackendoff 1972; the focus markers can be treated as a feature for the present purposes). If the feature is present in the syntactic component, then it is free to be interpreted at both LF and PF, without requiring a direct interaction between the interfaces. Restricting the feature to the semantic component, to avoid the [focus] feature being accessible to phonology, would require an exceptional treatment of the [focus] feature, since no other feature is introduced directly into the semantic component. The only argument for this exceptional treatment is, as noted above, the redundancy of the feature [focus], if the interaction of interfaces is independently allowed. Redundancy by itself, however, fails to provide sufficient arguments against a standard treatment of the feature [focus], where it appears on the constituents present in the lexical array. A diacritic on the focused constituent can thus behave as a [focus] feature with effects at both the PF and LF interfaces.

With respect to the possibility of encoding (semantic) focus in some way other than a diacritic, it is not clear how that encoding could be implemented in a compositional semantic framework. I conclude, then, that even though the possibility of interface interaction suggests the attractive option for eliminating the feature [focus], the feature cannot be disposed of.

7.2.2 Polarity items

To account for the alternation in structural case in Finnish, I proposed that case are underspecified in syntax. The specific morphological and phonological realization depends on semantic properties of the the licenser of the case feature on the nominal.

Underspecification can be extended to other constituents whose distribution is determined by semantic factors. The interaction of semantics and morphology, specifically late insertion, allows morphemes in complementary distribution to be treated as realizations of a single lexical item. In this section I explore the treatment of pairs of positive and polarity items in these terms. Under this view, polarity items are not licensed in certain environments, where they result in ineffability if they appear in contexts where they are not licensed. Rather, a certain lexical item can appear as a polarity item in the 'licensing' environments, and surface in some other form elsewhere.¹⁶³

Transformational accounts of negative polarity items, as in Klima 1964, suggest that indefinites are realized with the determiner *a* or *some*, except for negative sentences. In negative sentences the indefinite determiner is transformed into *no* or *any*, depending on whether overt negation is present in the sentence. The treatment of polarity items explored here differs from Klima 1964 in assuming that the phonological form of both positive and negative polarity items is determined in the morphological component, where late insertion is sensitive to semantic properties.

If it is assumed that the morphological form is determined by semantic information including implicatures (rather than the immediate environment), then the effect of pragmatic conditions on polarity items can also be accommodated. Lakoff 1969 notes that the choice between the PPI *some* and the NPI *any* indefinite can be determined by pragmatic conditions, the expectations of the speaker. If the speaker hopes that the condition is fulfilled, the indefinite surfaces as *some* (2a), and if the expectation is that it is not fulfilled, the NPI *any* is used (2b).

- (2)a I promise you that if you eat {some, *any} spinach, I'll give you ten dollars
b I warn you that if you eat {any, *some} candy, I'll whip you
(Lakoff 1969, Haspelmath 1997)

¹⁶³ The discussion in this section is greatly simplified, and aims to sketch a possible view of polarity items rather than argue for a specific analysis. I am also abstracting away from the distinct types of NPIs and positive polarity items (PPIs) (Giannakidou 1997, van der Wouden 1997) and the licensing environments of these polarity items.

With semantic (and pragmatic) information accessible to the late insertion component, then distribution of the indefinite types can be derived.

In the remainder of this section I briefly discuss the semantic restrictions which determine the distribution of the NPI *any* and the level where these restrictions apply. Possible extensions of this approach, which include free choice items and negative quantifiers as alternative realizations of the same lexical item, will also be discussed.

7.2.2.1 Restrictions on surface structure

The semantic restrictions which determine the different morphological realizations are satisfied at LF. Proponents of a surface structure account (including Progovac 1994 and Laka 1990) argue that negative polarity items (NPIs) must be c-commanded by a licenser – in this case, negation – at surface structure rather than at LF. This restriction accounts for the following data.

- (3)a The police didn't arrest anybody
- b * Anybody wasn't arrested by the police
- c * Anybody didn't come

The surface structure licensing approach runs afoul, as discussed by Uribe-Etxebarria 1995, in examples like (4).¹⁶⁴ An NPI in a complex subject is licensed only if the NPI licensing is possible at LF.

- (4)a [A doctor who knew anything about acupuncture] wasn't available
(Uribe-Etxebarria 1995)
- b [A politician who gave a damn about the issue] wasn't available

For a simple subject, both surface structure and LF licensing are blocked if it cannot reconstruct below negation.¹⁶⁵

¹⁶⁴ (4b) shows that *any* is not a free choice item in (4a).

¹⁶⁵ One possibility is that *any* phrases cannot reconstruct because reconstruction of *any*-phrases is independently blocked. An alternative account is explored by Uribe-Etxebarria 1995, who proposes that

LF licensing is consistent with an indefinite being realized as the NPI *any* or the PPI *some*, depending on the relative scope with respect to negation. The PPI can appear in the c-command domain of negation at Spell-out, but takes wide scope with respect to negation at LF.

- (5)a I don't see anything not > \exists
 b I don't see something \exists > not

Even though NPIs are licensed at LF, some restrictions on licensing must be accounted for. An NPI is not licensed by quantifier raising of a negative quantifier (e.g. Ladusaw 1996).

- (6)a * He read [any of the stories] to none of the children
 b * They asked that [anyone] revise no article

LF licensing of an NPI is possible, but c-command by a licenser is not a sufficient condition.¹⁶⁶

reconstruction of the simple subject is blocked by a restriction on complex predicate formation. According to the latter account, a semantically bleached matrix predicate requires the subject to reconstruct to form a complex predicate. Complex predicate formation can only apply to lexical constituents and *any*-phrases, being of a functional predicate, cannot form a predicate with the matrix verb. The ungrammaticality of simple NPI subjects with a semantically contentful predicate argues against the second hypothesis, since complex predicate formation is not applicable in this case.

- (i) * Any paper wasn't written

I conclude that the reconstruction of *any*-phrases must be independently blocked.

166 Non-subject negative quantifiers cannot take wide scope over a subject:

- (i) Three authors wrote no paper together three > no; *no > three

It is not the case, however, that negative quantifiers are restricted to taking an in situ scope at LF. They can take wide scope with respect to a predicate (ii) or result in a scope splitting (iii), where negation takes scope over the object indefinite as well as the subject.

- (ii) I will force you to marry no one
 (Klima 1964)

- (iii) Alle Ärzte haben kein Auto
 all doctors have no car
 'Not every doctor has a car' (Jacobs 1980)

NPIs must be licensed at LF rather than at the surface structure, even though LF configurations do not account for all licensing environments, as noted above. Some approaches to NPI licensing are discussed below, and it is noted that all appeal to semantic notions which are encoded outside of LF.

7.2.2.2 *Semantic constraints*

The distribution of NPIs is not fully determined by information encoded at the LF interface, which includes c-command relations, binding and scope. As noted above, pragmatic information must be allowed to license NPIs, irrespective of the specific account of NPIs adopted. Without presenting a detailed discussion of different approaches to negative polarity items, I note for a number of them how they appeal to certain pragmatic restrictions on licensing.

The licensing conditions on NPIs can be phrased in terms of downward entailment, as in Ladusaw 1980, 1996: NPIs are licensed if they appear in a downward entailing environment. The assumption that the relevant condition is downward entailment fails to account, however, for a number of cases. Among others, NPI licensing by *only*, adversatives, conditionals and superlatives present a problem for this approach. None of these environments are downward entailing, yet they license NPIs:

- (7)a Only Lisa said anything
- b Lisa was surprised she found anything
- c Lisa is the youngest person to complete any of these tests
- d If Lisa completes any of these tests, she'll set a record

In order to account for these instances of NPI licensing, von Stechow 1999, 2001 argues that the downward entailing condition needs to be modified somewhat. Instead of downward entailment, a necessary condition on NPI licensing is Strawson entailment, as described in chapter 5. Strawson downward entailment requires the entailment to hold only for those cases where all implicatures and presuppositions are satisfied.¹⁶⁷

¹⁶⁷ An additional restriction, namely the need to keep contextual parameters constant for NPI licensing in

Giannakidou 1997, 1998, 2002 argues that NPI licensing should not be described in terms of downward entailment, but rather in terms of veridicality. NPIs are licensed in the scope of non-veridical items, which do not entail the truth of their arguments. Giannakidou argues that non-veridicality as the licensing condition of NPIs accounts for licensing by non-monotone expressions such as *exactly*, modals, future, habitual and generic contexts in addition to the environments that downward entailment or Strawson entailment also capture. NPI licensing by *exactly* and modals are illustrated below.

- (8)a Exactly three students saw anything
- b Lisa may say anything

Even if the relevant property licensing NPIs is non-veridicality (or averidicality for other polarity items such as emphatics and minimizers in Greek), appealing to overt non-veridical items only is not sufficient. As Giannakidou 1997 notes, it must also be allowed for NPIs to be licensed indirectly, in absence of a non-veridical element in the sentence. These NPIs can be licensed indirectly by a negative implicature arising from the sentence containing the NPI. In this case as well as with direct licensing, the NPI must be in the scope of the non-veridical licenser. This ambiguity of direct and indirect NPI licensing builds on Baker 1970 and Linebarger 1987, who argue that NPIs in a sentence S can be licensed by a negative sentence which is entailed or implicated by S, respectively. According to Giannakidou 2002, licensing by a negative implicature accounts for the appearance of *any* with *only* and negative factives:

- (9)a Only Lisa said anything
- b Lisa regrets that she overheard any of the conversation

A third type of approach is argued by Fauconnier 1975 and Kadmon and Landman 1993, who propose a unified account of the NPI (10a) and free choice indefinite *any* (10b), with Fauconnier's treatment extending to other polarity items denoting a low point in a scale.

adversatives and counterfactuals, is also necessary (von Stechow 1999, 2001).

- (10)a He didn't hire any lawyer
b Any lawyer would have warned him

Fauconnier 1975 assumes pragmatic scales as the key ingredient of his account. Constituents such as *any* presuppose a scale of quantities, kinds, entities or some other dimension, where items are ordered along that scale. On the scale presupposed in (11), it is quantities of noise that are ordered, with louder noises appearing higher on the scale.

- (11) She didn't hear *any noise* that night

Scales, which can also be presupposed by superlatives, give rise to scalar entailment. The assertion in (12) and the scalar presupposition give rise to the entailment that she heard all sounds that he made.¹⁶⁸

- (12) She heard the slightest noise he made

A constituent which denotes the lowest point on the scale, such as the object in (12) or (13), give rise to a universal reading, entailing that the predicate holds for all higher values of the scale.

- (13) He should hire any lawyer

Free choice items, as in (13), denote the lowest value in the scale. NPI *any* also denotes the lowest value of the scale, but is only licensed in environments where the scale is reversed.

- (14) He didn't hire any lawyer

168 The scalar interpretation requires a non-specific interpretation of the superlative (a quantifying *superlative* (Fauconnier 1975)). The interpretation which can be paraphrased as *She heard a certain noise, which is the slightest noise he made* is thus irrelevant.

Negation (and other NPI licensing environments) yield to a reversal of the scale. In these cases the constituent which entailed universal interpretation fails to yield that entailment. Instead, the reverse endpoint of the scale entails that interpretation, as in (15). With a non-specific interpretation of the superlative, if she didn't hear the loudest sound, then she heard no sound that he made.

(15) She didn't hear the loudest sound he made

Fauconnier 1975 argues that both free choice indefinites and negative polarity items denote the lowest element on the scale. NPIs appear in reversed scales and free choice items in scales which are not reversed.

According to Haspelmath 1997, the account of *any* proposed by Kadmon and Landman 1993 is comparable to that of Fauconnier 1975. He argues that the theory of Fauconnier 1975 fares better, since it uses independently motivated constructs such as pragmatic scales, endpoints on a scale and scalar implicatures (in contrast with Kadmon and Landman 1993's contextual dimension, widening and strengthening, respectively). In addition, as Haspelmath 1997 points out, in many cases there is a connection between the form of the NPI and the meaning of a low scalar endpoint. This is encoded in the theory of Fauconnier 1975, but remains accidental according to Kadmon and Landman 1993.

Fauconnier 1975 as well as Kadmon and Landman 1993 appeal to pragmatic notions in their account of NPIs. The notion of pragmatic scales as well as strengthening and widening are constructs which are not available at LF.

All four approaches discussed rely on certain pragmatic notions (presuppositions, entailments, implicatures, pragmatic scales, among others) to determine the environments where NPIs are licensed. If the morphological and phonological form of polarity items is determined by semantic properties, then this amounts to the need of morphology to be sensitive to semantic and pragmatic information.

This assumption requires that late insertion be sensitive to the output of the semantic interpretive mechanism. This requirement is not specific to the account of polarity items, as noted above. Recall that case alternation in Finnish also requires an interaction between semantic interpretation and morphology rather than an LF representation and the morphological component. As argued at length earlier, the relevant semantic property which interacts with case marking in Finnish is divisibility. Divisibility is determined compositionally in the semantic component rather than at LF, since the semantic interpretive mechanism lies outside of the LF interface proper.

7.2.2.3 A uniform treatment of PPIs, NPIs and negative quantifiers

The treatment of polarity items sketched above resembles a recent proposal by Szabolcsi 2004. In a detailed study of the distinct types of polarity items and their licensing environments, Szabolcsi considers a non-standard treatment accounting for their distribution. Szabolcsi 2004 builds on Postal 2000, who assumes that NPIs are not confined to licensing environments. Rather, the lexical entry of NPIs (*anyone*) is the same as that of comparable negative quantifiers (e.g. *no one*). Whether the given lexical item surfaces as an NPI or a negative quantifier depends the realization of the inherent negation contained in the lexical item. Inherent negation can either (a) stay in place and be realized within the lexical item (yielding a negative quantifier) or (b) be removed, resulting in an NPI).

Based on the grammaticality of PPIs occurring in the scope of anti-additive operators, Szabolcsi 2004 argues for a specific account of PPIs. In (16a,b), PPIs are grammatical in the scope of the anti-additive negation if a further NPI licensing environment, which takes wide scope, is also present. In absence of a further NPI-licensing context, the PPI is excluded from the scope of the anti-additive operator (16c).

- | | | |
|-------|---|---------------------|
| (16)a | I don't think that John didn't call someone | not > not > some |
| | b I regret that John didn't call someone | regret > not > some |
| | c I think that John didn't call someone | *not > some |

Szabolcsi 2004 argues that PPIs have two NPI features, which are not necessarily active. These features are activated in contexts that license a strong NPI feature, which also licenses one of the NPI features. The other NPI feature must be licensed by an additional context which generally licenses weak NPI features. Otherwise the second, unlicensed NPI feature leads to ungrammaticality. The specific NPI licensing conditions are not specified; they can be phrased in terms of any of the accounts discussed above.

Finally, Szabolcsi 2004 unifies the account of PPIs with Postal's description of NPIs and negative quantifiers. She argues that NPIs, negative quantifiers and PPIs are the distinct realizations of the same lexical item, which contains two instances of negation ($\neg\neg\exists$). The difference licensing relations of negation yield the four possibilities sketched below.

- | | | |
|-------|---|-----------------|
| (17)a | Both negations stay in the lexical item | [<i>some</i>] |
| b | One negation stays in place, the other is licensed internally | [<i>no</i>] |
| c | Both negations are licensed by external licensors | [<i>some</i>] |
| d | Elsewhere ¹⁶⁹ | [<i>any</i>] |

The account of Szabolcsi 2004 is more general than the unified account of NPIs and PPIs proposed above, since it also encompasses negative quantifiers. It also differs from the preceding discussion in offering a specific account of NPI and PPI licensing.

A unified account of negative and positive polarity items is independent of the specific theory of licensing conditions, as noted earlier. In addition, an appropriately general account can treat free choice indefinites as the realization of the same underlying lexical item as negative quantifiers and PPI or NPI indefinites.

169 In these cases, there are two licensing configurations possible. Either one negation is removed, and the other is licensed by removed negation; or one negation is licensed by an external licensor and the other is licensed internally. The second scenario arises, as argued by Postal 2000, when the NPI is licensed by a constituent other than negation.

Szabolcsi 2004 cites two arguments against extending the account to free choice items. On the one hand, she notes that a number of languages have different morphological realizations of free choice and NPI indefinites. In contrast, Haspelmath 1997 notes that of the 40 languages he examined, about half use the same morphological form to express the two types of indefinites; the correlation is thus unlikely to be accidental. In addition, if two pronouns surface as distinct lexical items in a language, this conclusion does not necessarily carry over to the lexicon of other languages. The second argument of Szabolcsi 2004 is the general lack of homonymous free choice counterparts of NPIs. This argument, I believe, also fails to exclude the possibility of at least some lexical items appearing as either NPIs or free choice indefinites, especially given the heterogeneous nature of polarity items (e.g. Giannakidou 1997, van der Wouden 1997). The lack of ubiquitous correlation between free choice items and PPIs can also be ascribed to a morphological gap. For NPIs and PPIs, Szabolcsi 2004 proposes that they are not in complete complementary distribution because of a morphological gap of some PPI or NPI counterparts of the polarity items. This can be extended to account for the limited distribution of free choice items with respect to negative polarity items as well.

To conclude: rather than assuming distinct licensing conditions for negative quantifiers, PPIs, NPIs and free choice items as separate lexical entries, a late insertion account sensitive to semantic interpretation can treat these as distinct realizations of the same lexical item. The underspecification approach derives the distribution of these items by appealing to semantic and pragmatic conditions which determine the distribution of the specific morphological forms. The account in terms of underspecification, similarly to considerations within phonology, avoids the systematic multiplication of lexical entries.¹⁷⁰

¹⁷⁰ Even though semantic and pragmatic factors determine the distribution of these items some optionality must be permitted. A non-free choice PPI indefinite determiner with a non-divisible NP complement can surface as *a* or *some*. This limited optionality is not a specific property of the proposed approach, but must be assumed by all late insertion accounts.

In general, the possibility of semantic or pragmatic information affecting morphological realization and phonological properties allows for a more economical view of the lexicon, since it eliminates redundancy. The number of non-convergent derivations is also minimized, since morphological alternation is encoded as the result of semantic sensitivity of late insertion. This account also enforces, as argued in the discussion of Finnish case marking, a view of grammar where cyclicity is more widespread than standardly assumed. I argued that in addition to the cyclicity of Spell-out, interpretation – at least semantic interpretation – is also cyclic. Further predictions arising from the sensitivity of morphology and phonology to semantics, as well as other issues noted earlier in this chapter, remain to be explored.

References

- Abney, Steven. 1987. The English noun phrase in its sentential aspect. PhD dissertation, MIT
- Aissen, Judith. 2003. Differential object marking: Iconicity vs. economy. *Natural Language and Linguistic Theory* 21
- Arehart, Mark. 2001. Object case, aspect, and maximality in Finnish. ms, University of Michigan
- Arregi-Urbina, Karlos. 2002. Focus on Basque movements. PhD dissertation, MIT
- Asudeh, Ash. 2003. A licensing theory for Finnish. in D. Nelson and S. Manninen (eds) *Generative Approaches to Finnish and Saami Linguistics*. Stanford: CSLI
- Babby, Leonard. 1980. *Existential Sentences and Negation in Russian*. Ann Arbor: Karoma Publishers
- Babyonshev, Maria. 1996. Structural connections in syntax and processing: Studies in Russian and Japanese. PhD dissertation, MIT
- Bach, Emmond. 1986. The algebra of events. *Linguistics and Philosophy* 9
- Bailyn, John. F. 1997. Genitive of negation is obligatory. in W. Browne, E. Dornisch, N. Kondrashova and D. Zec (eds) *Formal Approaches to Slavic Linguistics IV: The Cornell Meeting 1995*. Ann Arbor: Michigan Slavic Publishers
- Baker, C. Lee. 1970. Double negatives. *Linguistic Inquiry* 1
- Baltin, Mark. 2003. A Remnant Movement Account of Pesetsky's Paradox. unpublished ms., NYU
- Barker, C. 2000. Definite possessives and discourse novelty. *Theoretical Linguistics* 26
- Barss, Andrew and Howard Lasnik. 1986. A note on anaphora and double objects. *Linguistic Inquiry* 17
- Beard, Robert. 1986. *On the Separation of Derivation from Morphology: Toward a Lexeme / Morpheme based Morphology*. Bloomington, Ind: Indiana University Linguistics Club
- Belletti, Adriana. 1988. The case of unaccusatives. *Linguistic Inquiry* 19

- Bennett, Michael and Barbara Partee. 1972. Toward the logic of tense and aspect in English. System Development Corporation, Santa Monica, Calif. Reprinted in Partee, B. *Compositionality in Formal Semantics*. 2004. Oxford: Blackwell
- Bissell Doggett, Teal. 2004. All things being unequal: Locality in movement. PhD dissertation, MIT
- Blaszczak, Joanna. 2001. Covert Movement and the Genitive of Negation in Polish. *Linguistics in Potsdam* 15
- Bobaljik, Jonathan and Phil Branigan. to appear. Eccentric Agreement and Multiple Case Checking. in A. Johns, D. Massam, and J. Ndayiragije (eds). *Ergativity: Emerging Issues*. Dordrecht: Kluwer
- Borik, Olga. 2002. Aspect and reference time. PhD dissertation, University of Utrecht
- Bossong, Georg. 1991. Differential object marking in Romance and beyond. in D. Wanner and D. Kibbee (eds) *New Analyses in Romance Linguistics: Selected Papers from the XVIII Linguistic Symposium on Romance Languages, Urbana-Champaign, April 7-9, 1988*. Amsterdam: John Benjamins
- Bresnan, Joan. 1972. On sentence stress and syntactic transformations. in M. Brame (ed) *Contributions to Generative Phonology*. Austin: University of Austin Press
- Bresnan, Joan. 1994. Locative inversion and the architecture of universal grammar. *Language* 70
- Brody, Michael. 1990. Some remarks on the focus field in Hungarian. *UCL Working Papers in Linguistics* 2:201-225
- Brody, Michael. 1995. Focus and checking theory. in I. Kenesei (ed) *Levels and Structures. Approaches to Hungarian* 5. Szeged: JATE
- Brown, Sue. 1996. The syntax of negation in Russian. PhD dissertation, Indiana University
- Büring, Daniel. 1997. *The Meaning of Topic and Focus. The 59th Street Bridge Accent*. London and New York: Routledge
- Carlson, Gregory. 1977. Reference to kinds in English. PhD dissertation. University of Massachusetts, Amherst

- Chierchia, Gennaro. 1998. References to kinds across languages. *Natural Language Semantics* 6
- Chomsky, Noam. 1971. Deep structure, surface structure and semantic interpretation. in D. Steinberg and L. Jakobovits (eds) *Semantics: An Interdisciplinary Reader in Philosophy, Linguistics and Psychology*. Cambridge: Cambridge University Press
- Chomsky, Noam. 1981. *Lectures on Government and Binding: The Pisa Lectures*. Dordrecht: Foris
- Chomsky, Noam. 1986. *Barriers*. Cambridge, MA: MIT Press
- Chomsky, Noam. 1993. A minimalist program for linguistic theory. in K. Hale and S. J. Keyser (eds) *The View from Building 20*. Cambridge, MA: MIT Press [reprinted in Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, MA: MIT Press]
- Chomsky, Noam. 1995. Bare phrase structure. in G. Webelhuth (ed). *Government and Binding Theory and the Minimalist Program*. Oxford: Oxford University Press
- Chomsky, Noam. 2000. Minimalist inquiries: The framework. In Roger Martin, David Michaels and Juan Uriagereka (eds.) *Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik*. Cambridge, MA: MIT Press
- Chomsky, Noam. 2001a. Derivation by phase. in M. Kenstowicz (ed) *Ken Hale: A Life in Language*. Cambridge, MA: MIT Press
- Chomsky, Noam. 2001b. *Beyond Explanatory Adequacy*. MITOPL 20. Cambridge, MA: MITWPL
- Cinque, Guglielmo. 1993. A null theory of phrase and compound stress. *Linguistic Inquiry* 24
- Cinque, Guglielmo. 1999. *Adverbs and Functional Heads*. New York and Oxford: Oxford University Press
- Collins, Chris. 1997. *Local Economy*. Cambridge, MA: MIT Press
- Comrie, Bernard. 1989. *Language Universals and Linguistics Typology*. 2nd ed. Chicago: University of Chicago Press
- Copley, Bridget. 2002. The semantics of the future. PhD dissertation, MIT
- Croft, William. 1988. *Typology and Universals*. Cambridge: University of Cambridge Press

- Dowty, David. 1979. *Word Meaning and Montague Grammar*. Dordrecht: Kluwer
- Dowty, David. 1986. The effects of aspectual class on the temporal structure of discourse: Semantics or pragmatics?. *Linguistics and Philosophy* 9
- Dowty, David. 1991. Thematic proto-roles and argument selection. *Language* 67
- Dziwirek, Katarzyna. 1998. Reduced constructions in universal grammar: Evidence from the Polish object control construction. *Natural Language and Linguistic Theory*. 16
- Farkas, Donka. 1978. Direct and indirect object reduplication in Romanian. in *CLS 14*
- Farkas, Donka. 2002. Specificity distinctions. *Journal of Semantics* 19:213-243
- Fauconnier, Gilles. 1975. Pragmatic scales and logical structures. *Linguistic Inquiry*. 6
- Filip, Hana and Gregory Carlson. 1997. Sui generis genericity. in *Penn Working Papers in Linguistics* vol. 4
- von Fintel, Kai. 1997. Aspectual classes and aspectual composition. handout, MIT
- von Fintel, Kai. 1999. NPI Licensing, Strawson-entailment, and context-dependency. *Journal of Semantics* 16
- von Fintel, Kai. 2001. Counterfactuals in a dynamic context. in M. Kenstowicz (ed) *Ken Hale. A Life in Language*. Cambridge, MA: MIT Press
- von Fintel, Kai and Sabine Iatridou. 2002. Since ~~since~~. ms, MIT
- Fox, Danny and David Pesetsky. 2005. Cyclic linearization of syntactic structure. *Theoretical Linguistics* 31
- Frampton, John and Sam Gutmann. 2002. Crash-proof syntax. in S. Epstein and D. Seely (eds) *Derivation and Explanation in the Minimalist Program*. Oxford: Blackwells
- Freeze, Ray. 1992. Existentials and other locatives. *Language* 68
- Gajewski, Jon. 2002. On analyticity in natural language. ms, MIT
- Giannakidou, Anastasia. 1997. The landscape of polarity items. PhD dissertation, University of Groningen
- Giannakidou, Anastasia. 1998. *Polarity Sensitivity as (Non)veridical Dependency*. Amsterdam: John Benjamins
- Giannakidou, Anastasia. 2002. Licensing and sensitivity in polarity items: From downward entailment to (non)veridicality. *CLS* 39

- George, Leland and Jaklin Kornfilt. 1981. Finiteness and boundedness in Turkish. in F. Heny (ed) *Binding and Filtering*. Cambridge, MA: MIT Press
- Giorgi, Alessandra and Giuseppe Longobardi. 1991. *The Syntax of Noun Phrases: Configurations, Parameters and Empty Categories*. Cambridge: Cambridge University Press
- Giorgi, Alessandra and Fabio Pianesi. 1997. *Tense and Aspect. From Semantics to Morphosyntax*. Oxford: Oxford University Press
- Hagstrom, Paul. 1998. Decomposing questions. PhD dissertation, MIT
- Hale, Kenneth and S. Jay Keyser. 1993. On argument structure and the lexical representation of syntactic relations. in K. Hale and S. J. Keyser (eds) *The View from Building 20*. Cambridge, MA: MIT Press
- Hale, Kenneth and S. Jay Keyser. 1998. The basic elements of argument structure. in H. Harley (ed) *Papers from the UPenn/ MIT Roundtable on Argument Structure and Aspect*. MITWPL 32. Cambridge, MA: MITWPL
- Hale, Kenneth and S. Jay Keyser. 2002. *Prolegomenon to a Theory of Argument Structure*. Cambridge, MA: MIT Press
- Halle, Morris and Alec Marantz. 1993. Distributed morphology and the pieces of inflection. in K. Hale and S. J. Keyser (eds) *The View from Building 20*. Cambridge, MA: MIT Press
- Halle, Morris and Alec Marantz. 1994. Some key features of Distributed Morphology. in A. Carnie and H. Harley (eds) *Papers on Phonology and Morphology*. MITWPL 21. Cambridge, MA: MITWPL
- Harley, Heidi and Rolf Noyer. 1999. State-of-the-Article: Distributed morphology. in *GLOT 4.4*
- Harves, Stephanie. 2003. Unaccusatives syntax in Russian. PhD dissertation, Princeton
- Haspelmath, Martin. 1997. *Indefinite Pronouns*. Oxford: Clarendon Press
- Hatav, Galia. 1997. *The Semantics of Aspect and Modality: Evidence from English and Biblical Hebrew*. Amsterdam: John Benjamins

- Hay, Jennifer, Christopher Kennedy, and Beth Levin. 1999. Scalar structure underlies telicity in "degree achievements". in T. Matthews and D. Strolovitch (eds). *Proceedings of SALT IX*. Ithaca: CLC
- Hayes, Bruce and Aditi Lahiri. 1991. Bengali intonational phonology. *Natural Language and Linguistic Theory*. 9
- Heim, Irene. 1982. The semantics of definite and indefinite noun phrases. PhD dissertation. University of Massachusetts, Amherst
- Heim, Irene and Angelika Kratzer. 1998. *Semantics in Generative Grammar*. Oxford: Blackwell
- Heinämäki, Orvokki. 1984. Aspect in Finnish. in C. de Groot and H. Tommola (eds.). *Aspect Bound: A Voyage into the Realm of Germanic, Slavonic and Finno-Ugrian Aspectology*. Dordrecht: Foris
- Hinrichs, Erhard. 1985. A compositional semantics for Aktionsarten and NP reference in English. PhD dissertation, Ohio State University
- Hinrichs, Erhard. 1986. Temporal anaphora in discourses in English. *Linguistics and Philosophy* 9
- Hiraiwa, Ken. 2000. On nominative – genitive conversion. in O. Matushansky and E. Guerzoni (eds.) *A Few From Building E-39*. MIT Working Papers in Linguistics 39. Cambridge, MA.: MITWPL
- Hiraiwa, Ken. 2001. Multiple agree and the defective intervention constraint in Japanese. in O. Matushansky et. al. (eds.) *The Proceedings of the MIT-Harvard Joint Conference (HUMIT 2000)*. MIT Working Papers in Linguistics 40. Cambridge, MA.: MITWPL
- Hoffman, Joel. 1996. Syntactic and paratactic word-order effects. PhD dissertation, University of Maryland at College Park
- Holmberg, Anders and Urpo Nikanne. 1993. Introduction. in A. Holmberg and U. Nikanne (eds) *Case and Other Functional Categories in Finnish Syntax*. Berlin: Mouton de Gruyter

- Holmberg, Anders and Urpo Nikanne. 2002. Expletives, subjects, and topics in Finnish. in P. Svenonius (ed) *Subjects, Expletives, and the EPP*. Oxford: Oxford University Press
- De Hoop, Helen. 1992. Case Configuration and Noun Phrase Interpretation. PhD dissertation, University of Groningen.
- Horn, Lawrence. 2001. *A Natural History of Negation*. Stanford: CSLI (reissue of Horn, L. 1989. *A Natural History of Negation*. Chicago: University of Chicago Press)
- Hornstein, Norbert. 1990. *As Time Goes By: Tense and Universal Grammar*. Cambridge, MA: Bradford Books and MIT Press
- Iatridou, Sabine, Elena Anagnostopoulou and Roumyana Izvorski. 2001. Observations and the form and meaning of the perfect. in M. Kenstowicz (ed) *Ken Hale: A Life in Language*. Cambridge, MA: MIT Press
- Ishihara, Shinichiro. 2003. Intonation and interface conditions. PhD dissertation, MIT
- Jackendoff, Ray. 1972. *Semantic Interpretation in Generative Grammar*. Cambridge, MA: MIT Press
- Jacobs, Joachim. 1980. Lexical decomposition in Montague grammar. *Theoretical Linguistics* 7
- Jahnsson, A. W. 1871. Finska språkets satslära. För skoarnas behof. Helsingfors: s.n.
- Johnson, Kyle. 1996. In search of the middle field. ms. University of Massachusetts, Amherst. revised as J. Kyle. 2003. In search of the English middle field. ms, University of Massachusetts, Amherst
- Kadmon, Nirit and Fred Landman. 1993. Any. *Linguistics and Philosophy*. 16:353-422
- Kamp, Hans. 1981. A theory of truth and semantic representation. in J. Groenendijk, T. Janssen and M. Stokhof (eds) *Formal Methods in the Study of Language*. Amsterdam: Mathematisch Centrum
- Kamp, Hans and Uwe Reyle. 1993. *From Discourse to Logic*. Dordrecht: Kluwer
- Kangasmaa-Minn, Eva. 1984. Tense, aspect and Aktionsart in Finno-Ugrian. in C. de Groot and H. Tommola (eds) *Aspect Bound: A Voyage into the Realm of Germanic, Slavonic and Finno-Ugrian Aspectology*. Dordrecht: Foris

- Karlsson, Fred. 1983. *Finnish Grammar*. Helsinki: Werner Söderström Osakeyhtiö. trans. A. Chesterman
- Katz, Graham. 2003. On the stativity of the English perfect. in A. Alexiadou, M. Rathert and A. von Stechow (eds) *Perfect Explorations*. Berlin: Mouton de Gruyter
- Kiparsky, Paul. 1998. Partitive case and aspect. in M. Butt and W. Geuder (eds) *The Projection of Arguments: Lexical and Compositional Factors*. Stanford: CSLI.
- Kiparsky, Paul. 2001. Structural case in Finnish. *Lingua* 11
- Kiparsky, Paul. 2005. Absolutely a matter of degree: The semantics of structural case in Finnish. Talk at CLS 41
- Klein, Wolfgang. 1992. The present perfect puzzle. *Language* 68
- Klein, Wolfgang. 1994. *Time in Language*. London and New York: Routledge
- Klima, Edward. 1964. Negation in English. in J. Fodor and J. Katz (eds.) *The Structure of Language*. New Jersey: Prentice-Hall
- Kratzer, Angelika. 1998. More structural analogies between pronouns and tenses. in D. Strolovitch and A. Lawson (eds). *Proceedings of SALT VIII*. Ithaca: CLC
- Kratzer, Angelika. 2004. Telicity and the meaning of objective case. In Jacqueline Guéron and Jacqueline Lecarme (eds). *The Syntax of Time*. Cambridge, MA: MIT Press
- Krifka, Manfred. 1989. Nominal reference and temporal constitution: Towards a semantics of quantity. in R. Bartsch, J. van Benthem, and P. van Emde Boas (eds). *Semantics and Contextual Expressions*. Dordrecht: Foris
- Krifka, Manfred. 1992. Thematic relations as links between nominal reference and temporal constitution. In Ivan A. Sag and Anna Szabolcsi (eds). *Lexical Matters*. Stanford: Stanford University
- Krifka, Manfred. 1998. The origins of telicity. in Susan Rothstein (ed.) *Events and Grammar*. Dordrecht: Kluwer
- Krifka, Manfred, Francis Jeffrey Pelletier, Gregory N. Carlson, Alice ter Meulen, Godehard Link, Gennaro Chierchia. 1995. Genericity: An introduction. in G. Carlson and F. J. Pelletier (eds) *The Generic Book*. Chicago and London: University of Chicago Press

- Ladusaw, William. 1980. *Polarity Sensitivity as Inherent Scope Relations*. New York: Garland
- Ladusaw, William. 1996. Negation and polarity items. in S. Lappin (ed) *The Handbook of Contemporary Semantic Theory*. Oxford: Blackwell
- Laka, Itziar. 1990. Negation in syntax: On the nature of functional categories and projections. PhD dissertation. MIT, Cambridge, Massachusetts
- Lakoff, George. 1970. *Irregularity in Syntax*. New York: Holt, Rinehart and Winston
- Lakoff, Robin. 1969. Some reasons why there can't be any *some – any* rule. *Language* 45
- Lambrecht, Knud. 1994. *Information Structure and Sentence Form*. Cambridge: Cambridge University Press
- Landman, Fred. 1992. The progressive. *Natural Language Semantics* 1
- Larson, Richard. 1988. On the double object construction. *Linguistic Inquiry* 19:335-391
- Larson, Richard and Robert May. 1990. Antecedent containment or vacuous movement: reply to Baltin. *Linguistic Inquiry* 21
- Lechner, Winfried. 2002. Some comments on Phillips (2002). ms, University of Tübingen
- Lechner, Winfried. 2003. Phrase structure paradoxes, movement and ellipsis. in K. Schwabe and S. Winkler (eds) *The Interfaces*. Amsterdam: John Benjamins
- Legate, Julie. 1998. Verb phase types and the notion of a phase. ms, MIT
- Legate, Julie. 2003. Some interface properties of the phase. *Linguistic Inquiry* 34:3
- Levy, Roger and Carl Pollard. 2002. Coordination and neutralization in HPSG. in F. van Eynde, L. Hellan and D. Beermann (eds) *Proceedings of the 8th International HPSG Conference*. Stanford: CSLI
- Linebarger, Marcia. 1987. Negative polarity and grammatical representation. *Linguistics and Philosophy* 10
- Link, Godehard. 1987. Algebraic semantics of event structures. in J. Groenendijk, M. Stokhof, and F. Veltman (eds). *Proceedings of the Sixth Amsterdam Colloquium*. Amsterdam: ITLI (reprinted in Link 1998)
- Link, Godehard. 1998. *Algebraic Semantics in Language and Philosophy*. Stanford: CSLI
- Maling, Joan. 1989. Adverbials and structural case in Korean. in *Harvard Studies in Korean Linguistics III*

- Maling, Joan. 1993. Of nominative and accusative: The hierarchical assignment of grammatical case in Finnish. in A. Holmberg and U. Nikanne (eds) *Case and Other Functional Categories in Finnish Syntax*. Berlin and New York: Mouton de Gruyter
- Manninen, Satu Helena. 2003. *Small Phrase Layers. A Study of Finnish Manner Adverbials*. Amsterdam and Philadelphia: John Benjamins
- Marantz, Alec. 1991. Case and licensing. in B. Ao, G. Westphal and H-R. Chae (eds) *Proceedings of the Eighth Eastern States Conference on Linguistics*. Ithaca, NY: CLC Publications
- Matushansky, Ora. 2005. Going through a phase. in M. McGinnis and N. Richards (eds) *Perspectives on Phases*. MITWPL 49. Cambridge, MA: MITWPL
- May, Robert. 1985. *Logical Form: Its Structure and Derivation*. Cambridge, MA: MIT Press
- Mittwoch, Anita. 1988. Aspects of English aspect: On the interaction of Perfect, progressive and durational phrases. *Linguistics and Philosophy* 11
- Moens, Marc and Mark Steedman. 1988. Temporal ontology and temporal reference. *Computational Linguistics* 12
- Moltmann, Frederike. 1991. Measure adverbials. *Linguistics and Philosophy* 14:629-660
- Neeleman, Ad and Tanya Reinhart. 1998. Scrambling and the PF interface. in W. Geuder and M. Butt (eds) *The Projection of Arguments*. Stanford: CSLI
- Nelson, Diane. 1998. *Grammatical Case Assignment in Finnish*. New York: Garland
- Nishigauchi, Taisuke. 1990. *Quantification in the Theory of Grammar*. Dordrecht: Kluwer
- Nissenbaum, Jonathan. 2000. Investigations of covert phrase movement. PhD dissertation, MIT
- Partee, Barbara and Vladimir Borschev. 2005. The Semantics of Russian genitive of negation: The nature and role of perspectival structure. in R. B. Young (ed) *Proceedings of SALT XIV*. Ithaca: CLC
- Pesetsky, David. 1982. Paths and categories. PhD dissertation, MIT

- Pesetsky, David. 1995. *Zero Syntax: Experiencers and Cascades*. Cambridge, MA: MIT Press
- Pesetsky, David. 2000. *Phrasal Movement and its Kin*. Cambridge, MA: MIT Press
- Pesetsky, David and Esther Torrego. 2001. T-to-C movement: Causes and consequences. in M. Kenstowicz (ed). *Ken Hale: A Life in Language*. Cambridge, MA: MIT Press
- Pesetsky, David and Esther Torrego. 2004. Tense, case and the nature of syntactic categories. in J. Guéron and J. Lecarme (eds) *The Syntax of Time*. Cambridge, MA: MIT Press
- Phillips, Colin. 1996. Order and structure. PhD dissertation, MIT
- Phillips, Colin. 2003. Linear order and constituency. *Linguistic Inquiry* 34
- Piñón, Christopher. 1999. Durative adverbs for result states. in S. Bird, A. Carnie, J. Haugen and P. Norquest (eds). *WCCFL 18*. Somerville: Cascadilla Press
- Pollock, Jean-Yves. 1989. Verb movement, universal grammar, and the structure of IP. *Linguistic Inquiry* 20
- Postal, Paul. 2000. The Ohio lectures on *squat*. ms, New York University
- Potts, Christopher. 2001. What we should do is blame *do*. ms, UCSC
- Progovac, Ljiljana. 1994. *Negative and Positive Polarity: A Binding Approach*. Cambridge: Cambridge University Press
- Ramchand, Gillian. 1997. *Aspect and Predication: the Semantics of Argument Structure*. Oxford: Oxford University Press
- Ramchand, Gillian. 2004. First phase syntax. ms, University of Oxford
- Reichenbach, Hans. 1947. *Elements of Symbolic Logic*. New York: The Free Press
- Reinhart, Tanya. 1995. Interface strategies. *OTS Working Papers*
- Reinhart, Tanya. (to appear) *Interface Strategies*. Cambridge, MA: MIT Press
- Richards, Norvin. 2000. An island effect in Japanese. *Journal of East Asian Linguistics* 9
- Rimell, Laura. 2004. Habitual sentences and generic quantification. in V. Chand, A. Kelleher, A. Rodriguez and B. Schmeiser (eds). *Proceedings of WCCFL 23*. Somerville, MA: Cascadilla Press
- Rothstein, Susan. 2004. *Structuring Events*. Oxford: Blackwell

- Schmitt, Cristina. 1998. Against VP aspect as a formal feature. in E. Curtis, J. Lyle and G. Webster (eds). *Proceedings of WCCFL XVI*. Stanford: CSLI
- Silverstein, Michael. 1981. Case marking and the nature of language. *Australian Journal of Linguistics* 1
- Smith, C. 1997. *The Parameter of Aspect*. Dordrecht: Kluwer (2nd edition)
- Stechow, Arnim von. 2002. Temporal prepositional phrases with quantifiers: Some additions to Pratt and Francez. ms, Universitat Tübingen
- Suñer, Margarita. 2000. Object shift: Comparing Romance to Germanic. *Probus* 12
- Svenonius, Peter. 2002a. Case is uninterpretable aspect. *Proceedings on Perspectives on Aspect Conference at Utrecht*
- Svenonius, Peter. 2002b. Icelandic Case and the Structure of Events in *Journal of Comparative Germanic Linguistics* 5
- de Swart, Helen. 1998. Aspect shift and coercion. *Natural Language and Linguistic Theory*. 16
- de Swart, Helen. 2000. Tense, aspect and coercion in a cross-linguistic perspective. in M. Butt and T. H. King (eds) *Proceedings of the Berkeley Formal Grammar Conference*. University of California, Berkeley
- de Swart, Helen and Arie Molendijk. 1999. Negation and the temporal structure of narrative discourse. *Journal of Semantics* 16
- Szabolcsi, Anna. 1983. The possessor that ran away from home. *The Linguistic Review* 3
- Szabolcsi, Anna. 1994. The noun phrase. in F. Kiefer and K. E. Kiss (eds) *Syntax and Semantics 27: The Syntactic Structure of Hungarian*. New York: Academic Press
- Szabolcsi, Anna. 2004. Positive polarity – negative polarity. *Natural Language and Linguistic Theory* 22
- Szendrői, Kriszta. 2001. Focus and the syntax – phonology interface. PhD dissertation, University College London
- Szendrői, Kriszta. 2003. A stress-based approach to the syntax of Hungarian focus. *The Linguistic Review* 20
- Taraldsen, K. Tarald. 1986. Nominative objects in Finnish. in P. Muysken and H. van Riemsdijk (eds). *Features and Projections*. Dordrecht: Foris

- Thompson, Ellen. 1996. The syntax of tense. PhD dissertation, University of Maryland at College Park
- Timberlake, Alan. 1975a. The nominative object in Finnish. *Lingua* 35
- Timberlake, Alan. 1975b. Hierarchies in the genitive of negation. *Slavic and East European Journal* 19. Reprinted in R. D. Brecht and J. S. Levine (eds) *Case in Slavic*. Columbus: Slavica. 1986
- Torrego, Esther. 1998. *The Dependencies of Objects*. Cambridge, MA: MIT Press
- Tsimpli, Maria. 1995. Focusing in Modern Greek. in K. É. Kiss (ed) *Discourse Configurational Languages*. Oxford: Oxford University Press
- Ura, Hiroyuki. 1994a. Hyper-raising and the theory of *pro*. in *Proceedings of SCIL 6*. MITWPL 23. Cambridge, MA: MITWPL
- Ura, Hiroyuki. 1994b. *Varieties of raising and the feature-based bare phrase structure theory*. MIT Occasional Papers in Linguistics 7. Cambridge, MA: MITWPL
- Ura, Hiroyuki. 1996. Multiple feature checking: A theory of grammatical function splitting. PhD dissertation, MIT
- Ura, Hiroyuki. 2000. *Checking Theory and Grammatical Functions in Universal Grammar*. New York and Oxford: Oxford University Press
- Uriagereka, Juan. 1999. Multiple spell-out. in S. Epstein and N. Hornstein (eds). *Working Minimalism*. Cambridge, MA: MIT Press
- Uribe-Etxebarria, Myriam. 1995. Negative polarity item licensing, indefinites and complex predicates. in M. Simons and T. Galloway (eds) *SALT V*. Ithaca: CLC
- Vainikka, Anne. 1989. Deriving syntactic representations in Finnish. PhD dissertation, University of Massachusetts at Amherst
- Verkuyl, Henk. 1993. *A Theory of Aspectuality*. Cambridge: Cambridge University Press
- Vilkuna, Maria. 1995. Discourse configurationality in Finnish. in K. É. Kiss (ed) *Discourse Configurational Languages*. Oxford: Oxford University Press
- Watanabe, Akira. 1992. Subjacency and S-structure movement of wh-in-situ. *Journal of East Asian Linguistics* 1
- Wechsler, Stephen and Yae-Sheik Lee. 1996. The domain of direct case assignment. *Natural Language and Linguistic Theory* 14

- Willim, Eva. 1990. On Case-Marking in Polish. *Papers and Studies in Contrastive Linguistics* 25
- Winter, Yoad. 2001. Measure phrase modification in a vector space semantics. in K. Megerdooian and L. A Bar-el, (eds) *Proceedings of WCCFL 20*. Somerville, MA: Cascadilla Press
- Wouden, Ton van der. 1997. *Negative Contexts: Collocation, Polarity and Multiple Negation*. London and New York: Routledge
- Wurmbrand, Susi. 2001. *Infinitives. Restructuring and Clause Structure*. Berlin: Mouton de Gruyter
- Yip, Moira, Joan Maling, and Ray Jackendoff. 1987. Case in tiers. *Language* 63
- Zanutini, Raffaella. 1997. *Negation and Clausal Structure. A Comparative Study of Romance Languages*. New York and Oxford: Oxford University Press
- Zimmermann, Malte. 2002. Boys buying two sausages each: On the syntax and semantics of distance-distributivity. PhD dissertation, University of Utrecht
- Zubizarreta, Maria Luisa. 1998. *Prosody, Focus and Word Order*. Cambridge, MA: MIT Press
- Zubizarreta, Maria Luisa and Jean-Roger Vergnaud. 2000. Phrasal stress and syntax. to appear in M. Everaert and H. van Riemsdijk (eds) *The Syntax Companion*. Oxford: Blackwell
- Zucchi, Sandro. 1991. Negation and aspect. in B. Ao, G. Westphal and H-R. Chae (eds) *Proceedings of the Eighth Eastern States Conference on Linguistics*. Ithaca, NY: CLC Publications
- Zucchi, Sandro and Michael White. 2001. Twigs, sequences and the temporal constitution of predicates. *Linguistics and Philosophy* 24
- Zwarts, Joost. 2003. Vectors across spatial domains: from place to size, orientation, shape and parts. In E. van der Zee and J. Slack (eds). *Representing Direction in Language and Space*. Oxford: Oxford University Press