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Preface

This book sets out to develop a unified theory of various, apparently unrelated, instances of eccentric argument encoding—phenomena that are puzzling from the point of view of standard theories of case and agreement. It includes, but is not limited to, accounts of

- differential case marking in Hindi, Marathi, and Punjabi;
- agreement displacement in Basque and Itelmen;
- nominative objects in Icelandic;
- global case splits in Umatilla Sahaptin, Yurok, and Kolyma Yukaghir; and
- intransitive argument encoding in transitive clauses in Nez Perce, Niuean, and Selayarese.

My main proposal centers around recasting the relationship between the two well-established operations, 'Agree' and 'impoverishment'. I contend that these operations interact with each other in intricate but highly systematic ways. All phenomena mentioned above are argued to be identical on an abstract level of analysis: They involve impoverishment effects on Agree. Thus, what appears mysterious on the surface dissolves into the principled interaction of fundamental operations.

First and foremost, I would like my to express my gratitude to Gereon Müller and Fabian Heck, who provided very detailed and thoughtful written comments and discussed various aspects of this work with me, from which I benefited greatly. Their influence on this study is tremendous. For discussions and helpful comments I would like to thank Petr Biskup, Gisbert Fanselow, Doreen Georgi, Andrew Nevins, Marc Richards, Helena Trompelt, Dieter Wunderlich, and Malte Zimmermann. I am particularly indebted to Marc Richards for proof-reading various versions of this work and commenting on it. Naturally, those mentioned do not necessarily agree with my analyses.

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Finally, I would like to thank my friends, inside as well as outside of linguistics. Last, but certainly not least, my heartfelt thanks go to my family: Ute, Steffen, and Christian. I dedicate this book to them.

Abbreviations

ABL	ablative
ABS	absolutive
ACC	accusative
ANAPH	anaphora
ANR	action nominalizer
AP	antipassive
ASP	aspect
A	external argument of a transitive verb
CAUS	causative
CND	conditional
COMP	complementizer
DAT	dative
DD	Dative Displacement
DEF	definite
DFLT	default
DF	dative flag
DIM	diminutive
DIS	distributive
DO	direct object
ED	Ergative Displacement
ERG	ergative
EXCL	exclusive
FAM	familiar
FEM	feminine
FUT	future
GEN	genitive
HAB	habitual
HON	honorific
HUM	human
IMPERF	imperfective
INC	incompletive aspect
IND	indicative mood
INF	infinitival
INSTR	Instrumental
INTR	intransitive marker
INV.ERG	inverse ergative (in Umatilla-Sahaptin)
IO	indirect object

LOC	locative
MASC	masculine
MOD	modalis
NEUT	neuter
NOM	nominative
NONFIN	non-finite
NSPEC	non-specific
NUM	number
OBJ.C	object-controlled complementizer
OBJV	objective (case)
OBJ	object
OBL	oblique
OBV.C	obviative complementizer
O	internal argument of a transitive verb
PART	participial mood
PAUC	paucal
PERF	perfective
PERS	person marker
PL	plural
POSS	possessive
PRED	predicative marker
PRES	present
PX	prefix
Q	question marker
SBJNCTV	subjunctive
SG	singular
SPEC	specific
SUBJ	subject
SX	suffix
S	single argument of an intransitive verb
TEMP.C	temporary action complementizer
TM	theme marker
TOP	topic
TRANS	transitive
TRS	transitivizer

1 Introduction

In the recent history of the Minimalist Program, considerable attention has been paid to case and agreement systems. While progress has been made in some domains, many proposals remain language-specific in scope. In addition, quite often empirical patterns resist a treatment in terms of independently motivated principles. Such patterns of *eccentric argument encoding* are often treated as language-specific quirks with no obvious relation to seemingly more 'well-behaved' systems. This book sets out to develop a unified theory of various patterns of eccentric argument encoding. Empirically, it draws from a variety of apparently non-related phenomena that have so far remained more or less mysterious from the viewpoint of recent syntactic theories. Specifically, I argue that these systems, despite their differences, receive a unified treatment if one adopts a minor readjustment in the grammatical architecture which has far-reaching consequences for syntactic processes in general. The present study explores the view that two operations that are not normally thought to interact in fact do interact: *Agree* and *impoverishment*. Once these two operations are allowed to affect each other in principled ways, several patterns of eccentric argument encoding that have so far escaped a uniform treatment fall out straightforwardly. The systems under consideration, despite appearances, are thus far from idiosyncratic. Rather, they are the result of independently motivated and widely adopted operations and, crucially, their interaction.

In standard conceptions of the grammatical architecture as assumed within Minimalism and Distributed Morphology, Agree is a syntactic operation that percolates feature values from one head to another. Impoverishment, on the other hand, is widely conceived of as a morphological operation that deletes morpho-syntactic features. Applying within morphology, impoverishment takes place after the syntactic derivation has terminated and only has an effect on vocabulary insertion (Bonet 1991, Noyer 1992, 1997, Halle and Marantz 1994). This general conception is depicted in figure 1.1.

There thus exists an extrinsic ordering relation between Agree and impoverishment in the sense that all operations of the former type take place before all operations of the latter type: Since (1) all Agree operations take place within syntax, (2) impoverishment

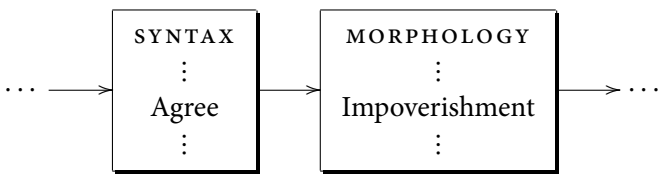

Figure 1.1
Standard view of the order between AGREE and impoverishment

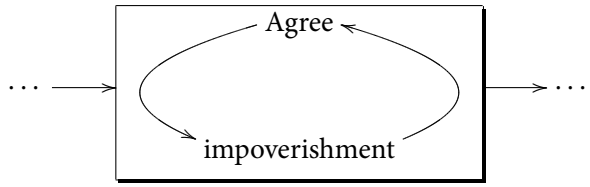

Figure 1.2
Order between Agree and impoverishment proposed here

applies within morphology and (3) morphology applies after syntax, the output of impoverishment can never form the input to Agree and consequently cannot influence agreement relations. I will refer to the conception of figure 1.1—viz., all Agree operations take place before all impoverishment operations because they apply in different grammatical components—as *modular ordering*.

In this study I explore some consequences of the alternative view that no such modular ordering holds between Agree and impoverishment. The basic underlying idea is that both operations apply within a single grammatical component. This move has the consequence that as before the output of Agree may form the input to impoverishment but, furthermore, the reverse may also hold: impoverishment may apply prior to Agree and thereby influence it in a variety of ways. This conception is depicted in figure 1.2.

The main claim of this book is that impoverishment operations and Agree may freely interact with each other. Specifically, impoverishment may in principle apply before or after agreement. This is incompatible with any grammatical architecture that situates impoverishment and Agree within two distinct grammatical modules that are strictly ordered with respect to each other, such as the one depicted in figure 1.1. In the standard view of grammatical architecture as conceived within the Minimalist Program, Agree takes place syntax-internally, and impoverishment after the syntactic derivation is terminated. This implies that *all* Agree operations have to precede *all* impoverishment operations, which is obviously incompatible with the main claim proposed here, i.e. that the output of impoverishment may constitute the input to Agree. The present proposal thus makes it necessary that both agreement and impoverishment apply *within the same module* (in the sense that modules are inherently ordered with respect to each other). Thus, *a priori* it may either be the case that both impoverishment and agreement take place within syntax proper or that both apply post-syntactically. Note that figure 1.2 is silent about this issue. Neither the proposal in this book nor the empirical evidence that is about to be considered unambiguously enforces a choice in either direction. Both possibilities are in principle consistent with the main claim of the present study. For the sake of the exposition, however, I will assume throughout this book that Agree and impoverishment take place within syntax. They thus interact with syntactic structure-builing processes. Some tentative remarks on this issue can be found in chapter 8.

Impoverishment that takes place prior to Agree may influence it in a variety of ways. Firstly, it may feed agreement; secondly, it may bleed agreement; and thirdly, agreement may percolate the information that impoverishment has taken place to a different head and thus yield the impression of a non-local computation. Each of these three patterns will be encountered in the case studies that form the main part of this work.

Throughout this study I will follow recent trends in approaches to syntax that assume strict locality conditions on the syntactic derivation. Consequently, all the analyses developed here only make use of local operations and are hence compatible with a phase-based notion of syntactic locality. As a matter of fact, the analyses are not only compatible with a local approach to syntactic derivations but in fact presuppose it. To the extent that these analyses are on the right track, they provide an argument for derivational locality.

The structure of the book is as follows: I will first introduce the theoretical background assumptions that this work is couched in by laying out the main assumptions of Distributed Morphology in section 2.1, including, of course, the role of impoverishment, coupled with the meta-grammatical iconicity principle, introduced in section 2.2. An additional result of this work will be that greater empirical restrictiveness can be achieved if impoverishment is not conceived of as an arbitrary rule but rather as the result of constraint interaction in an Optimality-Theoretic fashion. Section 2.3 contains a brief overview of the relevant concepts, specifically harmonic alignment of markedness scales, followed by an illustration based on object marking in Hindi. Finally, section 2.4 introduces the second most important operation in the present context: Agree.

Chapter 3 will set the stage for the main proposal by outlining and comparing two competing proposals concerning the input of agreement. The first one asserts that agreement is determined on the basis of abstract syntactic case (section 3.1), while the second one holds that agreement feeds on morphological case (section 3.2). As will be shown, for both proposals there exist empirical data that remain unaccounted for. Against this background, my main proposals are then laid out in section 3.3 and argued to overcome the problems encountered by the competing conceptions. This chapter contains analyses for differential subject and object marking and their interaction with verbal agreement in Hindi on the one hand and Marathi as well as Punjabi on the other.

Chapters 4 to 7 consider various empirical phenomena that at first glance do not appear to be related and which have received considerable attention due to their intriguing properties. I argue that these systems receive a unified and principled account in terms of impoverishment applying before Agree. Chapter 4 considers eccentric agreement in Basque and Itelmen. In these languages, ergative and dative arguments may, under certain well-defined conditions, control absolutive agreement on the verb, without affecting the case assigned to them or showing any syntactic alternation. As it turns out, these systems exhibit quite a bit of alternation as to the exact conditioning factors. I propose that these systems and the observed alternations are systematically

derived by the interaction between impoverishment and Agree. As it turns out, the analyses for Hindi split-ergativity in chapter 3 and for Basque eccentric agreement treat the two phenomena as underlying identical, with only surface factors blurring the picture (section 4.3).

In chapter 5, I develop a treatment of the well-known nominative objects in Icelandic and their effects on verbal agreement. I will argue in this chapter that nominative on objects syntactically does not pair with nominatives assigned to subjects but rather behaves like an accusative. The analysis will center around the claim that the object nominative is abstractly an accusative, disfigured by impoverishment influencing Agree.

Chapter 6 proposes an account for seemingly global case splits in Umatilla Sahaptin, Yurok and Kolyma Yukaghir. Global case splits are case marker alternations that are conditioned by the properties of a co-argument. I claim that these splits can be accounted for in strictly local terms if analyzed as impoverishment effects.

Finally, chapter 7 develops an analysis of transitive clauses in Nez Perce, Niuean, and Selayarese that involve intransitive argument encoding. Descriptively, the object in these constructions is invisible for the purposes of argument encoding. I propose that this behavior emerges as a consequence of impoverishment.

Chapter 8 summarizes the findings of this study, reviews various alternative approaches also compatible with the main proposal of this book, and draws a conclusion.

2 Theoretical Background

In this chapter I will introduce and illustrate the theoretical assumptions that this work is couched in: Distributed Morphology, the Iconicity meta-principle, harmonic alignment of markedness scales, and the operation Agree.

2.1 Distributed Morphology

The present theory is embedded within the general grammatical framework of Distributed Morphology (DM); see figure 2.1.[1]

2.1.1 Basic Assumptions

The three central claims of DM are summarized in (1) (cf. Halle and Marantz 1994) and discussed below.

(1) *Basic assumptions of Distributed Morphology*
   a. Late insertion
   b. Underspecification
   c. Syntactic hierarchical structure all the way down

Late insertion In the grammatical architecture underlying DM, morphology follows syntax. The syntactic derivation operates on abstract morpho-syntactic and semantic feature bundles that do not contain any phonological features yet. After the derivation is terminated the syntactic structure (or parts of it) are transferred to the semantic and morphological interface where the structure is interpreted. This process of submitting a syntactic structure to morphology and semantics is commonly called *Transfer*. Morphological interpretation first and foremost means furnishing the terminal syntactic heads with phonological features to enable pronunciation. Syntactic heads (i.e. sets of morpho-syntactic features) are called *morphemes* in DM. The elements that are inserted and thus provide phonological features are termed *vocabulary items* (or 'markers'). The process of insertion is called *vocabulary insertion* (or 'marker insertion'). Notice that there is thus a (crucial) distinction between abstract morphemes (i.e.

[1] See Harley and Noyer (1999, 2003), and Embick and Noyer (2007) for an overview of Distributed Morphology.

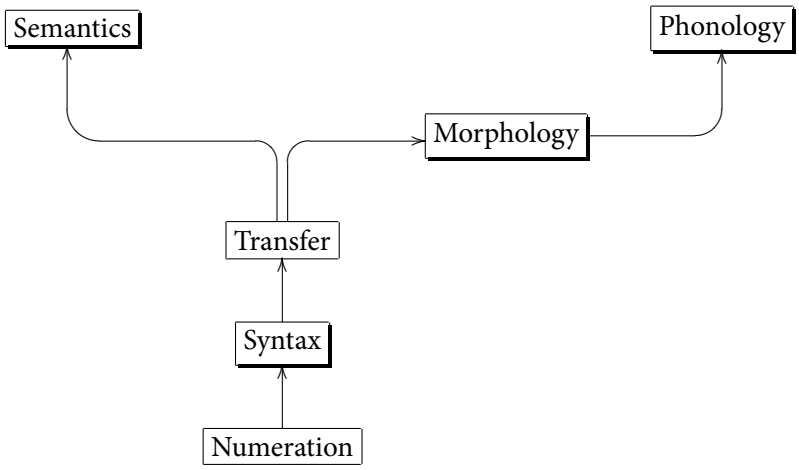

Figure 2.1
The grammatical architecture as assumed within Distributed Morphology (Halle and Marantz 1993, 1994)

syntactic nodes comprising abstract features) and concrete vocabulary items. This distinction provides the possibility that morphological exponents are underspecified with respect to the morpho-syntactic features they contain.

Of course, vocabulary insertion needs to be systematically restricted. To achieve this, vocabulary items are conceived of as a pairing of morpho-syntactic and phonological properties. The former determine the context of insertion and thereby constrain the distribution of vocabulary items. This is depicted in (2). (2) contains the information that the phonological features may be inserted into a syntactic node with given morpho-syntactic features.

(2) *General structure of vocabulary items*
/phonological features/ ↔ [morpho-syntactic features]

Recall that vocabulary items are inserted after the syntactic derivation has terminated. That provides the possibility of post-syntactic operations that modify the syntactic structure and hence affect vocabulary insertion. One such operation—which is to figure prominently in the present study—is impoverishment, to be detailed in section 2.1.3 below.

Underspecification Underspecification refers to the assumption that the morpho-syntactic feature specification of a vocabulary item need not be fully specific, i.e. need not contain a specification for all possible features. Given that the morpho-syntactic specification of a marker constrains the featural environments it can be inserted into, underspecification yields the consequence that a vocabulary item may show up in more than one feature specification. To put it differently, several distinct

feature sets may be realized by an appropiately underspecified marker and hence receive the same pronunciation. This leads to *syncretism*, i.e. the phenomenon whereby several distinct cells in a paradigm bear the same marker. If a marker is underspecified for a certain feature it is not choosy about the existence or instantiation of that feature. Underspecification thus provides a powerful tool for systematically accounting for syncretisms.[2]

As a consequence of underspecification, a given set of morpho-syntactic features may be compatible with more than one vocabulary item. To account for such cases, constraints are necessary that regulate the choice of one marker. These devices are the *Subset Principle* and *Specificity*, to be detailed below in section 2.1.2.

Syntactic hierarchical structure all the way down The third fundamental assumption of DM is that syntactic hierarchical structure does not stop at the word level. Rather, it extends to the level of single morphological elements, i.e. every morpheme corresponds to a syntactic node (although this assumption is not universally adopted). That is to say that there is no fundamental difference between syntax and morphology (see Marantz 1997). On the one hand this entails that words are not built up by a special 'word-building' operation. Rather, the only structure-building operation is merge (Chomsky 1995). Some structures formed by Merge may correspond to what is descriptively labelled a 'word' but this is not reflected in DM. Instead, DM advances the view that 'words' in the pretheoretic sense do not have any significant theoretical status, i.e. it is not a concept that grammars make use of. All there is are syntactic heads, assembled by Merge, that receive spell-out by means of vocabulary insertion. On the other hand, this position in practice entails that morphology is sensitive to syntactic operations that manipulate a built-up structure, such as head movement, syntactic lowering etc. Furthermore, morphological restructuring operations may alter the syntactic structure before vocabulary insertion takes place, thus leading to systematic syntax-morphology mismatches.[3]

In the classification of Stump (2001), DM counts as lexical-realizational. It is lexical because vocabulary items are independent lexical items and not just the by-product of some realization rule. DM qualifies as realizational because (as will become clear immediately) vocabulary items never add new morpho-syntactic features. All they contribute is phonological features. Given this restriction on marker insertion, vocabulary items merely realize features that are independently present in the morphemes.

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[2] Underspecification is a widespread assumption adopted in virtually any contemporary theory of morphology, such as Paradigm Function Morphology (Stump 2001, Steward and Stump 2007), Minimalist Morphology (Wunderlich 1996, 1997b), and Network Morphology (Corbett and Fraser 1993, Brown, Corbett, Fraser, Hippisley and Timberlake 1996, Baerman, Brown and Corbett 2005).

[3] Only impoverishment will play a major role in what is to come. Other operations that have been proposed are *merger*, *fusion*, and *fission* (e.g. Halle and Marantz 1993, 1994, Embick and Noyer 2001, Embick 2007).

2.1.2 Vocabulary Insertion

Having laid out the basic assumptions of Distributed Morphology, let us turn to the question of how exactly the process of vocabulary insertion works. This section will provide the basic definitions conditioning insertion as well as some exemplary applications.

After Transfer has applied to a given syntactic structure still lacking phonological specification, the process of vocabulary insertion provides a phonological representation for the syntactic structure. It does so by inserting vocabulary items (cf. (2)) into syntactic heads. The two relevant principles conditioning insertion are the *Subset Principle* (3) and *Specificity* (4).

(3) *Subset Principle*
A vocabulary item V is inserted into a functional morpheme M iff (i) and (ii) hold:
(i) The morpho-syntactic features of V are a subset of the morpho-syntactic features of M.
(ii) V is the most specific vocabulary item that satisfies (i).

(4) *Specificity*[4]
A vocabulary item V_1 is more specific than a vocabulary item V_2 iff V_1 contains more morpho-syntactic features than V_2.

Because of the subset principle it is immediately clear that vocabulary items may never add new morpho-syntactic features to a given syntactic structure. Any marker that contains morpho-syntactic features not already present in M does not form a subset of M and is hence excluded by (3i). As noted above, to systematically account for syncretisms, marker specifications are assumed to be underspecified. Underspecification leads to compatibility with more than one feature specification. As a consequence, one and the same vocabulary item may appear in more than one specification (i.e. paradigm cell), resulting in syncretism. Specificity is a necessary concept because, as a consequence of underspecification, there may be more than one vocabulary item compatible with a given morpho-syntactic specification. In such a scenario, specificity becomes relevant. Out of all the markers fulfilling the subset principle, specificity selects the one with the highest number of morpho-syntactic features.

Let us consider a concrete example to see how the mechanism works. Consider the case and number paradigm of the German noun *Auge* 'eye' given in table 2.1.

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[4] See Halle (1997); specificity of vocabulary items may in principle also be defined with reference to an extrinsic ordering stipulation (Bierwisch 1967, Wurzel 1987, 1998, Halle 1994) or a feature hierarchy which has priority over mere set cardinality (see, e.g., Lumsden 1992, Noyer 1992, 1997, Müller 2004b,c). However, all the marker systems that will be considered are compatible with this arguably simpler conception. Specificity is also known as *Pāṇini's Principle*.

Table 2.1 Inflectional paradigm for German *Auge* 'eye'

	NOMINATIVE	ACCUSATIVE	DATIVE	GENITIVE
SINGULAR	*-Ø*	*-Ø*	*-Ø*	*-s*
PLURAL	*-n*	*-n*	*-n*	*-n*

The only relevant dimensions in the paradigm in table 2.1 are number and case. Number has two values, case has four, yielding a total of eight possible feature specifications. Notice that the syntactic representation, and thus the morphemes, i.e. X^0 heads, are always fully specified. Thus, ignoring the stem *Auge*, there exists a syntactic head that comprises case and number features in one of eight possible combinations. In contrast to these fully specific syntactic heads, the vocabulary item may be underspecified. If vocabulary items were fully specified, eight markers would be necessary to account for the German paradigm. Consequently, it would be necessary to postulate four distinct markers *-n*, each of which realizes plural and one of the four instantiations of case. This way, it would be a mere coincidence that all these markers are phonologically identical. Put differently, one would clearly miss the striking generalization that all plural forms bear the same morphological exponent. Of course, the same reasoning holds for the zero marker. In sum, if vocabulary items were fully specified, one would have to postulate eight unrelated markers, most of which are homophonous. The massive syncretism in table 2.1 would thus be left unexplained.

By contrast, an underspecification approach only needs to postulate the three different markers in (5).

(5) *Marker inventory for table 2.1*

/-s/ ↔ [GEN, –plural]
/-n/ ↔ [+plural]
/-Ø/ ↔ [ ]

The marker system in (5) accounts for all the syncretisms in table 2.1, viz. there is no accidental homophony between two vocabulary items. As noted above, insertion of these markers is subject to the Subset Principle (3) and Specificity (4). Note that the marker *-Ø* is completely underspecified, thus always fulfilling the Subset Principle. Such radically non-specific markers are called *elsewhere markers*. As a first example, consider the syntactic configuration [NOM, –plural]. Here both *-s* and *-n* do not fulfill the Subset Principle (as neither [+plural] nor [GEN, –plural] are a subset of [NOM, –plural]). Since only the elsewhere marker *-Ø* conforms to the Subset requirement, Specificity trivially selects it for insertion. Consequently, the syntactic specification [NOM, –plural] is morphologically realized by the zero marker. As a second illustration, consider the morpheme [GEN, +plural]. Here, both *-n* and *-Ø* form a subset. Consequently, Specificity becomes active to decide among the two. *-n* being more specific than the

zero marker, it is inserted. Finally, in [GEN, –plural] contexts both *-s* and *-Ø* conform to the Subset Principle. Specificity favors *-s*, which is hence selected for insertion into the morpheme.

I have illustrated how underspecification provides a way to capture systematic syncretisms. Marker insertion is conditioned by the Subset Principle and Specificity as shown.

2.1.3 Impoverishment

The operation that plays the major role in the following chapters is *impoverishment*. It is a widely assumed post-syntactic operation that deletes morpho-syntactic features before vocabulary insertion takes place (see, e.g., Bonet 1991, Noyer 1992, 1997, Halle and Marantz 1993, 1994, Bobaljik 2002, Frampton 2002).[5] By deleting features it may block an otherwise possible marker from insertion if the Subset Principle is not fulfilled anymore after deletion. Consequently, a less specific marker is then inserted. In this way, impoverishment systematically leads to a *retreat to the general case* in certain environments.

In some sense, impoverishment is the mirror image of marker underspecification. While the latter refers to the assumption that marker specifications need not be fully specific, the former has the consequence that syntactic morphemes need not always be fully specified at the point of vocabulary insertion.

To illustrate how impoverishment affects which marker is inserted into a given syntactic head consider Norwegian adjectives (Sauerland 1996, Harley and Noyer 1999, 2003). The relevant marker distribution is provided in table 2.2. As can be seen on the basis of the strong declension in table 2.2, *Ø* and *t* are specific gender markers in the singular; *e* appears in the plural regardless of gender. In the weak declension, however, *e* spreads over the whole paradigm. This can be analyzed on the basis of the marker specifications in (6a) and the impoverishment operation in (6b).[6]

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[5] Standardly, impoverishment is conceived of as a purely feature-deleting operation. It is thus more restrictive than *rules of referral*, which may refer from any feature specification to any other (Zwicky 1985, Corbett and Fraser 1993, Stump 1993, 2001). Notice that it has also been argued by, e.g., Noyer (1998) and Harbour (2003) that mere feature deletion is empirically insufficient. Consequently, these authors argue that some sort of feature exchange has to be acknowledged. Throughout this study, I will stick to impoverishment-as-deletion but nothing hinges on that.

[6] I will use both the symbol 'Ø' and '∅'. While 'Ø' denotes the zero marker, '∅' refers to the empty set, e.g., in impoverishment operations.

Table 2.2 Adjectival markers in Norwegian

	STRONG		WEAK	
	[–neuter]	[+neuter]	[–neuter]	[+neuter]
SINGULAR	Ø	*t*	*e*	*e*
PLURAL	*e*	*e*	*e*	*e*

(6) *System for table 2.2*

a. Vocabulary items:
/t/ ↔ [–plural, +neut]
/Ø/ ↔ [–plural, –neut]
/e/ ↔ [ ]

b. Impoverishment:
[±neut] → ∅ / ___ [WEAK]

The markers in (6a) yield the correct distribution in the strong declension without further ado. The impoverishment rule (6b) has the effect of deleting the gender feature in the context of the weak declension. Take the syntactic specification [+neut, –plural, WEAK] as an example. All else being equal, both *t* and *e* fulfill the Subset Principle. Because of Specificity, *t* would be selected. As an effect of impoverishment, however, [+neut] is deleted, leading to the specification [–plural, WEAK]. Now *t* no longer conforms to the Subset Principle, as [+neut] is no longer part of the morpheme's feature matrix. Consequently, only *e* forms a subset and is hence inserted, being the most specific available marker.

In contrast to idiosyncratic marker specifications, impoverishment captures systematic patterns of morphological exponence. To see the difference consider a slightly different system for table 2.2: The exponents Ø and *t* are specified as in (6) plus the feature [STRONG], i.e. they can only be attached in the strong declension. Such a system derives the distribution in table 2.2 without resorting to an impoverishment operation. Let us call this proposal the 'specification approach', as opposed to the 'impoverishment approach' in (6). There is an important difference between both accounts in how they treat the fact that the elsewhere marker of the strong declension is the only marker that shows up in the weak declension. From the point of view of the specification approach, this is the result of a conspiracy of the idiosyncratic specification of *t* and Ø: Both are specific for [STRONG] and therefore accidentally do not fit into the weak declension. If these markers had a different morpho-syntactic specification, a considerably different pattern would emerge. The impoverishment approach, on the other hand, does not tie the observation that *t* and Ø do not show up in the weak declension to properties of these markers. It is only because of the impoverishment operation (6b), deleting the gender feature, that these markers (being specific for gender) fail to fulfill the Subset

Principle. The impoverishment approach thus captures the fact that it is the elsewhere marker that shows up in the weak declension in contrast to any other one. There is only one operation that derives the fact that two vocabulary items sensitive for gender do not appear in the weak declension. The pattern in table 2.2 is thus considerably more systematic in the impoverishment approach than in the specification approach.

To summarize, impoverishment reduces a syntactic feature specification and thereby bleeds the insertion of certain markers. As a consequence, a less specific marker is filled in. Impoverishment captures systematic patterns of marker neutralization, whereas morpho-syntactic specification accounts for idiosyncratic properties of individual markers.

The impoverishment operation in (6b) is stated as an explicit rule that deletes an arbitrary feature in the context of other, equally arbitrary features. Several other ways of formulating impoverishment exist. One such possibility is suggested in Trommer (1999). Here, feature deletion is not brought about by a designated rule but rather by insertion of a highly specific zero marker. The basic idea is that features that have been realized are no longer accessible for marker insertion, i.e. they have been discharged. Combined with the assumption that more than one marker may be inserted into a given morpeme, inserting a zero marker renders certain morpho-syntactic features invisible for further insertion without affecting morphological exponence. Under this conception, impoverishment is just the result of regular vocabulary insertion. Other conceptions of impoverishment involve general filters that block the co-occurence of features (cf. Noyer 1992) or optimality-theoretic approaches. In the latter type of analyses markedness constraints that penalize the presence of certain features in the output may lead to a suppression of these features in the output, thus yielding the effects of impoverishment (although it is generally does not bear this name in optimality-theoretic work). Massive feature deletion in the output is prevented by general faithfulness constraints that penalize feature deletion. Which features are deleted thus crucially depends on the ranking between the relevant constraints. Examples of such analyses are Grimshaw (2001), Kiparsky (2001), Trommer (2001, 2006), Wunderlich (2004), Don and Blom (2006), Lahne (2007), and Opitz (2008).

Impoverishment plays the leading part in the theory that I am about to develop in the following chapters. In contrast to the widely adopted view of impoverishment affecting only marker insertion, I will argue that systematic feature deletion (thus, impoverishment) happens *within* syntax. It may therefore interact with other syntactic operations and consequently does not only have an effect on vocabulary insertion. The conception of impoverishment as an explicit rule is fully compatible with all the analyses in this study. However, for reasons to be discussed below, I will tentatively assume an optimality-theoretic conception of impoverishment. Impoverishment is the consequence of markedness constraints and restricted by faithfulness constraints. The main reason for doing so is that it provides a more restrictive theory. The relevant conceptions are motivated and illustrated in section 2.3 below. For discussion of

the other possible conceptions of impoverishment, see the concluding remarks in chapter 8.

2.1.4 Feature Subanalysis

In the previous examples feature values have been treated as atomic—i.e. non-divisible—entities. As a further elaboration of the system, I will assume that feature values are in fact made up of smaller sub-features (cf. Bierwisch 1967, following ideas going back to Jakobson 1936, 1962a,b). The reason for doing so is twofold: First, in this way *natural classes* of feature values can be captured, as, e.g., two distinct case features may have certain subfeatures in common that vocabulary items may refer to. Secondly, impoverishment need not lead to a total deletion of a feature value. Thus, if a case feature A consists of the subfeatures $[+\alpha, -\beta]$ impoverishment can in principle only affect $[+\alpha]$. In this case, $[-\beta]$ remains accessible for marker insertion. Thus, as soon as feature subanalysis is adopted, impoverishment may yield a partial reduction, leaving other subfeatures intact for marker insertion. This, in turn, gives rise to the possibility that impoverishment may proceed in several steps, i.e. several impoverishment operations delete different subfeatures, thereby interacting with each other. Such an interaction can be witnessed in several of the analyses in this study. Case feature decomposition will be especially important in the present context and is widely adopted in morphological theory. The case subfeatures may be motivated semantically (see Jakobson 1962a,b, Neidle 1988, Franks 1995) or syntactically (Bierwisch 1967, Wiese 1999, Müller 2002). I will adopt the latter view.

Let me illustrate feature subanalysis on the basis of Russian noun declension (see Jakobson 1962a,b, Neidle 1988, Corbett and Fraser 1993, Fraser and Corbett 1994, Halle 1994, Franks 1995, Stump 2001, Müller 2004b). The singular paradigm for the Russian inflection class III is given in table 2.3. Abstracting away from the highly specific instrumental marker *-ju*, *-i* shows up in all cases except nominative and accusative. Here, *-Ø* appears. If no case subanalysis is involved it is unclear how to account for these syncretisms without involving disjunctions (which is to not account for them at all but merely listing them). What table 2.3 seems to show is that nominative and accusative have something in common, as opposed to the other four cases. What *-Ø* (or *-i*) realizes is this common property.

Table 2.3 Russian declension class III, singular

	NOM	ACC	DAT	GEN	INSTR	LOC
tetrad' ('notebook')	*-Ø*	*-Ø*	*-i*	*-i*	*-ju*	*-i*

By decomposing the case features in table 2.3, it can be captured that nominative and accusative on the one hand and dative, genitive, instrumental and locative on the other hand form natural classes. A feature specification to this effect is given in (7a). The relevant markers are provided in (7b) (taken from Müller 2004b).[7]

(7) *System for table 2.3*

a. Case decomposition:

NOM:	[+subj, –gov, –obl]
ACC:	[–subj, +gov, –obl]
DAT:	[–subj, +gov, +obl]
GEN:	[+subj, +gov, +obl]
INSTR:	[+subj, –gov, +obl]
LOC:	[–subj, –gov, +obl]

b. Vocabulary items:

/-ju/	↔	[+subj, –gov, +obl]
/-i/	↔	[+obl]
/-Ø/	↔	[ ]

The subfeatures in (7a) are [±subj(ect)], [±gov(erned)], and [±obl(ique)]. Syntactically, what nominative and accusative have in common is that both are structural (i.e. non-lexical) cases. This is expressed by specifying them as [–obl] and all other cases as [+obl]. The subfeature [+obl] can then be used as the specification of the marker *-i*. Consequently, *-i* does not fit in the structural cases, leaving only the zero marker to be attached. Although *-i* fulfills the Subset Principle for all lexical cases, it is overwritten by *-ju* in the instrumental due to Specificity.

Feature subanalysis also plays a role outside of morphology as natural classes play an important role elsewhere as well. Specifically, I will assume that person features are made up of smaller features, too. The crucial split lies between local (i.e. 1st or 2nd) and non-local (3rd) persons. I assume this to follow from an appropiate feature decomposition which attributes a unifying feature to local persons, such as [+participant] (Harley and Ritter 2002) or, equally well, [–3] (Nevins 2007). Consequently, impoverishment rules (and, of course, vocabulary items) may refer to 1st and 2nd person configurations under exclusion of 3rd person ones.

[7] Of course, specifying *-Ø* for [–obl] and treating *-i* as the elsewhere marker works equally well.

2.2 Iconicity

As a general background assumption, I will suppose that vocabulary items conform to the meta-grammatical principle of *Iconicity*, stated in (8).

(8) *Iconicity* (Wiese 1999, 2003, 2004, Müller 2004b)
Similarity of form implies similarity of function (within a certain domain, and unless there is evidence to the contrary).

Iconicity expresses the intuition that the morpho-syntactic complexity of a marker (its 'function') and its phonological complexity (its 'form') are correlated. The phonological complexity of a given marker is measured against the sonority hierarchy; its morpho-syntactic complexity is determined by set cardinality as independently defined by the Specificity Principle (4). This implies, for example, that the zero marker—being the least complex marker phonologically—must also be the marker with the fewest morpho-syntactic features, making it the elsewhere marker.

(8) interacts with impoverishment in an interesting way. Since impoverishment deletes morpho-syntactic features, it yields a retreat to a more general, i.e. less specific, marker. By iconicity, this latter marker must be phonologically less complex than the marker that would have been inserted if no impoverishment had taken place. This connection between impoverishment and phonological complexity considerably restricts the analytic space: Given alternating markers, under an approach in terms of impoverishment, it is immediately clear which marker is the usual one and which is only inserted due to impoverishment. Consequently, iconicity makes it unambiguously clear which contexts are impoverished and which ones are not.

As an example of iconicity, consider the specifications of the Russian suffixes in (7b). The marker *-ju* is phonologically most complex; correspondingly, it is the most specific marker in terms of (4), thus conforming to iconicity. *-i* is less complex phonologically in terms of its feature specification. Lastly, *-Ø* is completely underspecified for both its morpho-syntactic and its phonological features. Therefore, the marker system in (7b) conforms to iconicity.

2.3 Impoverishment by Harmonic Alignment of Scales

The traditional conception of impoverishment takes it to be an arbitrary rule that deletes a given feature in the context of certain other features. As such, there do not exist any inherent restrictions as to which features can be deleted under which circumstances. One might, of course, envisage explicit restrictions as to what constitutes a legitimite

goal and context specification but such restrictions do not fall out of the operation itself and therefore remain extrinsic. In order to develop a more restrictive theory of impoverishment, Keine and Müller (2008, 2009), building on work by Aissen (1999b, 2003), pursue the idea that impoverishment may ultimately be the result of ranked and violable constraints in an Optimality-Theoretic fashion. In this view, faithfulness constraints penalizing feature deletion compete with markedness constraints, which penalize the presence of a certain feature (thereby motivating deletion). Consequently, the ranking between both types of constraints decides whether impoverishment (viz., feature deletion) applies or not.

Optimality Theory (OT) was initially proposed as a phonological framework (Prince and Smolensky 1993, 2004) but has also been adopted for syntactic analyses (see, e.g., Grimshaw 1997, Pesetsky 1998, Legendre, Smolensky and Wilson 1998). The central assumption of OT is that grammatical constraints are *universal*, *ranked* and *violable*. Grammatical constraints being violable, not adhering to a constraint does not invariably lead to ungrammaticality. Rather, it is competition with other linguistic expressions that determines grammatical status. Grammaticality emerges if a certain structure fares better with respect to a constraint ranking than all of its competitors. Thus, the wellformedness of a candidate structure cannot be determined by inspecting the internal properties of this candidate alone. Instead, grammaticality is the result of a competition between several such structures. A given linguistic expression is well-formed if it is optimal with respect to some constraint ranking, i.e. 'better' than all its competitors. This is defined more precisely in (9)–(11).

(9) *Optimality*
A candidate C_i is optimal with respect to some constraint ranking $\langle Con_1 \gg Con_2 \gg \ldots \gg Con_n \rangle$ iff there is no other candidate C_j in the same *candidate set* that has a better *constraint profile*.

(10) *Constraint profile*
C_j has a better constraint profile than C_i if there is a constraint Con_k such that (i) and (ii) hold:
(i) C_j satisfies C_k better than Con_i.
(ii) There is no constraint Con_m that is ranked higher than Con_k, and for which C_i and C_j differ.

(11) C_j satisfies a constraint Con better than C_i if C_i violates Con less often than C_j.

The notion of *candidate set* is complex and has been the subject of much discussion, especially if syntactic structures are concerned. The standard OT assumption is that a generator Gen creates output candidates on the basis of an input. These output candidates form the candidate set. Thus the set of structures entering into the competition

is determined by a given input.[8] In sum, candidate structures are the set of outputs formed by Gen on the basis of a certain input. Among this competitor set, violable, ranked, and universal constraints establish a constraint profile for each candidate. The candidate with the best constraint profile is grammatical. As for cross-linguistic variation, OT adopts the position that the constraints themselves are universal. However, languages may differ with respect to the ranking of these constraints. Thus, variation across languages reduces to differences in constraint rankings.

This general architecture of OT-style grammars is summarized in (12). Based on a certain input, Gen produces a set of output candidates, each of which undergoes *harmonic evaluation* (H-eval). The candidate best satisfying the constraint profile is optimal in the sense of (9) and constitutes the output of the entire procedure.

(12) *Structure of OT-grammars* (Prince and Smolensky 2004: 5)
  a. Gen $\left(\mathrm{In}_k\right)$ $\rightarrow \left\{\mathrm{Out}_1, \mathrm{Out}_2, \ldots\right\}$
  b. H-eval $\left(\mathrm{Out}_i, 1 \leq i \leq \infty\right)$ $\rightarrow \mathrm{Out}_{real}$

In order to combine a strictly derivational Minimalist syntax with OT-style optimization I follow Müller (2004a, 2009b) and Heck and Müller (2007), who assume that it is the derivational step that undergoes optimization (so-called *extremely local optimization*). Under this perspective, derivational structure building and optimization apply in an *interleaving* fashion (schematically, Gen $\rightleftarrows$ H-eval). Basically, a derivation works as follows: On the basis of a given input (a syntactic object) the operations MERGE, MOVE, and AGREE create several outputs $\left\{\Omega_1, \Omega_2, \ldots, \Omega_n\right\}$, each of which differs from the input only in that a single instance of a single operation has applied. For exemplification, candidate Ω_1 might be formed by applying a single Merge operation to the input; candidate Ω_2 by an Agree operation etc. These candidates form the candidate set M. M then undergoes harmonic evaluation, thereby singling out an optimal candidate Ω_i. Ω_i then serves as the input for the next cycle. This process continues until the numeration is empty. Crucially, I will assume that impoverishment—i.e. feature deletion from input to output—is a fourth operation that generates output representations on the basis of an input. Thus, there are also outputs entering the competition that only differ from the input in containing fewer features. In sum, I adopt a framework involving the intertwined application of structure-building and structural optimization. Multiple optimization procedures are involved in a derivation. This conception of derivational optimization is termed *harmonic serialism* by Prince and Smolensky (1993, 2004).

One can distinguish two types of constraints that often conflict with each other. This distinction will be relevant for the purposes of feature deletion, i.e. impoverishment.

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[8] See, however, Heck, Müller, Vogel, Fischer, Vikner and Schmid (2002), who argue that there is no input in syntax at all.

- *Faithfulness constraints* demand that input and output are identical with respect to some property. Especially relevant for present purposes are MAX-constraints, which penalize feature deletion from input to output.
- *Markedness constraints*, by contrast, are violated if a certain feature is present within the output, regardless of whether it has been present in the input as well. A violation of a markedness constraint may thus be circumvented by deleting this feature in the output.

If relevant for the same feature in the input, faithfulness and markedness constraints impose conflicting requirements on output structures. While the markedness constraint demands deletion of this feature, the faithfulness constraint demands that the feature be maintained in the output. In such a state of affairs, the ranking between the two constraint types is decisive. If the faithfulness constraint outranks the markedness constraint, the feature is kept in the winning candidate. If, on the other hand, the ranking is the reverse—viz., the markedness constraint outranks the faithfulness constraint—the optimal candidate will have this feature deleted, thus giving rise to the effects of impoverishment.

With this much technical background in mind, let us turn to the question of how impoverishment can be systematically restricted. All else being equal, it is the ranking between markedness and faithfulness constraints that decides whether deletion takes place or not. Restrictions on impoverishment may thus be modelled as restrictions on constraint rankings. One way to impose such restrictions on ranking possibilities is by means of *Harmonic Alignment*, as defined in (13), applied to Hale/Silverstein hierarchies such as those given in (14) (Hale 1972, Silverstein 1976, Dixon 1994).[9] The concrete technical implementation will also involve *Local Constraint Conjunction* as defined in (15) (Smolensky 1993, 1995, 2006, Legendre et al. 1998).

(13) *Harmonic Alignment* (Prince and Smolensky 2004: 161)
Suppose given a binary dimension D_1 with the scale X > Y on its elements {X,Y}, and another dimension D_2 with a scale a > b > … > z on its elements {a,b,…,z}. The *harmonic alignment* of D_1 and D_2 is the pair of Harmony scales H_X, H_Y:

[9] For the relevance of these scales and the empirical phenomenon of *differential argument encoding* in general see, e.g., Comrie (1979, 1986, 1989), DeLancey (1981), Lazard (1984), Bossong (1985), and Croft (1988). For recent discussion of differential object marking, see de Swart (2007). I will presuppose without discussion that the scales in (14) are theoretical primitives and not epiphenomena, as has been claimed by a number of people (see Brown, Koch and Wiltschko 2004, Harbour 2008, Richards 2008a, Wiltschko 2008). It remains to be seen whether the accounts developed here can be accomodated within a framework that seeks to derive the hierarchies in (14) as effects of independently motivated syntactic mechanisms. Lastly, I will assume here without discussion that the effects of the scales in (14) are typologically real (though see Bickel 2008 and Bickel and Witzlack-Makarevich 2008 for a challenge to this view).

a. H_X: X/a > X/b > … > X/z
b. H_Y: Y/z > … > Y/b > Y/a

The *constraint alignment* is the pair of constraint hierarchies C_X, C_Y:

a. C_X: *X/z ≫ … ≫ *X/b ≫ *X/a
b. C_Y: *Y/a ≫ *Y/b ≫ … ≫ *Y/z

(14) Scales

a. *Grammatical Function (GF) scale*
Subject > Object
b. *θ-scale*
Agent > Patient
c. *Person scale*
1st > 2nd > 3rd person
d. *Prominence scale*
X > x
(discourse-prominent argument > non-discourse-prominent argument)
e. *Animacy scale*
Human > Animate > Inanimate
f. *Definiteness scale*
Personal pronoun > Proper noun > Definite > Indefinite Specific > Non-specific

(15) *Local Conjunction* (Smolensky 1995: 4)
The local conjunction of C_1 and C_2 in domain D, C_1 & C_2, is violated when there is some domain of type D in which both C_1 and C_2 are violated.
Universally, C_1 & C_2 ≫ C_1, C_2.

As will be shown in detail immediately, harmonic alignment plus subsequent local conjunction with the faithfulness constraint MAX-CASE (penalizing case feature deletion) yields an inherent ranking of faithfulness constraints that are relativized to types of arguments with certain properties. Because harmonic alignment and local conjunction by definition impose restrictions on the resulting constraint ranking, the order of the MAX-CASE faithfulness constraints is not arbitrary but systematically constrained. Specifically, it corresponds to markedness in terms of Hale/Silverstein scales: The more marked an argument is, the higher its faithfulness constraint is ranked.

One or more markedness constraints against the presence of certain case subfeatures are then inserted into a language-specific position of this ranking. Depending on the point of insertion, case subfeatures are deleted for certain kinds of subjects or objects but not for others. Because harmonic alignment of scales yields an inherent ranking that cannot be altered, there exists the implication (16) for feature deletion.

(16) If impoverishment applies to a certain type of argument, it also applies to all less marked types.

The goal of Keine and Müller's (2008, 2009) approach is thus to dispense with impoverishment as an explicit rule and derive it as the result of the interaction of violable constraints. Importantly, these constraints are a priori ordered, yielding systematic restrictions on feature deletion.

Generally speaking, the intuition behind an approach to impoverishment in terms of harmonic alignment of markedness scales is that it is redundant features that are deleted. Features with a high likelihood of co-occurence may be impoverished as an operation simplifying the built-up structure. Details are subject to language-specific variation but the observation that it is canonical configurations that undergo impoverishment may be thought of as cutting the structure down to size.

An illustration: Object case marking in Hindi

As an example of how harmonic alignment of markedness scales works and how it can lead to impoverishment, consider object marking in Hindi. Differential case marking in Hindi will become relevant again in chapter 3 mainly in dealing with its interaction with verbal agreement. The following illustration is based on Keine (2007) and the extension in Keine and Müller (2008, 2009).

Direct objects in Hindi either bear the marker *-ko* or are zero-marked. The choice is conditioned by the factors humanness and specificity. Objects that are both non-human and non-specific are not morphologically case-marked. To all others, *-ko* is attached.[10] This is exemplified by (17) and (18).

(17) *Humanness*

a. ilaa-ne ek bacce-ko / *baccaa uṭ^{h}aayaa
Ila-ERG one child-ACC child.NOM lift/carry.PERF
'Ila lifted a child.'

b. ilaa-ne ek haar / *haar-ko uṭ^{h}aayaa
Ila-ERG one necklace.NOM necklace-ACC lift.PERF
'Ila lifted a necklace.' (Mohanan 1994: 79)

(18) *Specificity*

a. nadya=ne gaṛi cɑla-yi hɛ
Nadya.FEM.SG=ERG car.FEM.SG.NOM drive-PERF.FEM.SG be.PRES.3SG
'Nadya has driven a car.'

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[10] Upon closer scrutiny, this turns out to be a simplification. Some verbs always take zero-marked objects, regardless of their properties. See section 3.3.2 for some remarks.

b. nadya=ne gaṛi=ko cɑla-ya hɛ
Nadya.FEM.SG=ERG car.FEM.SG=ACC drive-PERF.MASC.SG be.PRES.3SG
'Nadya has driven the car.' (Butt and King 2004: 161)

The object *bacce-ko* 'child-ACC' in (17a) is non-specific but human and hence bears *-ko*. By contrast, *haar* 'necklace' in (17b) is both non-human and non-specific. Hence, it bears no overt case marker. The effect of specificity is illustrated in (18): (18a) contains a non-human, non-specific object. Consequently, it is zero marked. The specific object in (18b), on the other hand, has *-ko* attached to it.

I will proceed by first laying out an impoverishment-as-rule analysis of these facts. Then I will reformulate the impoverishment rule as a constraint ranking with the same effect, arrived at by harmonic alignment of markedness scales. The aim is to illustrate how harmonic alignment of scales works and in addition to highlight some of the conceptual and empirical differences between both concepts of impoverishment.

Given that all objects in (17) and (18) appear in the same structural environment it is plausible to assume that all of them receive the same syntactic case feature; call it 'accusative'. This case feature is differently realized in (17) and (18) because prior to marker insertion, impoverishment may affect the feature matrix, thereby having an impact on vocabulary insertion. The system is outlined in (19).

(19) *System for Hindi object case split*

a. Case feature:
ACCUSATIVE: [–obl, +obj]

b. Marker specifications:
/-ko/ ↔ [–obl, +obj]
/-Ø/ ↔ [ ]

c. Impoverishment rule:
[+obj] → ∅ / __ [–HUMAN, –SPECIFIC]

All else being equal, both *-ko* and *-Ø* fulfill the Subset Principle for the accusative. Due to Specificity, *-ko* is inserted. However, if an object is neither human nor specific, the impoverishment rule in (19c) becomes active, deleting the case subfeature [+obj]. As a consequence, *-ko* no longer forms a subset of the case feature. Therefore, *-Ø* is inserted. This yields the empirical distribution of (17) and (18).

While successful in capturing the observed empirical patterns, the main drawback of this analysis is that it is completely unrestrictive. Impoverishment as an arbitrary rule could just as well delete any other feature in any other contexts. Such arbitrariness, however, is not what is empirically observed. Instead, quite generally, the distribution of the various markers is systematic. The smaller marker in terms of phonological complexity reliably appears in configurations that are canonical in terms of the Hale/Silverstein hierarchies in (14). Going back to the Hindi facts in (17) and (18) again, non-human, non-specific objects are most canonical (viz., they have properties low

on the markedness scales). Objects that are either human or specific or both are less typical. Correspondingly, it is exactly these less canonical objects that receive more morphological marking (*-ko*), i.e. absence of overt case marking only emerges on prototypical objects. The Hindi data thus illustrate what is widely known as *differential object marking*. A hallmark of this phenomenon is that morphological markedness corresponds to hierarchical markedness.

I have argued that the Hindi data adhere to cross-linguistically observed patterns and are hence highly systematic. Impoverishment as in (19c) is not capable of capturing this systematicity, as it is too unrestrictive. If, by contrast, impoverishment is brought about by harmonic alignment of markedness scales, this systematicity falls into place.

As we have seen, in Hindi the case feature of a DP is impoverished if this DP is an object, non-specific and non-human. Therefore, the relevant properties are those of the animacy scale (14e), the definiteness scale (14f) and the grammatical function scale (14a), repeated in (20). These need to be combined in order to arrive at the correct effects. Combination of these scales is achieved by harmonic alignment as defined in (13). The result are the harmony scales in (21) and the constraint alignments in (22). For example, the harmony scale in (21aii) is reached by combining the GF and the animacy scale. (21aii) expresses the intuition that non-human objects are more canonical than human ones, i.e. typical objects are non-human. This can equally well be expressed as a relative ranking of violable constraints as in (22). To take an example, (22aii) corresponds to (21aii). The latter is a ranking between two constraints: **Obj/Hum* penalizes human objects; **Obj/NHum* penalizes non-human ones. Crucially, **Obj/Hum* is ranked higher than **Obj/NHum*. Thus, a violation of the former is more severe than a violation of the latter. That is to say, human objects are more marked than non-human ones. An anologous reasoning applies to (21bii), alternatively expressed as (22bii): Non-specific objects are more canonical than specific ones.

(20) Scales

a. *Animacy Scale*

$$\text{Human} > \overbrace{\text{Animate} > \text{Inanimate}}^{\text{Non-Human}}$$

b. *Definiteness Scale*

. . . > Specific > Non-Specific

c. *Grammatical Function (GF) Scale*

Subject > Object

(21) *Harmony scales*

a. (i) Subj/Hum > Subj/NHum
   (ii) Obj/NHum > Obj/Hum

b. (i) Subj/Spec > Subj/NSpec
   (ii) Obj/NSpec > Obj/Spec

(22) *Constraint alignments*

a. (i) *Subj/NHum ≫ *Subj/Hum
   (ii) *Obj/Hum ≫ *Obj/NHum
b. (i) *Subj/NSpec ≫ *Subj/Spec
   (ii) *Obj/Spec ≫ *Obj/NSpec

To account for the Hindi facts, one needs to make reference to humanness and specificity simultaneously. This becomes possible if (22aii) and (22bii) are combined via local conjunction (15). Notice that in contrast to the definition in (15), (23) is the result of locally conjoining a constraint with a constraint ranking. Thus, (23a) is derived by conjunction of the constraint **Obj/Hum* with the ranking **Obj/Spec ≫ *Obj/NSpec*. This can be conceived of as iterated local conjunction as defined in (15) of the single constraint **Obj/Hum* with each of the ranked constraints **Obj/Spec* and **Obj/NSpec*, yielding the complex constraints **Obj/Hum & *Obj/Spec* and **Obj/Hum & *Obj/NSpec*, respectively. By assumption, the ranking is unaffected by this operation (cf. Aissen 1999b, 2003). This notion of local conjunction yields the constraint rankings in (23).[11] Take the first constraint in (23a) as an example. It is violated if there exists an element which is (i) a human object and (ii) a specific object. Thus the constraint penalizes human specific objects. It is ranked higher than the constraints against human non-specific objects, (23a), and against non-human specific objects, (23c), because both non-human specific and human non-specific objects are more canonical than human specific objects. Note also that human non-specific objects and non-human specific objects are not ranked with respect to each other as none of the two objects is inherently more canonical than the other. (23) can be simplified to (24), which is otherwise equivalent.

(23) *Local Conjunction*

a. *Obj/Hum & *Obj/Spec ≫ *Obj/Hum & *Obj/NSpec
b. *Obj/NHum & *Obj/Spec ≫ *Obj/NHum & *Obj/NSpec
c. *Obj/Spec & *Obj/Hum ≫ *Obj/Spec & *Obj/NHum
d. *Obj/NSpec & *Obj/Hum ≫ *Obj/NSpec & *Obj/NHum

(24) *Notational simplification of (23)*

a. *Obj/Hum/Spec ≫ *Obj/Hum/NSpec
b. *Obj/NHum/Spec ≫ *Obj/NHum/NSpec
c. *Obj/Hum/Spec ≫ *Obj/NHum/Spec
d. *Obj/Hum/NSpec ≫ *Obj/NHum/NSpec

All constraints in (24) are markedness constraints penalizing objects with certain properties. However, as we are only concerned with the case marking of objects with

[11] The subject constraints will be neglected from here on as they play no role for object marking.

certain properties, these constraints need to be relativized in order to only be sensitive to case marking of arguments. This is achieved by local conjunction with the faithfulness constraint MAX-CASE in (25). MAX-CASE is violated once for every case subfeature that is present within the input but not maintained in the output. Thus, it is violated if case subfeatures are deleted. MAX-CASE is locally conjoined with all the constraints in (24), thereby preserving the ranking relations. The result is given in (26).[12]

(25) MAX-CASE
'penalizes a case feature deletion from input to output'

(26) *Local Conjunction with MAX-C(ASE)*
a. *Obj/Hum/Spec & MAX-C ≫ *Obj/Hum/NSpec & MAX-C
b. *Obj/NHum/Spec & MAX-C ≫ *Obj/NHum/NSpec & MAX-C
c. *Obj/Hum/Spec & MAX-C ≫ *Obj/NHum/Spec & MAX-C
d. *Obj/Hum/NSpec & MAX-C ≫ *Obj/NHum/NSpec & MAX-C

The constraints in (26) are all faithfulness constraints that penalize case feature deletion for certain types of objects. As an example, consider the first constraint in (26a). It is violated if there is a human specific object that had a case subfeature deleted from input to output. Because of the different ranking relations in (26) different types of objects are more or less easily impoverished as the constraints *against* case feature deletion rank in different positions. Also note that the ranking in (26) corresponds to markedness in terms of Hale/Silverstein hierarchies: Human specific objects are the most atypical object and correspondingly have the highest-ranked faithfulness constraint. Human non-specific objects are less marked and, correspondingly, have a lower ranked faithfulness constraint, i.e. they are more easily impoverished. The ranking in (27) was arrived at by the general means of harmonic alignment and local conjunction. It is therefore inherent and not subject to cross-linguistic variation. The ranking relations in (26) are depicted in figure 2.2. Top-down order corresponds to the degree of markedness of the relevant object.

All the constraints in figure 2.2 are faithfulness constraints prohibiting case feature deletion. In order to achieve the effects of impoverishment, an additional constraint triggering case feature deletion has to be invoked. Following Keine and Müller (2008, 2009), I assume that this is the result of markedness constraints against specific case subfeatures. In Hindi, the case subfeature [+obj] is deleted (recall the impoverishment rule (19c)). This deletion is triggered by the markedness constraint *[+*obj*] in (27).

(27) *[+obj]
'penalizes the presence of the case subfeature [+obj] in the output'

---

[12] As for the domain D presupposed in the definition of local conjunction (15), I will assume that it is the syntactic head. In other words, the constraints resulting from local conjunction are subject to severe locality restrictions. See section 3.3.1 for details.

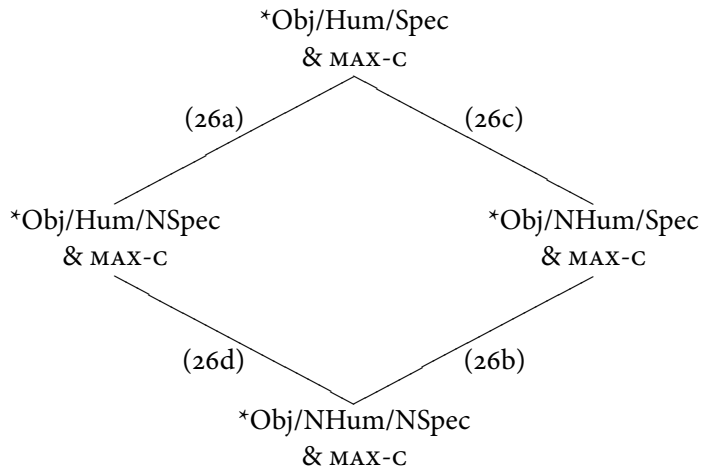


Figure 2.2
Inherent ranking of the faithfulness constraints in (26)

(27) is then inserted into the ranking in figure 2.2 into a language-specific position. As is evident, the faithfulness constraints in figure 2.2 and the markedness constraint in (27) have contrary effects: While the former preserve case specifications, the latter penalizes case features if they comprise [+obj]. Thus depending on the ranking relations between both types of constraints, a case feature [+obj] will either be deleted (if *[+obj] is ranked higher) or maintained (if the MAX-CASE constraint is superior). Now recall that the ranking in figure 2.2 corresponds to the markedness of objects in terms of markedness hierarchies. Crucially, the most untypical arguments have the highest-ranked faithfulness constraint; the most canonical object configuration has the lowest-ranked faithfulness constraint. This leads to a crucial consequence: If a markedness constraint such as (27) outranks the faithfulness constraint for a given type of argument, it also outranks the faithfulness constraints of all more canonical arguments. As a hypothetical example, consider figure 2.2 again. If the markedness constraint *[+obj] was inserted higher than, say, **Obj/Hum/NSpec & MAX-CASE*, the subfeature [+obj] would be deleted on human non-specific objects. Secondly, as **Obj/NHum/NSpec & MAX-CASE* is inherently ranked lower than **Obj/Hum/NSpec & MAX-CASE*, *[+obj] must also be ranked higher than **Obj/NHum/NSpec & MAX-CASE* (by transitivity). Thus, we can deduce that [+obj] is deleted on non-human non-specific objects as well. This yields a general consequence of the approach—impoverishment of a given type of argument entails impoverishment for all more canonical arguments.[13]

[13] Of course, it has to be ensured that the markedness constraint *[+obj] cannot undergo local conjunction with the constraint ranking in (23). Otherwise, the inverse pattern would emerge: case deletion in contexts with atypical objects and retention of the case feature on canonical objects. This problem appears in the same form in Aissen (1999b, 2003). Here as well, the markedness constraint *STRUCC

To account for the Hindi facts, only non-human non-specific objects have to be impoverished. This is done by ranking *[obj] immediately above **Obj/NHum/NSpec & MAX-CASE* as in (28).

(28) *Ranking for Hindi*

$$\left\{\begin{array}{l}\text{*Obj/Hum/Spec \& MAX-C,}\\ \text{*Obj/Hum/NSpec \& MAX-C,}\\ \text{*Obj/NHum/Spec \& MAX-C}\end{array}\right\} \gg \text{*[+obj]} \gg \text{*Obj/NHum/NSpec \& MAX-C}$$

Let us illustrate the effects of this ranking on the basis of the two examples in (18), repeated here as (29) for convenience.

(29) a. nadya=ne gaṛi cɑla-yi hɛ
Nadya.FEM.SG=ERG car.FEM.SG.NOM drive-PERF.FEM.SG be.PRES.3SG
'Nadya has driven a car.'

b. nadya=ne gaṛi=ko cɑla-ya hɛ
Nadya.FEM.SG=ERG car.FEM.SG=ACC drive-PERF.MASC.SG be.PRES.3SG
'Nadya has driven the car.'

The object in (29a) is non-specific and non-human, thus the lowest-ranked faithfulness constraint **Obj/NHum/NSpec & MAX-CASE* is relevant. *[+obj] is crucially ranked higher than this faithfulness constraint. Hence, a candidate that does not delete [+obj] fatally violates *[+obj]. Consequently, the optimal output does not contain [+obj], which was present in the input (see the tableau in (30)). As a second example, consider (29b). Here the object is non-human and specific, hence **Obj/NHum/Spec & MAX-CASE* is relevant. This constraint is ranked higher than the markedness constraint against [+obj]. Thus, deletion of [+obj] is fatal. Consequently, the optimal output will maintain [+obj]. This competition is depicted in (31).

(30) *Tableau for (29a)*

Input: [obj,–hum,–spec][+obj]	*o/+h/+s & MAX-C	*o/+h/–s & MAX-C	*o/–h/+s & MAX-C	*[+obj]	*o/–h/–s & MAX-C
☞ O_1: [obj,–hum,–spec]					*
O_2: [obj,–hum,–spec] [+obj]				*!	

must not participate in local conjunction with a constraint ranking. From the present perspective, there thus exists an asymmetry between faithfulness and markedness constraints with respect to the possibility of local conjunction. It appears that, at this point, this behavior has to be stipulated. Whether it may be derived from more fundamental principles is a question future research has to settle.

(31) *Tableau for (29b)*

Input: [obj,–hum,+spec][+obj]	*o/+h/+s & MAX-C	*o/+h/–s & MAX-C	*o/–h/+s & MAX-C	*[+obj]	*o/–h/–s & MAX-C
O_1: [obj,–hum,+spec]			*!		
☞ O_2: [obj,–hum,+spec] [+obj]				*	

Notice that the effects of the constraint ranking in (28) are identical to the explicit impoverishment rule (19c): [+obj] is deleted if the object is non-human and non-specific. The empirical and conceptual differences between the two conceptions will be addressed below.

After optimization has taken place vocabulary insertion in the standard fashion applies. Thus, the two markers under consideration are specified as above. If no impoverishment has taken place (e.g. in (31)), *-ko* is inserted; if [+obj] has been deleted in the output (cf. (30)), *-ko* is no longer available, hence the elsewhere marker *-Ø* is attached.

To sum up, I have illustrated on the basis of object case marking in Hindi how an approach to impoverishment based on harmonic alignment of markedness scales works. Next, I will go on by briefly discussing the differences between the two conceptions of impoverishment—explicit rule vs. optimization—and evaluating how they relate to the main claim of this study, i.e. that impoverishment systematically interacts with Agree.

Summary: Rule-based vs. scale-based impoverishment

As we have seen, the distribution of the object case marker *-ko* in Hindi can be captured either by the explicit impoverishment rule (19c) or as an OT-style interaction between markedness and faithfulness constraints resulting from harmonic alignment of Hale/Silverstein hierarchies. As for the tenets of the present study, note first and foremost that the question of how exactly impoverishment is technically brought about is largely orthogonal to the main claim of this book that impoverishment interacts with Agree. Specifically, both the rule-based and the competition-based account of impoverishment illustrated above are compatible with the analyses that I will propose.

It is noteworthy, however, that impoverishment is much more systematic in its application if it follows from harmonic alignment of scales. Impoverishment as an explicit rule is arbitrary. Thus, nothing bars an impoverishment rule that deletes a case feature in a completely random set of contexts. By iconicity (8), the more general marker would then appear in a completely random set of environments. This is not what is empirically suggested. The hallmark of differential argument encoding is exactly that morphological complexity and hierarchical markedness are correlated

and impoverishment of certain arguments *entails* impoverishment of more canonical arguments as well. This striking pattern is surprising if impoverishment is merely an arbitrary rule.

Harmonic alignment of markedness scales, by contrast, yields an inherent ranking of faithfulness constraints, corresponding to hierarchical markedness. Insertion of a markedness constraint establishes a cut-off point. All configurations whose corresponding faithfulness constraint ranks lower than this point are impoverished. Consequently, the context of impoverishment is not arbitrary but systematically restricted: If a certain configuration is impoverished, all less marked configurations are as well. Hence, there is no way for case feature deletion only to apply to highly marked arguments but not to less marked ones. It is equally impossible that impoverishment picks out a random set of contexts. Combined with iconicity, this captures the striking empirical fact that hierarchical markedness correlates with morphological markedness. As a consequence, the systems that can be accounted for with scale-based impoverishment as described above are a proper subset of the systems that are describable by rule-based impoverishment. In the end, then, the question as to which conception is to be given preference is an empirical one. Optimality Theory emerges as a formal framework appropriate to implementing scale-based impoverishment.

An interesting result of the present study is that nearly all invoked impoverishment operations can be formulated in the more restrictive optimization framework. Thus, I will tentatively assume this conception to be on the right track. Again, I hasten to emphasize that all the analyses also work well with rule-based impoverishment. Given (i) that the main claim of this study is compatible with both notions, and (ii) that impoverishment rules are generally easier to read especially if one is not familiar with OT, I will proceed as follows: In the main text I will give impoverishment rules, except where optimization is superior for independent reasons.[14] A reformulation of the impoverishment rule as a constraint ranking will be provided in the footnotes.

2.4 The Operation Agree

The present study is couched within the general framework of the *Minimalist Program* (Chomsky 1995, 2000, 2001, 2004, 2007, 2008). Following much recent work I will assume that a hierarchical syntactic representation is built up by the iterated application of MERGE and AGREE. At a certain point of the derivation, the formed structure

[14] This will be the case in the analyses of the global case splits in Umatilla Sahaptin and Kolyma Yukaghir in chapter 6. Here optimization quite elegantly captures the context of impoverishment. The rule-based approach, on the other hand, needs to make use of disjunction or negation. See sections 6.1 and 6.3 for details.

undergoes *Transfer*, submitting it to semantic interpretation and supplementing it with pronounceable features in morphology (cf. figure 2.1).

MERGE is a structure-building operation (likely the only one) that combines two syntactic items and forms a new one. I will follow the mainstream assumption in current minimalist work that the derivation is driven by the need to get rid of unvalued features. As these features are not interpretable at the interfaces they yield a crash of the derivation, if not erased. Unvalued features are disposed of by providing them a with a value. Here the operation Agree enters the stage.

Agree is a syntactic operation that copies a feature value from one head to another (Chomsky 2000, 2001, 2004). It is used to dispose of unvalued features, which, as noted above, lead to a crash of the derivation if present at the semantic or phonological interface (viz., after Transfer has taken place). In this conception, unvalued features probe into a well-defined domain for a valued counterpart. Once encountered, these counterparts are copied onto the probing head, thereby erasing the unvalued feature (or allowing subsequent deletion of it). Verbal ϕ-agreement is a standard and straightforward instance of Agree: Suppose the head T comprises an unvalued ϕ-probe, which leads to uninterpretability and thus ungrammaticality if not deleted. The unvalued feature acts as a probe, searching for a valued counterpart. Suppose it finds a DP with valued ϕ-features in Spec,*v*P. T and DP enter into an Agree relation, copying DP's ϕ-feature values onto T, thereby duplicating them. As a result the ϕ-probe is valued. Valuation allows deletion of uninterpretable features, with the effect that they no longer lead to a crash at the interfaces. As a consequence of Agree, the DP's ϕ-features are present on both T and the DP itself. Depending on language-specific morphological properties, the ϕ-features on T may be realized by a morphological exponent, giving rise to subject-verb agreement.

Throughout this study, I will assume that nominal case and verbal ϕ-features behave alike in this respect: They are unvalued on their respective head and therefore must undergo Agree with their valued counterparts, lest the derivation crash. Thus, case is by assumption a valued feature on heads within the verbal domain (exactly which head is subject to language-specific variation) and unvalued on nominals. This implies that ϕ-features and case proceed in opposite directions: Whereas ϕ-features are valued on nominals and their values copied onto verbal heads in the course of the derivation, case features are valued on functional verbal heads and copied onto nominals.

Agree is defined as in (32), where '$>_c$' designates c-command. *Closeness* is defined as in (33). The notion of *transparency* vs. *opaqueness* is given in (34).

(32) AGREE
Agree is a function that maps an unordered pair $\big([F : \_\_], [F : \delta]\big)$ into $\big([F : \delta], [F : \delta]\big)$ iff (a)–(d) hold.
(a) $[F : \_\_]$ and $[F : \delta]$ are features of separate heads Σ and Γ,
(b) $\Sigma >_c \Gamma$ or $\Gamma >_c \Sigma$,

(c) Γ is *transparent* for probes on Σ,
(d) there is no closer head Ω for which (b) and (c) hold and that bears the feature $[F : \mu]$.

(33) *Closeness*
A head A is closer to a head B than second head C iff $B >_c A >_c C$.

(34) *Agreement opaqueness*
The presence of certain language-specific case features on a DP renders the features of this DP incapable of acting as a goal for Agree.

The theory to be developed in the remainder of this monograph centers around the view that case and agreement are not two sides of the same coin (*contra* Chomsky 2000, 2001). Thus, case and agreement dependencies are established by separate instances of Agree operations that may, however, interact in intricate ways. The view that case and agreement are determined by disjoint operations is also adopted in, e.g., Marantz (1991), Bittner and Hale (1996), Arregi and Molina-Azaola (2004), and Bhatt (2005), to name just a few.

As for tranparency, I assume that the presence of certain language-specific features on a head Σ renders it opaque for agreement. Only non-opaque, i.e. transparent, elements may act as goals for agreement.[15]

As an example of the general concept of agreement opaqueness (34), consider the principle of *Case Opacity*.

(35) *Case Opacity* (Schütze 1997, Rezac 2006, 2008b):
A DP with theta-related Case may not value a ϕ-probe.

The fact that an oblique case feature makes a DP invisible for probing is informally notated here as: '[+obl] renders a DP ϕ-opaque'. The effect is identical to the principle in (35): [+obl] constitutes a barrier that shields the relevant ϕ-features form undergoing Agree. It must be removed if Agree is to take place. Generally, [+obl] renders a DP ϕ-opaque. In addition, [+subj] or [+obj] may also be relevant, depending on whether the language at hand shows agreement with structurally case marked subjects or objects. I will indicate the relevant opaqueness condition for every system under consideration separately.[16]

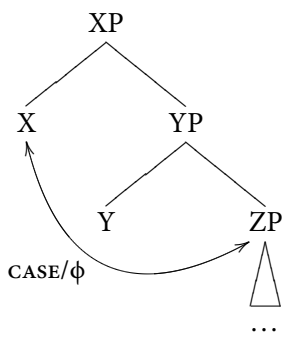
As a consequence of the definition of Agree in (32), a head X may undergo ϕ-Agree with a nominal Z in its c-command domain and value the case feature of a nominal in this domain, as in both cases either the probe c-commands the goal or vice versa (cf. condition (b) in (32)); see (36).

---

[15] See also, e.g., Sigurðsson (2004b) for an explicit view that case may not *trigger* agreement but only *block* it. Agreement can thus only apply if a DP has an accessible case feature, a view reminiscent of agreement opaqueness as defined in (34).

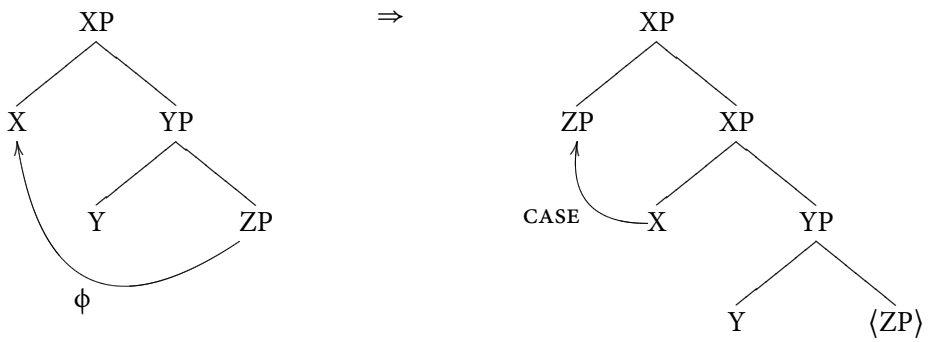
[16] See footnote 10 on page 84 for some speculations on this issue.

(36)



The main reason that I suppose the Agree relations in (36) to be possible is not that they are crucial for the theory to work; rather, they simplify exposition and allow me to concentrate on the main issue of the discussion, i.e. the relation between impoverishment and Agree. That said, all that is to follow is fully compatible with more elaborate derivations involving movement etc. Thus, an alternative derivation to (36), which is equivalent for all present purposes, is depicted in (37) (notice that the direction of the arrow indicates the percolation process of the relevant features, *not* the probing direction). Suppose X contains an unvalued ϕ-probe and ZP comprises an unvalued case feature. As X c-commands ZP its ϕ-probe may undergo Agree with ZP. ZP then moves upward to an outer specifier of XP (plausibly triggered by the need to value its case probe). From here, it c-commands X (see the remarks below) and may enter an Agree relation with X.

(37) *Derivational variant of (36)*

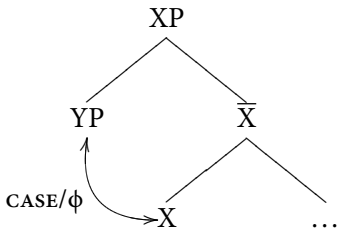


The two derivations in (36) and (37) only differ in that the latter involves an additional movement step. The derivation in (37) has the advantage that the definition of Agree in (32) may be strengthened in requiring that every probe c-commands the respective goal (instead of condition (b) in (32)). While desirable in principle, this question is orthogonal the the present study, as both the account involving movement and the one without movement are compatible with what is to come. I will therefore couch the analyses in this study in terms of the movement-less (36). It is, however, important to

note that more elaborate derivations such as (37) are compatible with these analyses as well. The choice is up to one's particular preferences.

Regardless of which derivation out of (36) and (37) is preferred, there arises a second consequence of (32). I contend that a head may undergo Agree with its specifier in either direction. The possibility of Agree between a head and its specifier is widely adopted. I will in particular follow Béjar (2003) and Béjar and Rezac (2009), who argue that the features of a head may project along the projection line of the head. Thus, X in (38) projects to $\overline{X}$ and may then agree with YP under c-command. This allows a head to agree with its specifier. As it turns out, the same reasoning immediately allows for Agree between a specificier and the respective head as well. If probes may project to the intermediate projection of their head, nothing prevents projection to the phrasal level. This arises as a natural consequence of the system laid out so far, unless blocked by stipulation. If probes project to the phrase level of a specifier (YP in (38)), they may probe into the respective head under c-command, yielding Agree between a specifier and a head. It follows from this reasoning that the relation between a specifier and its head is symmetric in that either one may probe into the other one, due to probe projection. Thus, both case assignment and ϕ-Agree are possible in this configuration, cf. (38).[17]

(38)



The accessible domain for Agree relations is restricted by the *Phase Impenetrability Condition* (PIC) as defined in (40), as is assumed in much recent work (Chomsky 2000, 2001, 2008; also see Richards 2004, 2007 for discussion). The PIC asserts that in the structure (39), with H and Z both being phase heads, the domain of H is inaccessible once Z has been merged. The *domain* of a phase head is its complement; the *edge* of a phase is the set of its specifiers.[18]

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[17] Note in addition that this Agree relation does not inherently violate the Strict Cycle Condition (42) below if occuring sufficiently early in the derivation, i.e. before additional material is built on top of XP.

[18] The PIC as defined in (40) is one of two versions proposed by Chomsky, the other being (i).

(i) *Phase Impenetrability Condition* (Chomsky 2000: 108)
In phase α with head H, the domain of H is not accessible to operations outside α, only H and its edge are accessible to such operations.

(i) is arguably more restrictive, in that the domain of a phase head becomes inaccessible as soon as the next higher head—as opposed to the next higher phase head—is merged. (40) has been proposed in order to allow for Agree between T and DP in Comp,V. As some of the analyses in this study will

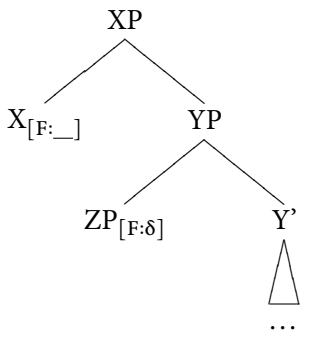
(39) $[_{ZP}$ Z . . . $[_{HP}$ α [H YP]]]

(40) *Phase Impenetrability Condition* (Chomsky 2001: 14)
The domain of H is not accessible to operations at ZP; only H and its edge are accessible to such operations.

Note that the system outlined so far is not completely deterministic in each and every respect. If, at a certain stage of the derivation, both case assignment and ϕ-Agree are possible, nothing so far establishes which operation takes priority. As will be motivated and formalized in more detail in section 6.4.1, I assume it to be a matter of cross-linguistic variation which operation takes priority. The order 'ϕ-Agree before case assignment' is especially relevant for the account of the global case splits in chapter 6. All other systems instantiate the reverse ordering 'case assignment before ϕ-Agree'.

Furthermore, if an Agree operation is possible at a given point in the derivation it has to take place before further applications of Merge. Suppose the derivation has formed the structure in (41), with X containing an unvalued feature F and ZP comprising a valued counterpart.

(41)



Provided that ZP is accessible, all requirements for an Agree operation are fulfilled. Under such circumstances, Agree between X and ZP has to take place before the structure is extended via Merge. It is thus not possible first to merge an additional element with XP and only thereafter instantiate Agree between X and ZP. In other words, there exists an earliness requirement for Agree with respect to Merge: Application of Merge is only possible if no Agree operation can take place in the structure formed so far. I take this general requirement (standardly assumed within all derivational approaches to syntax) to follow from the *Strict Cycle Condition* (Chomsky 1973) in (42).

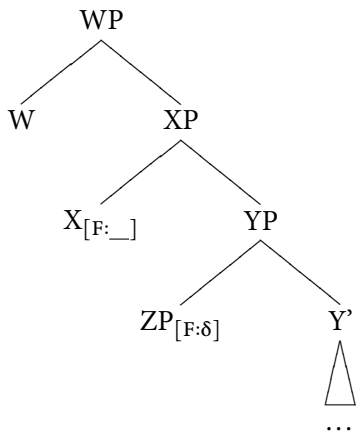
---

involve AGREE between T and Comp,V I adopt (40) for expository purposes. Notice however that nothing seems to be inherently incompatible with (i), as long as additional movement steps of the object into the edge of *v*P are ensured.

(42) *Strict Cycle Condition* (SCC)[19]
Within the current domain Γ, a binary syntactic operation may not exclusively apply to positions α, β if α and β are both included within another domain Δ that is dominated by Γ.

Agree between X and ZP in (41) does not violate the SCC: X=α and ZP=β are both included within XP=Δ. There is, however, no element Γ dominating XP. Hence, cyclicity is respected. The same does not hold if Merge applies to (41) first, forming (43).

(43)



In (43), Agree between X and ZP violates the SCC because X=α, ZP=β, XP=Δ, and WP=Γ. Agree is hence barred. Thus, Agree, if possible, takes place before Merge.

As a general background assumption concerning the working of the syntactic derivation I adopt the *Inclusiveness Principle* (44).

(44) *Inclusiveness Condition* (cf. Chomsky 1995: 228)
No new objects are added in the course of computation apart from rearrangements of lexical properties.

(44) prohibits the introduction of new features during the course of the derivation. Feature deletion, by contrast, is not prohibited by (44).[20] Coupled with the assumption of iconicity (cf. section 2.2), (44) has the following consequence: Suppose a case

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[19] The formulation in (42) is taken from Müller (2010: 50). Alternative definitions can be found in, e.g., Perlmutter and Soames (1979), Chomsky (1995, 2001), Collins (1997), Kitahara (1997), Bošković and Lasnik (1999), and Freidin (1999). What all these definitions have in common is that structural extension via MERGE is preempted if an Agree relation can be established. The intuition that Agree obeys an earliness requirement is also envisaged in Pesetsky (1989, 2000) and Pesetsky and Torrego (2001).

[20] Of course, (44) only seems to hold for the syntactic derivation and not for the morphological component as here the structure is furnished with phonological features that have not yet been present in the structure.

marker appears on an argument in environment A but not in environment B. Under present assumptions, this translates into saying that A comprises a certain feature (realized by the marker) while B does not. In principle, one might entertain two lines of reasoning: It may be the case that standardly the feature is not present but introduced in environment A (see, e.g., Anderson 1992 for such an approach to Hindi subject marking). The alternative view is to assume this feature to be standardly present in all environments with deletion applying in environment B (cf. the account for Hindi subject marking in the next chapter). (44) rules out the first possibility as it invokes the introduction of morpho-syntactic features. To take an example, consider again Hindi object marking. Under the first view the case feature is introduced into the syntactic derivation by means of a special operation if the object is human or specific, under violation of (44). The account developed in section 2.3 exemplifies the alternative: Standardly, the case feature is present, with a special process applying to non-human, non-specific objects. Only the latter view adheres to Inclusiveness. Consequently, (44) imposes strong restrictions on how marker alternations are to be analyzed.

As for the structure of the clausal spine, I assume a standard C-T-*v*-V sequence with C and *v* being phase heads. Arguments of the verbs are introduced by functional heads (Marantz 1984, 1993, 1997, Hale and Keyser 1993, Kratzer 1996, Pylkkänen 2002, 2008, Borer 2005). For concreteness, I will assume direct objects to be base-generated in Comp,V, subjects to be merged in Spec,*v*, and indirect objects to enter the derivation in Spec,Appl. Again, these assumptions are made mainly for reasons of concreteness. Alternative functional sequences or phasal status are equally conceivable and compatible with the main tenets of this study.

In sum, I have introduced the background assumptions of the present work concerning the working of syntactic derivations. The most important concepts are Agree, ϕ-opaqueness, and the Inclusiveness Condition.

3 The Input to Agree

Agree as standardly assumed is an operation that takes place within syntax proper. It is sensitive to a syntactic case feature but not to the morphological realization of this case feature. Under this view, then, what constrains verbal agreement is the syntactic case feature of a given DP. Post-syntactically, this case feature may be impoverished and furnished with phonological features (i.e. markers) but the resulting configurations are irrelevant for Agree operations.

Contrary to this view, there exist phenomena that can be properly analysed as a mismatch between abstract and morphological case (= m-case). With reference to some such phenomena, Bobaljik (2008: 303) suggests that "[w]hen case and GF [= grammatical function] diverge, it is m-case, not GF that defines accessibility for agreement." Under this perspective, agreement is not a syntactic phenomenon but operates within morphology as it is sensitive to distinctions that are only introduced after the syntactic derivation has terminated.

In this section I will review some of the arguments for abstract case on the one side and m-case on the other as input to Agree. It will turn out that both proposals can only deal with part of the empirical patterns. In order to overcome this restriction I will then outline the main claim of this study, namely, that Agree and impoverishment interact freely with each other. As a consequence, agreement can be sensitive to impoverished feature matrices. This proposal is shown to be powerful enough a tool to account for the empirical variation encountered in the preceding discussion.

3.1 Morphological Case as the Input to Agree

This section outlines some of the arguments that have been given for the claim that accessibility for agreement is best stated in terms of morphological case instead of syntactic case.

3.1.1 Split-Ergativity in Hindi

In Hindi, subjects can be marked with *-ne* (commonly called the 'ergative') and *-Ø* (called 'nominative').[1] Direct objects on the other hand show an alternation between

[1] In fact, there are more markers that can show up on subjects, such as the dative marker *-ko* in experiencer constructions. These quirky subjects will be ignored here but do not seem to be incompatible with the analysis proposed here.

the markers *-ko* and *-Ø*. The choice among these markers is not free but conditioned by aspectual and specificity/humanness properties, respectively.

Consider the subject alternation first. Simplifying a bit, subjects of transitive clauses are marked with *-ne* if the sentence stands in the perfective aspect. In the non-perfective aspect the subject is zero-marked.[2] Witness the following contrast:

(1) a. raam-ne ravii-ko piiṭaa
Ram-ERG Ravi-ACC beat.PERF
'Ram beat Ravi.'
b. raam ravii-ko piiṭaa hai
Ram.NOM Ravi-ACC beat.IMPERF be.PRES
'Ram beats Ravi.' (Mohanan 1994: 70)

(1a) is a perfective clause and consequently the subject DP *raam* must bear the ergative marker *-ne*. (1b), on the other hand, is non-perfective, resulting in a zero marked subject.

The second alternation—*-ko* versus *-Ø* on objects—is predictable on the basis of humanness and specificity features of the object DP. This alternation has already been discussed in section 2.3. I will summarize the basic facts again and provide a brief analysis in order to set the stage for examining its interaction with verbal agreement, the main focus of the present chapter. The case marker *-ko* is attached to the object if it is human or specific. Non-human, non-specific subjects bear the zero marker. This is exemplified in (2)–(4) ((2),(3) = (17),(18) on page 20).

(2) a. ilaa-ne ek bacce-ko / *baccaa uṭ^{h}aayaa
Ila-ERG one child-ACC child.NOM lift/carry.PERF
'Ila lifted a child.'
b. ilaa-ne ek haar / *haar-ko uṭ^{h}aayaa
Ila-ERG one necklace.NOM necklace-ACC lift.PERF
'Ila lifted a necklace.' (Mohanan 1994: 79)

(3) a. nadya=ne gaṛi cɑla-yi hɛ
Nadya.FEM.SG=ERG car.FEM.SG.NOM drive-PERF.FEM.SG be.PRES.3SG
'Nadya has driven a car.'
b. nadya=ne gaṛi=ko cɑla-ya hɛ
Nadya.FEM.SG=ERG car.FEM.SG=ACC drive-PERF.MASC.SG be.PRES.3SG
'Nadya has driven the car.' (Butt and King 2004: 161)

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[2] The empirical generalization is harder to state for the subjects of intransitives. Whereas in the non-perfective *-ne* must not be attached, in the perfective aspect both markers can show up. The split seems to correlate to some extent with the unergative/unaccusative distinction. I will not go into the details here. The reader is referred to Keine (2007) for a treatment along these lines.

(4) a. ravii (ek) gaay k^{h}ariidnaa caahtaa hai
Ravi.NOM one cow.NOM buy.NONFIN wish.IMPERF be.PR
'Ravi wished to buy a cow (with no particular cow in mind)'.
b. ravii ek gaay-ko k^{h}ariidnaa caahtaa hai
Ravi.NOM one cow-ACC buy.NONFIN wish.IMPERF be.PR
'Ravi wished to buy a (particular) cow.'
c. ravii gaay-ko k^{h}ariidnaa caahtaa hai
Ravi.NOM cow-ACC buy.NONFIN wish.IMPERF be.PR
'Ravi wishes to buy a particular cow.'
d. ravii us gaay-ko k^{h}ariidnaa caahtaa hai
Ravi.NOM that cow-ACC buy.NONFIN wish.IMPERF be.PR
'Ravi wishes to buy that cow.' (Mohanan 1994: 80)

In (2a) the object is human and non-specific and hence must bear the marker *-ko*. If the object is non-human but still non-specific, only zero marking is possible. The same alternation holds for objects that vary with respect to specificity: (3a) shows that non-human, non-specific objects are zero marked. Non-human, specific objects bear the marker *-ko* ((3b)). (4) makes it clear that it is specificity instead of definiteness that is relevant: The object in (4b) is specific but indefinite and receives overt case marking, in line with the generalization above. Furthermore, (4a) shows that humanness matters rather than animacy, i.e. zero marking is possible with animate objects if they are non-human. It should be noted that both the split on the subject and the object are independent of each other: Thus, the choice of the object marker is not influenced by subject or aspectual properties. The same holds for subject marking: It is independent of object properties. (5) provides examples for all logically possible combinations of case-marked and non-case-marked subjects and objects.

(5) a. wo-Ø ek bakraa-Ø / ek bakr=ko bec-taa hae
he-NOM one goat-NOM one goat=ACC sell-IMPERF.SG.MASC be.PRES.3SG
'He sells a goat / the goat.'
b. us=ne ek bakraa-Ø / ek bakre=ko bec-aa
he=ERG one goat-NOM one goat=ACC sell-PERF.SG.MASC
'He sold a goat / the goat.' (de Hoop and Narasimhan 2005: 327)

These marker alternations on subjects and objects in Hindi have been studied extensively (see Mahajan 1990, Mohanan 1993, 1994, Woolford 2001, Lee 2003, Stiebels 2002, Butt and King 2004, de Hoop and Narasimhan 2005, and Anand and Nevins 2006 among others). Most of these analyses treat it as a syntactic phenomenon within different theoretical frameworks. In this view, due to different syntactic derivations, the relevant DPs end up with distinct abstract case features. Contrary to this prevailing view, Keine (2007) and Keine and Müller (2008, 2009) developed an analysis of split-ergativity in Hindi that captures the data in morphological terms. The basic proposal

is that the syntactic derivation and the resulting abstract case feature on all kinds of subjects is identical. The same is assumed to hold for objects. The marker alternation only arises as a consequence of post-syntactic impoverishment. If certain conditions are met, an impoverishment operation deletes case subfeatures, rendering insertion of the highly specific markers *-ne* and *-ko* impossible (recount the definition of the Subset Principle (3) on page 8), therefore yielding a retreat to the general case: Only the non-specific zero marker fulfills the subset principle and is hence attached. Since under this view the phonological markedness of a marker correlates with its specificity in terms of morpho-syntactic features, this system conforms to iconicity. Under this alternative the mechanisms of syntactic case assignment are identical across all configurations. Distinctions, as reflected overtly by the marker alternations, are only introduced post-syntactically as a result of impoverishment.

Consider the case of subjects first. The relevant system is provided in (6).

(6) a. *Case feature*

$$\textsc{Ergative}: \begin{bmatrix} -\text{obl} \\ +\text{subj} \end{bmatrix}$$

b. *Marker specifications*

$$/\text{-ne}/ \leftrightarrow \begin{bmatrix} -\text{obl} \\ +\text{subj} \end{bmatrix} \qquad /\text{-}\emptyset/ \leftrightarrow [\quad]$$

c. *Impoverishment operation*

$$[+\text{subj}] \rightarrow \emptyset \,/\, \_\_\, [-\textsc{perf}]$$

By assumption, all subjects are marked with the same abstract case feature, call it *ergative*. The ergative is subanalysed as consisting of the features in (6a). Two markers, *-ne* and -Ø compete for insertion. They are specified as in (6b). Since both fulfill the Subset Principle, *-ne* is attached due to Specificity. However, if the sentence is non-perfective, the impoverishment rule (6c) applies, deleting the case feature [+subj]. This renders *ne*-insertion impossible, and hence the subject is zero marked. This state of affairs is depicted in figure 3.1.

As for objects, the analysis proceeds along the same lines. Standing in an identical syntactic configuration, all direct objects receive the same abstract case feature, call it *accusative* ((7a)). Again, there exist two markers competing for insertion, cf. (7b). Standardly, the more specific marker *-ko* outranks the zero marker because of Specificity. If, however, the object is non-human and non-specific, the impoverishment rule (7c) applies, bleeding insertion of *-ko*. This thus leads to zero marked objects. See figure 3.2 for an illustration.

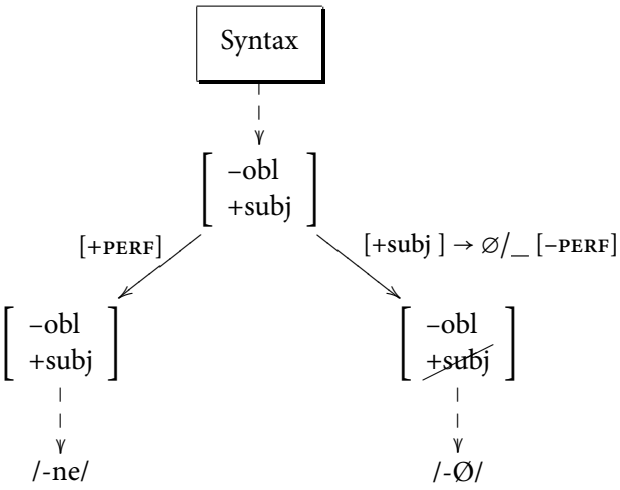

Figure 3.1
Derivation for the *ne*/Ø-alternation on Hindi subjects

(7) a. *Case feature*

ACCUSATIVE: $\begin{bmatrix} -\text{obl} \\ +\text{obj} \end{bmatrix}$

b. *Marker specifications*[3]

/-ko/ ↔ $\begin{bmatrix} -\text{obl} \\ +\text{obj} \end{bmatrix}$ /-Ø/ ↔ [ ]

c. *Impoverishment operation*
[+obj] → ∅ / ___ [−HUMAN, −SPECIFIC]

Having laid out the basic analysis of the marker alternation let us now turn to the agreement facts. The empirical generalization for Hindi verb agreement is stated in (8) (see, e.g., Pandharipande and Kachru 1977, Saksena 1981, 1985, Comrie 1984, 1985, Gair and Wali 1989, Khan 1989, Primus 1999, Bhatt 2005):

(8) *Hindi finite verb agreement*
The verb agrees with the subject if it is zero marked. If not, it agrees with the object if it is zero marked. If not, the verb exhibits default agreement (3.SG).

The agreement generalization can be verified on the basis of the data in (9).

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[3] Note that the marker *-ko* also shows up on indirect objects and is standardly analysed as a dative marker. This can be straightforwardly captured within the present system by specifying *-ko* only for [+obj]. It can thus be attached to both oblique and structural objects. Since this matter is irrelevant for the point under discussion, I have simplified the analysis in this respect.

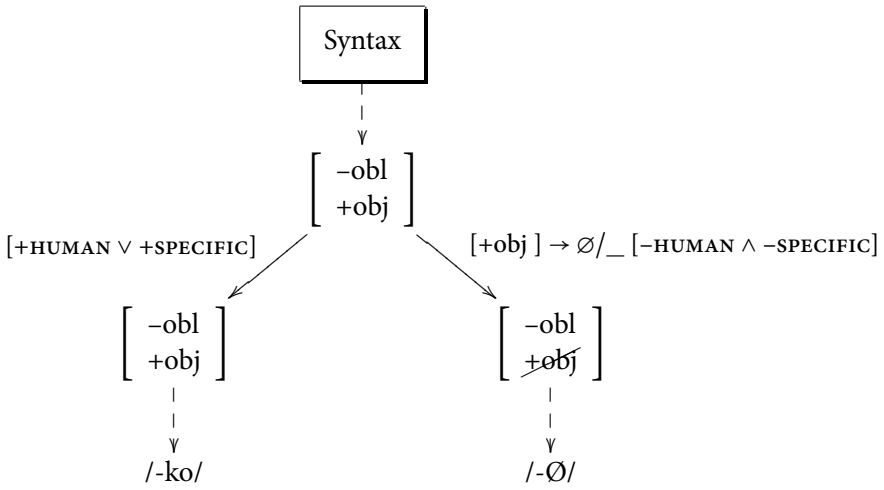

Figure 3.2
Derivation for the *ko*/Ø-alternation on Hindi objects

(9) a. raam giraa
Ram.MASC.NOM fall.PERF.MASC.SG
'Ram fell hard.' (Mohanan 1994: 71)

b. ravii roṭii k^{h}aaegaa
Ravi.MASC.NOM bread.FEM.NOM eat.FUT.MASC.SG
'Ravi will eat bread.' (ibid.: 104)

c. ravii-ne roṭii k^{h}aayii
Ravi.MASC-ERG bread.FEM.NOM eat.PERF.FEM.SG
'Ravi ate bread.' (ibid.: 103)

d. ila-ne roṭii-ko uṭ^{h}aayaa
Ila.FEM-ERG bread.FEM-ACC lift.PERF.MASC
'Ila picked up the bread.' (ibid.: 90)

Consider again the derivation for (1), repeated here for convenience.

(1) a. raam-ne ravii-ko piiṭaa
Ram-ERG Ravi-ACC beat.PERF
'Ram beat Ravi.'

b. raam ravii-ko piiṭaa hai
Ram.NOM Ravi-ACC beat.IMPERF be.PRES
'Ram beats Ravi.' (Mohanan 1994: 70)

Both the subject of (1a) and (1b) receive the syntactic case feature $\left[\begin{smallmatrix}-\text{obl}\\+\text{subj}\end{smallmatrix}\right]$. Only after the syntactic derivation has terminated and Transfer has applied does impoverishment take place, introducing the crucial distinction between subjects of perfective and subjects

of non-perfective clauses. This distinction thus does not exist within syntax proper. Consequently, if Agree applies syntactically and its input is constituted by the syntactic case feature, there is no way of accounting for the fact that the subjects in (1a) and (1b) behave differently with respect to verbal agreement. This is because under the impoverishment analysis they are non-distinct syntactically.[4] The problem is thus the following: The subjects in (1) are identical regarding their syntactic case feature and differ in their morphological realization of this case feature. Agreement is sensitive to this difference. Hence, it cannot feed on syntactic case but needs to be sensitive to m-case. The reverse is also true. Consider (9c). Syntactically, the object receives the case feature $\left[\begin{smallmatrix}-\text{obl}\\+\text{obj}\end{smallmatrix}\right]$. It hence differs from the subject in (1b), which receives a different abstract case feature $\left(\left[\begin{smallmatrix}-\text{obl}\\+\text{subj}\end{smallmatrix}\right]\right)$. As for morphological marking, both the object in (9c) and the subject in (1b) are identical, as both bear the zero marker. Crucially, both arguments are treated alike by verbal agreement. Against the background of the impoverishment analysis outlined above, this is straighforwardly explained if Agree is blind to the syntactic case feature and the relevant input is constituted by m-case.

Considerations along these lines led Keine (2007) to conclude with Bobaljik (2008) that agreement applies post-syntactically and operates on m-case, i.e. the morphological realization of a case feature. Syntactic case is irrelevant for determining agreement relations. This captures the intuition that regardless of the abstract case feature that a DP can bear, all that matters for the generalization in (8) is whether morphologically an overt marker is attached to a DP or not.

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[4] It is important to notice that I do not claim this consequence to arise under every treatment of Hindi case marking. Specifically, it does not follow if the marker alternations on subjects and objects reflect distinct abstract case features. I take the basic validity of the impoverishment approach for granted here and merely explore some of its consequences for verbal agreement. The ergative (-*ne*) might also be analyzed as being valued by perfective *v* as an inherent case, whereas the nominative (-Ø) stems from T. Subject-verb agreement then reduces to case assignment by T.

Although I will not go into a detailed discussion of this alternative, some of the problems that arise are the question as to where the dative/accusative *ko*-marking on objects stems from and why dative/accusative assignment is restricted to human or specific objects. Specifically, there does not appear to be a straightforward way to account for the differential object marking distribution of -*ko* vs. -Ø, i.e. the correlation between hierarchical and morphological markedness, in a non-stipulative fashion. In addition, contrary to the claim above, verbal agreement cannot so easily be equated with case assignment by T because zero marked objects only trigger agreement if the subject is not zero marked. Therefore, if the abstract case on zero marked objects stems from T something must be said to ensure that these objects do not trigger agreement if there is a zero marked subject as well. If, on the other hand, zero marked objects are not assigned case by T then some additional mechanism has to make verb agreement available if the subject is marked with -*ne*. A third way is to assume that zero marked objects abstractly bear one of two separate cases, only one of which correlates with verbal agreement. Assignment of this case would then have to be made sensitive to nominative assignment onto the subject. Consequently, although feasible in principle, it appears that under this kind of analysis as well, further assumptions must be made in order to get the agreement facts right.

3.1.2 Non-Canonical Case Marking in Icelandic

As is well known, there are dative DPs in Icelandic that syntactically behave on a par with nominative subjects and pass all subjecthood tests (Zaenen, Maling and Thráinsson 1985, Sigurðsson 1989 *et seq.*).[5] Transitive verbs that are compatible with such quirky subjects must have a nominative object. These objects in turn behave as accusative objects for all syntactic tests (Harley 1995, Jónsson 1996). Despite being nominative they thus do not behave like nominatives in subject position. Hence, syntactically, they are true objects. This constitutes a state of affairs that is reminiscent of the situation observed in Hindi in the previous section: there exists a mismatch between syntactic configuration and morphological case. Arguments that stand in a syntactic subjecthood configuration can bear morphological nominative or dative case. Correspondingly, syntactic objects can be morphologically realized as nominatives, accusatives and datives. Observe that the mismatch also holds in the other direction. Morphological nominative or dative case can both be compatible with syntactic subjects and objects. Therefore, the same many-to-many relation between abstract configuration and morphological case realization observed in Hindi also holds for Icelandic.

Crucially, verbal agreement seems to pattern with morphological case instead of syntactic configuration. Only arguments realized as nominative can trigger verbal agreement, be they subjects or objects. Correspondingly, nominative and dative subjects, although showing identical syntactic behavior, are distinguished by verbal agreement: Nominative DPs trigger agreement whereas dative DPs never do.[6] This is exemplified in (10) and (11).

(10) a. við höfum lesið bókina
we.NOM have.1PL read book.the.ACC
'I have read the book.'

b. okkur hefur vantað bókina
we.ACC has.DFLT lacked book.the.ACC
'We have lacked the book.' (Sigurðsson 1996: 7)

(11) a. henni höfðu líkað þeir
she.DAT had.3PL liked they.NOM
'She had liked them.' (ibid.: 33)

b. við lásum/*las bókina
we.NOM read.1PL/*3SG book.the.ACC
'We read the book.' (ibid.: 6)

---

[5] The argument in this section is based partly on Bobaljik (2008).

[6] See e.g. Richards (2008b) for a different view, according to which datives, being inherently case marked, do trigger 3rd person agreement, regardless of their person feature.

(10) shows that only nominative subjects trigger verbal agreement. The same is true for objects, as seen in (11).[7] As in Hindi, the Icelandic data suggest that whenever m-case and syntactic configuration diverge, agreement patterns with m-case.

So far, however, only grammatical function has been disregarded as the input of Agree. In principle, both abstract and m-case might provide the correct input. To distinguish between these two alternatives, consider ECM infinitives. As (12a) shows, the nominatives on subjects ceases to be assigned in infinitives, hence being substituted by an accusative (as is the case in English). Interestingly, the nominative on objects is unaffected by non-finiteness and may not even optionally be overridden by an accusative (see (12b)).

(12) a. Ég hafði talið Maríu vita svarið
I had believed Mary.ACC to.know the.answer.ACC (Woolford 2006: 122)

b. Við töldum [henni hafa leiðst strákarnir/*strákana]
we believed her.DAT have.INF found.boring boys.the.NOM/*ACC
'We believed her to have found the boys boring.' (Sigurðsson 2006b: 293)

(12) thus shows that the surface nominatives assigned to subjects and objects differ in their syntactic distribution. This can be taken as evidence that both are not underlyingly identical as in this case identity of availability would be predicted. Consequently, subject nominatives and object nominatives are distinct abstract cases (this will indeed be the conclusion drawn in chapter 5). These considerations lead to the following conclusion: Two distinct abstract cases surfacing as one and the same m-case both control verbal agreement, thus behaving identically. If abstract case provided the input to Agree this fact would remain a mere coincidence. Viewing agreement as feeding on m-case, by contrast, systematically captures this pattern without further ado and is hence to be preferred.

3.2 Abstract Case as the Input to Agree

In the previous section two arguments have been provided for the claim that agreement is properly characterized in terms of m-case instead of abstract case. This section reviews two arguments to the contrary, namely that whenever m-case and abstract case are distinct, agreement can only be appropiately characterized by abstract case.[8] The tension between both positions is then used to motivate my main claim in the

[7] As is well known, the data are considerably more complex. See chapter 5 for a closer inspection of the relevant empirical patterns.

[8] Both arguments are taken from Legate (2008), an explicit reply to Bobaljik's (2008) proposal that agreement feeds on m-case.

following section: It is neither abstract syntactic case nor m-case that is relevant for agreement. Rather, impoverished feature matrices provide the right tool to account for all the empirical patterns encountered so far.

3.2.1 Warlpiri

With respect to the distribution of the case markers, Warlpiri exhibits an ergative pattern:[9] A arguments are marked with *-rlu* or *-ngku*, the choice among both markers being phonologically conditioned. S and O arguments are zero marked. Legate (2002, 2006, 2008) states that this ergative pattern is only superficial. Syntactically, the cases of S, A and O are distinct. For ease of exposition, let us call the syntactic case assigned to S 'nominative', the case of A 'ergative' and the case of O 'absolutive'. Thus, Warlpiri syntactically is a three-way aligning language. The relevant case markers argued for by Legate are those in (13).

(13) *Warlpiri case markers* (based on Legate 2008)
[ERGATIVE] ↔ -rlu/-ngku
[CASE] ↔ -Ø

This marker system has the following consequences. The ergative case is realized by *-rlu*/*-ngku*. Both absolutive and nominative morphologically end up bearing the zero marker (the elsewhere marker), giving rise to the surface ergative distribution. This pattern is therefore not deep but only due to the unfaithful morphological realization of a syntactic structure.

Legate offers several arguments in favor of this analysis. She argues convincingly that nominative and absolutive behave differently syntactically. Firstly, she shows that the zero marker is indeed the elsewhere case marker and correspondingly is attached to DPs that do not receive a syntactic case, such as hanging topics. Secondly, a strong argument for her claim comes from non-finite clauses: While abstract nominative case cannot be assigned in infinitival clauses, assignment of abstract absolutive is not influenced by finiteness. Consider the data in (14).

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[9] Following a common practice in typologically oriented work, I will designate the single argument of an intransitive verb (regardless of unergative or unaccusative) as 'S'. The internal and external arguments of a transitive verb will be referred to by 'O' and 'A', respectively. I take them to be mere desriptive labels without theoretical significance.

(14) a. *Kurdu-lpa manyu-karri-ja [ngati-nyanu
child.ABS-PAST.IMPERF play-stand-PAST [mother-ANAPH.ABS
jarda-nguna-nja-rlarni].
sleep-lie-INF-OBV.C]
'The child was playing while his mother was asleep.'

b. *Ngarrka-patu-rlu ka-lu-jana puluku
man-PAUC-ERG PRES.IMPERF-3PL.SUBJ-3PL.OBJ bullock.ABS
turnu-ma-ni [kurdu parnka-nja-rlarni].
group-CAUS-NONPAST [child.ABS run-INF-OBV.C]
'The men are mustering cattle while the children are running.'
(Legate 2008: 62)

In (14) an S argument appears in a non-finite clause (the bracketed constituent). The ungrammaticality is due to the fact that no nominative can be assigned in infinitival clauses, leading to a crash of the derivation since the S argument receives no case feature. That the ungrammaticality of (14) is indeed due to a problem with case assignment is suggested by the fact that both sentences become grammatical if the S argument bears inherent dative case, yielding *ngatinyan-uku* and *kurd-uku*, respectively. In contrast, an O argument always bears the zero marker and must not be marked as dative, as shown by *miyi* 'food' in (15).

(15) Ngarrka-patu-rlu ka-lu-jana puluku
man-PAUC-ERG PRES.IMPERF-3PL.SUBJ-3PL.OBJ bullock.ABS
turnu-ma-ni, [karnta-patu-ku miyi / *miyi-ku
group-CAUSE-NONPAST [woman-PAUC-DAT food.ABS food-DAT
purra-nja-puru].
cook-INF-TEMP.C]
'The men are mustering cattle while the women are cooking the food.' (ibid.: 63)

A arguments may retain their ergative case marker in non-finite clauses, as shown by *ngati* 'mother' in (16).[10] Hence, assignment of abstract ergative case is not affected by non-finiteness.

(16) Kurdu-lpa manyu-karri-ja, [ngati-nyanu-rlu karla-nja-rlarni].
child.ABS-PAST.IMPERF play-stand-PAST [mother-POSS-ERG dig-INF-OBJ.C]
'The child was playing while his mother was digging (for something).' (ibid.: 63)

As shown above, the S argument behaves differently from both A and O in being forced to be lexically case marked in non-finite clauses. This is because assignment of abstract nominative case is not possible in infinite clauses. Crucially, zero marked O arguments are nevertheless possible because here the zero marker is the realization of a distinct

[10] In fact, the A argument may also bear dative case.

abstract case, namely the absolutive. By assumption, assignment of absolutive case is possible in both finite and non-finite clauses.

This distinct behavior of the case assigned to S and O with regard to finiteness constitutes a strong argument for Legate's claim that S and O bear distinct syntactic cases that only happen to be realized by the same marker morphologically. In addition to this distinction, Legate (2008) offers further arguments in favor for her analysis that I will not reproduce here. The interested reader is referred to her article instead.

Having established the basis for the claim that there exists a mismatch between syntactic case and m-case in Warlpiri, the crucial question is which of the two verbal agreement associates with. It turns out that agreement differentiates between S and O arguments, in spite of the fact that both bear the same m-case. In Warlpiri, A and S arguments trigger subject agreement and O arguments trigger distinct object agreement. This is illustrated in (17).

(17) a. Ngajulu-rlu-rna-ngku nyuntu nya-ngu
I-ERG-1SG.SUBJ-2SG.OBJ you.ABS see-PAST
'I saw you.'

b. Ngaju-rna parnka-ja
1.ABS-1SG.SUBJ run-PAST
'I ran.'

c. Nyuntulu-rlu-npa-ju ngaju nya-ngu
you-ERG-2SG.SUBJ-1SG.OBJ I.ABS see-PAST
'You saw me.' (Legate 2008: 71)

(17a) shows that in transitive clauses the verb agrees with both subject and object. In intransitive clauses, the verb shows agreement with the subject. A comparison of (17a) and (17b) illustrates that the A and the S argument trigger subject agreement, as in both cases the marker *-rna* is attached to the verb. In (17c) the verb again agrees with both A and O but, interestingly, the 1st person object triggers different agreement: The marker *-ju* instead of *-rna* appears on the verb. If agreement is exclusively determined by m-case this distinction between S and O arguments is mysterious. Since both bear one and the same case marker there is no way of distinguishing between them in terms of morphological case.[11] This state of affairs is depicted in figure 3.3.

[11] Of course, a possible way to make the Warlpiri data conform to the claim that only m-case matters for agreement would be to stipulate that S and O arguments actually bear different zero markers, only one of both triggering agreement. While this would accomodate the facts there does not seem to exist any independent evidence for such a distinction. Furthermore, the syncretism between S and O marking could no longer be derived. In addition, such a claim is problematic for the principle of iconicity since it assumes two highly specific zero markers. Finally, the resulting account does not appear to make any interesting empirical predictions. If the existence of several homophonous but distinct m-cases is postulated solely on the basis of differences in verb agreement, then the claim that verb agreement is only determined by m-case is circular and trivially fulfilled for all kinds of data. I thus judge such a move untenable.

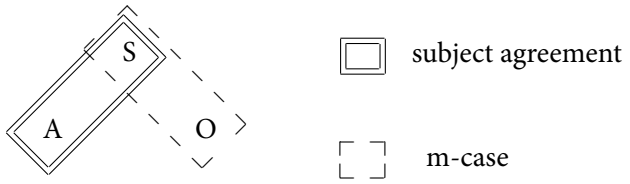

Figure 3.3
Mismatch between m-case and agreement in Warlpiri

It follows that agreement cannot be solely determined on the basis of m-case. Legate's (2008) conclusion is that these facts argue in favor of abstract case as the input of agreement since the crucial distinction between nominative and absolutive is only present on the level of abstract case.

3.2.2 Niuean

A similar argumentation as the one for Warlpiri in the previous section also holds for Niuean. With respect to morphological case marking, S and O pattern together and differ from A. Specifically, A arguments are marked by *e* if pronouns or proper nouns and *he* elsewhere. Pronouns and proper nouns in S and O position are marked by *a*, other types of arguments by *e*. As was argued for Warlpiri, this pattern does not reflect the syntactic case configuration. Legate (2008) argues that Niuean as well is underlyingly a language with three-way alignment, which is only unfaithfully realized by morphological marking. The markers relevant for the discussion are summarized in (18).

(18) *Niuean case markers* (Legate 2008, based on Seiter 1980)

[ERGATIVE]	↔	e / proper nouns, pronouns
[ERGATIVE]	↔	he
[CASE]	↔	a / proper nouns, pronouns
[CASE]	↔	e

Legate (2008) provides similar arguments for Niuean as above in the case of Warlpiri. Consequently, she is led to the same conclusion: S and O arguments behave differently for case assignment, which suggests that the two bear distinct syntactic case. Again, the identical realization of both abstract cases is a purely morphological phenomenon.

This mismatch between abstract and m-case provides the testing ground for the hypothesis that agreement is sensitive only to m-case. As was the case in Warlpiri, this

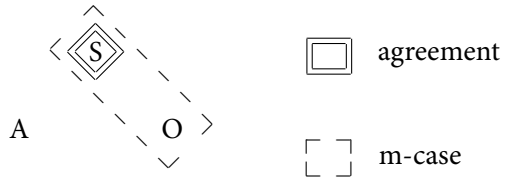

Figure 3.4
Mismatch between m-case and agreement in Niuean

is empirically wrong. Instead, in Niuean the verb shows plural agreement only with the S argument but with neither A nor O.[12] This is exemplified in (19).

(19) a. Nofo agaia nakai e matua fifine haau i Mutalau?
live still Q ABS parent female your in Mutalau
'Does your mother still live in Mutalau (village)?'

b. No-nofo agaia nakai e tau ma-matua haau i Mutalau?
PL-live still Q ABS PL PL-parent your in Mutalau
'Do your parents still live in Mutalau (village)?' (Seiter 1980: 62)

c. Kua tā he tama e tau fakatino
PERF draw ERG child ABS PL picture
'The child has been drawing pictures.'

d. Volu nakai he tau fānau e fua nui?
grate Q ERG PL children ABS fruit coconut
'Are the children grating (the fruit of the) coconut? (ibid.: 70)

The S argument in (19a) is singular and hence does not trigger plural agreement on the verb. This constitutes a near-minimal pair with (19b), which has a plural S argument, that triggers verbal agreement. (19c) and (19d) show that neither A nor O arguments trigger plural agreement. This state of affairs is depicted in figure 3.4.

The empirical data from Niuean are problematic for the assumption that agreement can be solely determined by m-case since for m-case S and O are indistinguishable. It should thus not be possible for agreement to treat both differently, contrary to fact.

[12] Actually, the empirical facts are more complex (cf. Seiter 1980: 60ff.). Some transitive verbs do show agreement with their A argument while others agree with the direct object. Whatever the correct account might be, it is evident that there exists no simple relation between m-case and verb agreement in the sense that the latter could be unambiguously determined by the former.

3.2.3 Marathi/Punjabi

To summarize the previous discussion, two conflicting hypotheses about agreement have been considered. According to one hypothesis agreement can be determined on the basis of m-case alone. This makes the correct predictions for Hindi and Icelandic verb agreement as considered so far. However, it falls short of the Warlpiri and Niuean agreement facts. The second point of view treated agreement as conditioned by abstract syntactic case. Under this assumption the Warlpiri/Niuean data are straightforwardly accounted for but it is incompatible with the analysis of Hindi split-ergativity illustrated above, that was based on post-syntactic impoverishment. Additionally, it runs counter to the Icelandic agreement facts. Therefore, both treatments can only account for part of the empirical patterns. One might speculate whether languages can be parametrized in order to take *either* abstract *or* m-case as the input of agreement. Under such a view, Hindi and Icelandic determine agreement on the basis of m-case whereas Warlpiri and Niuean choose abstract case as the relevant property. Such a view is problematic, however. First, it is not clear whether languages should be allowed to vary with respect to such architectural properties. It further raises the issues of learnability. Second, there also exist languages with verbal agreement that cannot be exclusively determined on the basis of either abstract or m-case. That is, for some alternations m-case provides the relevant information while in others it is abstract case. Two such languages are Marathi and Punjabi (Bhatia 1993, Pandharipande 1997, Butt 2005, Wali 2006, Legate 2008).

The relevance of m-case Like Hindi, Marathi and Punjabi exhibit split-ergativity conditioned by the factor *perfectivity*. Again, as in Hindi verb agreement is sensitive to this marker alternation. This is illustrated in (20) and (21).

(20) *Marathi*

a. mulī gāṇī mhaṇtāt
girl.3pl.fem.abs song.3pl.neut.abs sing.past.3pl.fem
'Girls sing songs.'

b. mulī-ne gāṇī mhaṭlī
girl.3pl.fem-erg song.3pl.neut.abs sing.past.3pl.neut
'The girls sang songs.' (Pandharipande 1997: 284)

(21) *Punjabi*

a. laṛki muṇḍiã-nũ mar-di ɛ.
girl.abs boy.masc.pl-dat hit-pres.fem.sg be.pres.3sg
'The girl is hitting the boys.'

b. laṛki-ne muṇḍiã-nũ mar-ia si.
girl.fem.sg-erg boy.masc.pl-dat hit-past.masc.sg be.past.3sg
'The girl has hit the boys.' (Butt 2005: 186)

Table 3.1 Aspect-based split for 3rd person subjects (Marathi/Punjabi)

	perfective	non-perfective
abstract case	ERGATIVE	ERGATIVE
m-case	/-ne/	/-Ø/
verbal agreement	✗	✓

The (a) sentences above stand in the non-perfective aspect and consequently have a zero marked subject triggering verb agreement. The (b) sentences are perfective and hence the subject is marked with *-ne*. As was observed in Hindi, such subjects do not trigger verb agreement. Under an analysis such as the one pursued above for Hindi, the subjects in (20) and (21) above bear the same abstract case feature. Only post-syntactically does an impoverishment operation introduce a distinction between both, allowing the subsequent operations to differentiate between them. As a consequence, this analysis of the data is incompatible with the hypothesis that agreement feeds on abstract case. Rather, it must be m-case that is relevant here. This state of affairs is summarized in table 3.1.

THE RELEVANCE OF ABSTRACT CASE Crucially, Marathi and Punjabi in addition exhibit a second alternation between *-ne* and the zero marker. This is an NP-type split, conditioned by the distinction between local (i.e. 1st or 2nd) and non-local (3rd) person: Local persons *never* bear the marker *-ne* and have to be zero marked regardless of aspect. This second split is illustrated in (22) and (23).

(22) *Marathi*

a. mī / āmhī / tū / tumhī gāṇī
I.ABS we.ABS you.SG.ABS you.PL.ABS song.3PL.NEUT.ABS
mhaṭlī
sing.PAST.3PL.NEUT
'I/we/you sang songs.'

b. tyā-ne / tyā̃n-nī / ti-ne / tyā̃n-nī gāṇī
he-ERG they.MASC-ERG she-ERG they.FEM-ERG song.3PL.NEUT.ABS
mhaṭlī
sing.PAST.3PL.NEUT (Pandharipande 1997: 131)

(23) *Punjabi*

a. tũ lakṛi vaḍ-i
you.FEM/MASC.ABS wood.FEM.SG.ABS cut-PAST.FEM.SG
'You (male or female) cut the wood.'

Table 3.2 Person-based split in the perfective aspect (Marathi/Punjabi)

	local person	3rd person
abstract case	ERGATIVE	ERGATIVE
m-case	/-Ø/	/-ne/
verbal agreement	✗	✗

b. tũ kampuṭar bech-ia
you.FEM/MASC.ABS computer.MASC.SG.ABS sell-PAST.MASC.SG
'You (male or female) sold the computer.' (Butt 2005: 187)

(22) illustrates that local persons differ from non-local persons in not bearing the ergative case marker. This difference between local and non-local persons in subject position constitutes a clear instance of differential argument encoding because in terms of markedness scales local person subjects are canonical compared to 3rd person subjects. I therefore assume that it is to be analyzed by means of harmonic alignment of scales and impoverishment, along the lines suggested by Keine and Müller (2008). Thus, the analysis is parallel to the one given for the aspect-based split above: Syntactically, all subjects bear the same case feature, standardly realized by *-ne*. Impoverishment in the case of highly canonical subjects bleeds insertion of *-ne* and consequently leads to a retreat to the general zero marker.

Importantly, verbal agreement is unaffected by this alternation. Neither the verb in (22a) nor in (22b) agrees with the subject, regardless of the case marker attached to it. The same is true for Punjabi: Both verb forms in (23) agree with the object in spite of the fact that the subject bears the zero marker. Consequently, agreement associates with abstract case, as summarized in table 3.2.

There thus arises a dilemma: Consider the perfectivity split as exemplified by (20). The abstract case feature in (a) and (b) is identical; m-case is distinct. Agreement is sensitive to this distinction, suggesting that m-case is relevant. Now consider again the person split in (22). Again, all subjects bear the same abstract case feature and only their m-case differs. But here agreement treats them alike, suggesting that abstract case, not m-case, is relevant. To pose the question differently: If agreement is sensitive to abstract case, why do the subjects in (20a) and (20b) behave differently? If, on the other hand, it is m-case that is relevant, why does the zero marked subject in (20a) trigger agreement but the zero marked subject in (22a) does not?

It follows, then, that the agreement facts in Marathi and Punjabi cannot be determined on the basis of either m-case or abstract case alone. The proposal suggested above, namely that languages differ as to whether they choose m-case or abstract case as the input of agreement, thus does not account for the Marathi/Punjabi facts. A possible solution might be to state the relevance of m-case or abstract case for any single marker

alternation differently, but such a move would hardly be more than a mere restatement of the facts in theoretical terms. Therefore, trying to reduce agreement to either m-case or abstract case is empirically too restrictive to account for the observed variation.

3.2.4 Conclusion

In this section, I have compared the empirical predictions of two conflicting hypotheses about agreement. The first hypothesis assumed that agreement can be properly characterized on the basis of abstract case alone. While this point of view accounts for the facts in Warlpiri and Niuean, verb agreement in Icelandic and Hindi is rather hard to derive. The second proposal, i.e. that agreement feeds on m-case, suffered from different problems: Here, the Icelandic and Hindi facts are unproblematic but Warlpiri and Niuean are incompatible with such an account. The intricacies of verbal agreement in Marathi and Punjabi have then been shown to be at odds with both the m-case and the abstract case hypothesis.

The next section proposes my main claim, namely, that agreement can apply *after* impoverishment has taken place but *before* vocabulary items are inserted. Under this account all the data considered so far can be derived by a single mechanism.

3.3 Impoverished Feature Matrices as the Input to Agree

3.3.1 Proposal

The previous sections stated the problem that verbal agreement cannot be determined on the basis of either m-case or abstract case in a cross-linguistic fashion. In order to solve this problem, I propose that ϕ-agreement and case assignment can interact freely with impoverishment operations. This follows from the assumption that both operations do not apply within distinct grammatical modules and hence are not extrinsically ordered. The input of agreement is thus neither abstract syntactic case (to which no impoverishment has yet applied) nor m-case, but rather potentially impoverished feature matrices. Note that this proposal does not complicate the grammar by introducing a new representation. Impoverished feature matrices are independently needed as the basis for vocabulary insertion. Hence, the present proposal strenghtens the role of impoverishment operations and, correspondingly, the status of impoverished feature representations. Under the view pursued here, they are not only relevant for triggering correct marker insertion but may also provide an input to Agree. Throughout what follows, I will argue that impoverishment and Agree apply within the same grammatical

component. Consequently, it is not the case that all operations of type A precede all operations of type B. Instead, they may intertwine and influence each other.

An important result of the case studies that follow is that impoverishment applies as soon as its context is met. If this is the case before Agree has taken place then impoverishment will modify the content that undergoes Agree. If, however, the context of an impoverishment operation is met only after Agree has copied feature values to a given head, then impoverishment applies late, i.e. after Agree has taken place, thus having no effect on Agree. If at a certain stage of the derivation both Agree and impoverishment may apply, impoverishment takes priority. There are several ways of implementing this restriction formally. The most straightforward one is to simply assume an extrinsic ordering between the two operations. A more elaborate alternative is to view impoverishment as structural optimization as suggested in section 2.3 and to assume that optimization applies after every step in the derivation ('extremely local optimization'). Thus, after, say, an Agree operation the resulting structure undergoes optimization, resulting in impoverishment where feasible. Only thereafter does the next operation take place. Under this view the ordering 'impoverishment > Agree' is predicted to be universal. This prediction is fully compatible with all the analyses proposed here but may well turn out to be too strong if additional data—especially more conservative systems—are taken into account. A third possibility that leaves more room for parametrization is to conceive of Agree as structural optimization as well. This is independently suggested in chapter 6 on the basis of global case splits. Under this view, Agree operations result from a markedness constraints against unvalued features. The main reason for this step is cross-linguistic variation, that can be accomodated as differences in constraint rankings. If both impoverishment and Agree results from markedness constraints in an OT-style fashion, the ranking between these markedness constraints determines the order of the operations. If, e.g., a given structure licenses both an Agree operation (by containing unvalued features) and impoverishment (by comprising a feature specification that can be impoverished), then the ranking between the the two relevant markedness constraints decides with operations applies first. In contrast to the second possibility above this gives rise to possible variations across languages, as languages are expected to vary with respect to their constraint ranking. Some languages may exhibit the order 'impoverishment > Agree' whereas others show 'Agree > impoverishment'. One might then entertain the possibility that what makes the systems discussed here special is that in these languages impoverishment applies before Agree. In language with the reverse ordering impoverishment may not affect Agree, yielding non-eccentric argument encoding. In fact, impoverishment that applies sufficiently late in the syntactic derivation may not be distinguishable from impoverishment as it is standardly conceived, i.e. as an operation that applies shortly after syntax. The possibility of parametrizing the order between impoverishment and Agree offers a perspective for integating the classical cases that served to motivate morphological impoverishment in the first place with the analyses developed in the present study.

To sum up the proposal so far, impoverishment and Agree may interact with each other. Crucially, if both impoverishment and Agree are possible, impoverishment takes priority. Three possibilities of implementing this requirement have been discussed, all of which are in principle compatible with the main claim proposed here.

Agree is a general operation that copies a feature bundle from one head Γ to another head Σ (recall the definition of Agree in (32) in section 2.4). It is triggered by unvalued features on head Σ that have to be valued if the derivation is to converge. In order to do so, the unvalued feature on Σ probes for a valued counterpart. The closest counterpart is copied to Σ, thus erasing the unvalued feature (Chomsky 2000, 2001, 2004). More specifically, I propose that both ϕ-agreement and case assignment are instances of this general Agree mechanism (Legate 2008). They only diverge regarding what kind of features are copied. ϕ-agreement copies ϕ-features (person, number, gender) from a nominal into the verbal domain. Case assignment copies case features from the verbal domain onto a nominal. In order to highlight this similarity I will refer to case assignment as '*κ-Agree*'.

If impoverishment and Agree interact freely with each other, impoverishment may affect Agree in the following ways:

1. By assumption, certain language-specific case subfeatures render DPs inaccessible for ϕ-probing heads (*agreement opaqueness*). If impoverishment deletes these features it makes verbal ϕ-agreement with this DP possible. Therefore, impoverishment can *feed* agreement.

2. In the process of ϕ-agreement a probe searches for the closest set of ϕ-features. If, under certain conditions, impoverishment deletes the ϕ-features of a DP that otherwise triggers verbal agreement, it makes ϕ-agreement with this DP impossible since it no longer constitutes a potential goal.[13] Impoverishment can thus *bleed* agreement.

3. Suppose that in the process of agreement a feature bundle [+α, +β] is copied from head Γ to head Σ. If impoverishment of [+α] applies to Γ before agreement takes place, the resulting feature that is copied to Σ is [$\cancel{+\alpha}$, +β].[14] Impoverishment applying before agreement can thus *modify the content of agreement*. This has the following effect: Deletion of [+α] on Γ is triggered by features on Γ. If, after agreement with Σ, vocabulary insertion into Σ takes place, the resulting marker will vary depending on whether the feature it realizes is [+α, +β] or [$\cancel{+\alpha}$, +β]. This means that Σ will show a marker alternation that is conditioned by features on Γ. Under the present perspective, this apparent case of global computation can be reduced to strictly local

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[13] Such defectiveness of goals (that, however, is not the result of impoverishment) is also employed by e.g. Richards (2008b).

[14] The cancelled notation of [$\cancel{+\alpha}$] is employed solely for expository purposes and does not imply a storage of the derivational history. Only [+β] is existent after [+α] is impoverished, so that [$\cancel{+\alpha}$, +β] = [+β].

impoverishment. If the feature deleted by impoverishment and the context that triggers deletion seem to be distributed over several heads, this can be derived by the interaction of strictly local impoverishment plus an independently needed Agree operation.

If agreement provides a means to percolate the information whether impoverishment has taken place from one head to another, one might entertain the possibility that impoverishment operations in themselves are strictly local. Seemingly non-local applications of impoverishment under this perspective result from subsequent Agree (cf. point 3 above). In order to restrict the domain of impoverishment I assume the *locality condition* in (24).

(24) *Locality of impoverishment*
Impoverishment is only sensitive to features within a single syntactic head and its structural configuration.

According to (24) features within the verbal domain cannot trigger impoverishment of features on nominals (i.e. subjects or objects) and the other way around. Instead, impoverishment of verbal features is only possible if the context for impoverishment is met within one single head. This greatly simplifies the computation as it sets an upper bound on the computation space of impoverishment. Impoverishment is subject to strict head locality. Note that impoverishment locality (24) defines a smaller domain than the Phase Impenetrability Condition (PIC; cf. (40) on page 33). If Agree is to feed impoverishment it must be capable of applying to a domain that may not serve as the input to impoverishment. This result can be achieved if impoverishment is an extremely local operation, taking only heads as input. Under the optimization-based approach to impoverishment, (24) follows from the assumption that syntactic heads constitute the domain D of local constraint conjunction (recall (15) on page 19).

The main reason to adopt (24) is to prevent impoverishment that affects, e.g., an object case feature in the context of verbal properties or vice versa. These feature are distributed over several heads and hence, by (24), may not serve as the input of impoverishment. Note, however, that (24) is fairly restrictive in also prohibiting interaction of features of *v* with features on T. While this restriction does not pose a problem to the analyses proposed in the following chapters, this hypothesis might turn out to be too strong. Several alternatives exist that, while still blocking impoverishment operations from applying to a verb and its arguments simultaneously, allow for more interaction within the verbal or nominal spine.

One straightforward way of doing so is to identify the domains in (24) with *extended projections* (Grimshaw 1997, 2000). Extended projections comprise a lexical head, its projection and its respective functional superstructure. Thus, the verbal extended projection comprises V, *v*, T, and C. The nominal extended projection consists of N, D and maybe several other heads. If extended projections define the locality domain of im-

poverishment T and *v* may influence each other. The same holds for N and D. Crucially, as verbal and nominal heads belong to separate extended projections impoverishment is still blocked from operating on object and verbal features simultaneously.

Another possibility is to assume *reprojection* as independently proposed by Pesetsky (1985), von Stechow and Sternefeld (1988), Holmberg (1991), Ackema, Neeleman and Weerman (1993), Hornstein and Uriagereka (2002), Fanselow (2003), and Müller (2009a) among others for the verbal domain and Georgi and Müller (2010) for the nominal domain. Take the verbal domain as an example: Under the perspective of reprojection there exists only one verbal head that projects several times. Hence, the features in the verbal domain are not distributed over several heads but are simultaneously present on one single head. Thus, the reprojection approach combines strict head locality with a possible interaction along the verbal or nominal spine by radically reducing the number of distinct heads. One caveat is in order here: Although this idea seems to work well for the verbal domain, it should be noted that within the nominal domain the relevant features are still distributed over several heads. As will become clear in the case studies in the subsequent sections, both animacy and definiteness features should be able to trigger case feature deletion. The animacy information is most plausibly represented on the N head, whereas definiteness is standardly assumed to be a feature of a D head. If case feature impoverishment turns out to be sensitive to both animacy and definiteness features, then to some extent impoverishment must still be able to consider more than one head at a time even if reprojection is assumed. Note more generally that I will not be concerned here with the internal structure of nominals and the operations that lead to concord within them. Upon closer scrutiny, it might thus turn out that (24) proves to strong if more importance is attached to DP-internal processes and architecture. For the purposes of this work, however, I will adopt (24) nevertheless.

Domain locality as defined in (24) allows impoverishment to be sensitive to the grammatical configuration that a head appears in. The motivation behind this assumption is that subjects and objects must be distinguished, which might be achieved by reference to the phrase-structural environment of a DP (Chomsky 1965). 'Subject' can be defined as "Spec,*v*P"; 'direct object' as "Comp,VP" (Chomsky 2001), and 'indirect object' as "Spec,VP" (or, equivalently for present purposes, Spec,ApplP). Impoverishment operations must thus be sensitive to the phrase structural position of different heads. The featural content of these heads, however, is by (24) opaque.

An alternative worth pointing out is that the status of a given argument is represented on that very argument. Case subfeatures can be viewed in such a way. Recall that in the proposed analysis for split-ergativity in Hindi the ergative case was decomposed to $\left[\begin{smallmatrix}+\text{obl}\\ +subj\end{smallmatrix}\right]$ and the accusative to $\left[\begin{smallmatrix}+\text{obl}\\ +obj\end{smallmatrix}\right]$. If these case features are not just vacuous labels, the information whether a given DP is a subject or an object is ultimately represented on the case feature of that DP. Impoverishment might then be relativized to this case feature. Additional computation of the grammatical function status as a relation to

different heads would then be redundant and unnecessary. Under this view, strict domain locality can be maintained. Note in this respect Bank's (2008) use of the case features [±higher role (hr)] and [±lower role (lr)] (for these case features see e.g. Kiparsky 1992, 2001, Wunderlich 1997a,b, 2003). In his analysis of German pronoun inflection, these features play a double role: Firstly, they serve as case features. Secondly, they determine the subject/object status of a given argument. Impoverishment can then be relatived to case features that are ambivalent in the same way.[15]

I will remain agnostic as to which conception of grammatical function is to be preferred.[16] Consequently, I will notate grammatical function here just as 'subject' and 'object', respectively, noting that both views are compatible with the system proposed here.

3.3.2 Empirical Application

The previous section has established the background concepts assumed here. The present section illustrates how under this view the empirical data that proved complicated for the m-case/abstract case hypotheses discussed above can be derived in a uniform way.

HINDI Suppose the case feature decomposition of section 3.1.1, repeated in (25a). The markers under consideration are specified as in (25b), conforming to iconicity. Two impoverishment operations are at work here, corresponding to the case marker alternation on subjects and objects. As for ϕ-agreement, suppose that in Hindi both the case subfeatures [+subj] and [+obj] render a DP opaque for verbal ϕ-probing. This captures the generalization that fully realized subjects and objects (i.e. subjects and objects that are marked with *-ne* and *-ko*, respectively) *never* trigger verbal agreement. Rather, in such a configuration the verb exhibits default agreement (see (9d) for an example).

(25) System for Hindi

a. *Case subfeatures*

ERGATIVE: $\begin{bmatrix} -\text{obl} \\ +\text{subj} \end{bmatrix}$ ACCUSATIVE: $\begin{bmatrix} -\text{obl} \\ +\text{obj} \end{bmatrix}$

[15] Note that such an approach considerably broadens the scope of analytic possibilities. This is because the relevant features, being case features, can also be deleted. If impoverishment is triggered by these case features instead of the syntactic context, then prior deletion of this case feature may *bleed* a later impoverishment operation that is triggered by this case feature. See the appendix of chapter 4 for an application to subject marking in Nepali.

[16] Though see footnote 7 on page 171 for an argument in favor for the former view, namely that it is the syntactic context that determines grammatical function.

b. *Case markers*

/-ne/ ↔ [−obl, +subj] /-ko/ ↔ [−obl, +obj] /-Ø/ ↔ [ ]

c. *Impoverishment rules*[17]

(i) [+subj] → ∅ / __ [−PERF]

(ii) [+obj] → ∅ / __ [−HUMAN, −SPECIFIC]

d. *ϕ-transparency*

DPs bearing [+subj] or [+obj] are opaque for the verbal ϕ-probe

e. *Feature content*

v: [ERGATIVE, ACCUSATIVE] T: [*u*ϕ]

For the sake of the argument, suppose the head content in (25e) and the following syntactic structure (alternative derivations are conceivable). As is standardly assumed, the object is merged in Comp,VP. The subject is base-generated in Spec,*v*P. The case features for subject and object reside on *v* (cf., e.g., Massam 2002, Anand and Nevins 2006, Woolford 2006 for the claim that the ergative is assigned by *v*). T contains a single ϕ-probe. This architecture gives rise to the following derivation, depicted in (26): First, V and the object DP are merged, followed by merging *v*. At this stage of the derivation, *v* assigns the object's case feature, as the structural requirements of Agree are met (①). Depending on the properties of the object DP, impoverishment may or may not apply to the object's case feature. The same holds for the case feature not yet assigned to the subject. Subsequently, the subject is merged and receives its (possibly impoverished) case from *v* (②). As the next step, T enters the structure, probing into its

[17] The second impoverishment rule in (25c) can straightforwardly be stated as a constraint ranking with the same effect (for the complete derivation see section 2.3). It is given in (i) (= (28) on page 26):

(i) { *Obj/Hum/Spec & MAX-CASE, *Obj/Hum/NSpec & MAX-CASE, *Obj/NHum/Spec & MAX-CASE } ≫ *[+obj] ≫ *Obj/NHum/NSpec & MAX-CASE

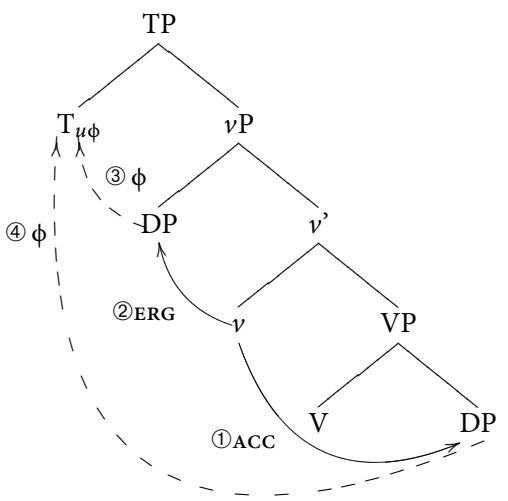
As for the aspect-induced impoverishment operation in (25ci), a scale-driven reanalysis is straightforward once one assumes a cross-linguistically viable aspect scale such as (ii). Note that the postulation of such a scale adheres to the finding that aspect-driven case marker alternation is cross-linguistically stable (Dixon 1994: 99). Given that there exists an overarching pattern, the natural way to account for it within the present framework is the assumption of an aspect scale, conditioning impoverishment in just the same way as all other scales encountered so far. Invoking the aspect scale leads to the constraint ranking in (iii): Only in non-perfective contexts does the markedness constraint *[+subj] outrank the corresponding case faithfulness constraint. Consequently, [+subj] is deleted in non-perfective contexts.

(ii) *Aspect scale*
imperfective > perfective

(iii) perfective & MAX-CASE ≫ *[+subj] ≫ imperfective & MAX-CASE

complement to value its ϕ-probe. It first encounters the subject (③). If it is accessible, ϕ-Agree takes place. If not, probing proceeds to the object, establishing an Agree relation if possible (④). If neither the subject nor the object are accessible, the probe on T is valued as default (3SG). Situating the ϕ-probe on T accounts for the fact that the object is only relevant for agreement if the subject does not constitute a potential goal. In other words, an accessible subject takes priority over an accessible object (recall the generalization in (8)). This is modelled in that the ϕ-probe on T can only agree with the object if there is no accessible subject. Note also that in case both subject and object are accessible only the subject controls agreement, as there exists only one ϕ-probe in the structure, which invariably enters into agreement with the subject if it constitutes a potential goal.

(26)



The derivation of the case markers appearing on subjects and objects is identical to that illustrated in section 3.1.1 above: Subjects are marked with the abstract case feature $\left[\begin{smallmatrix}-\text{obl}\\+\text{subj}\end{smallmatrix}\right]$, which is standardly realized by *-ne*. In non-perfective clauses the impoverishment operation (25ci) applies, bleeding insertion of *-ne* and thus leading to zero marking. The same line of reasoning holds for objects: Standardly, the abstract case $\left[\begin{smallmatrix}-\text{obl}\\+\text{obj}\end{smallmatrix}\right]$ is realized by *-ko*. In the case of non-human, non-specific objects, impoverishment (25cii) applies, leading to zero exponence. As for agreement, note that subjects and objects bear either the abstract case feature [+subj] or [+obj] and therefore do not trigger ϕ-agreement (see (25d)). Only if either of the impoverishment rules in (25c) applies does an argument become ϕ-transparent, thus being capable of triggering verbal agreement. The impoverishment operations in (25c) thus *feed* agreement. The correlation between zero marking and the possibility of verbal agreement thus follows from the assumed properties in (25). Thus, in Hindi subjects and objects are standardly invisible for a ϕ-probe (due to language-specific ϕ-opaqueness) and their case feature is realized by an overt marker. Both impoverishment operations have two effects:

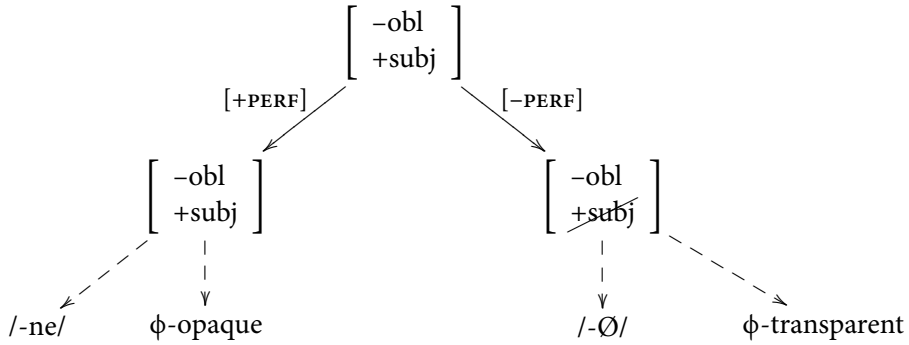


Figure 3.5
Derivation for case marker and agreement alternation on Hindi subjects

Firstly, the argument becomes ϕ-transparent and, secondly, only the more general zero marker can be attached. This is illustrated in figure 3.5 for subjects and in figure 3.6 for objects.[18]

Another thing to notice in the present context is that the impoverishment operation (25ci) has to apply before the ergative case $\left[\begin{smallmatrix}-\text{obl}\\+\text{subj}\end{smallmatrix}\right]$ is assigned to the subject. This follows from the head locality restriction on impoverishment in (24), demanding conditioning and affected features to be presented on one and the same syntactic head. As the sentential aspect is not plausibly respresented on the subject (*contra* Pesetsky and Torrego 2001), impoverishment has to take place while the case feature is still on the verb. Recall that I have assumed that the ergative case feature is assigned by *v*. Consequently, the aspect feature has to be represented on *v* as well, leading to impoverishment, followed by assignment to the subject. Hindi thus instantiates a first example with impoverishment taking place before κ-Agree.[19]

To close the discussion of differential case marking in Hindi, I would like to implement a further complication into the analysis developed above. Upon closer scrutiny, not all direct objects in Hindi undergo the *ko*/Ø-alternation. There is a class of verbs—

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[18] As for ditransitives, indirect objects are always marked with *-ko* (cf. (i)). This is accounted for under the present analysis if indirect objects align with the higher end of markedness hierarchies, i.e. goal arguments are typically human, specific, 1st or 2nd person etc. Thus the object impoverishment rule does not have an impact on indirect objects, leading to general *ko*-marking.

(i) səvita rīma ko huc^{h} līciyā degī
Savita Rima 10 some lychee.F.PL give.FUT.F.SG
'Savita will give Rima some lychees.' (Kachru 2006: 197)

[19] It is noteworthy that the Hindi system works equally well if the subject case is assigned not by *v* but by T. Under this perspective, aspect can be thought of as a feature of T. As for the data discussed here, both alternatives work equally well; the choice for *v* in the main text was only made for the sake of concreteness.

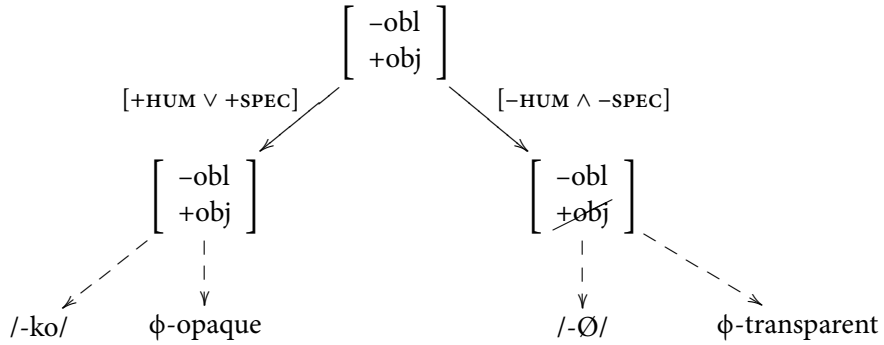

Figure 3.6
Derivation for case marker and agreement alternation on Hindi objects

comprising, e.g., *banaa* 'make', *pad^h* 'read', *gaa* 'sing', and *pii* 'drink'—whose objects are always zero marked. See (27) for an example.

(27) ilaa-ne yah k^{h}at / *is k^{h}at-ko lik^{h}aa
Ila-ERG this.NOM letter.NOM this.NONNOM letter-ACC write.PERF
'Ila wrote this letter.' (Mohanan 1994: 81)

In (27), although *yah k^{h}at* 'this letter' is clearly specific and non-human *ko*-marking is nevertheless impossible as an idiosyncratic property of the verb *lik^{h}aa* 'write'. It is furthermore revealing that in such examples the direct object is always capable of triggering agreement. This suggests that the agreement generalization (8) is indeed correct: Verbal agreement is determined on the basis of case. Thus, if case marking is idiosyncratically affected, so is verbal agreement. A straightforward way to account for patterns such as (27) is to assume that the verbs under consideration syntactically assign an underspecified case feature. That is, the verb *lik^{h}aa* 'write' in (27) has the lexical property of assigning [−obl] instead of [−obl,+obj]. Thus impoverishment plays no role in the derivation of (27). This analysis also accounts for the fact that the objects of verbs like 'write' behave like impoverished objects of canonical verbs with respect to both case marking and ϕ-agreement.

The same holds for subjects. According to Pandharipande and Kachru (1977: 227f.) there exist some verbs in Hindi that do take zero-marked subjects in the perfect. See (28) for an example.

(28) lərḳiyā dūdh laĩ̃
girls.FEM.PL milk.MASC.SG brought.FEM.PL (Pandharipande and Kachru 1977: 228)

Under present assumptions, only a special *v* (assigning [+obl] to the subject) is compatible with these verbs because of selectional properties. Crucially, despite being in the perfect, these zero-marked subjects control verbal agreement, completely in line

with zero-marked objects and the agreement generalization in (8). From the point of view of the present theory this agreement pattern is exactly what is expected.[20]

MARATHI/PUNJABI As noted in section 3.2.3, in addition to the aspect-based split in Hindi, Marathi and Punjabi exhibit a second split: Local persons are always zero-marked so that only non-local persons may bear the marker *-ne* (in the perfective aspect). Crucially, in the perfective aspect both zero marked local person subjects as well as *ne*-marked 3rd person subjects do *not* trigger verbal agreement.

To derive the behavior of verbal agreement with regard to this second split, I assume that Marathi and Punjabi, being closely related to Hindi, have an identical inventory of abstract cases, vocabulary items, specifications for ϕ-transparency, and feature content of the heads, cf. (29). A second impoverishment operation for subjects has been added to derive the person-based split ((29cii)).

(29) System for Marathi/Punjabi

a. *Case subfeatures*

$$\text{ERGATIVE: } \begin{bmatrix} -\text{obl} \\ +\text{subj} \end{bmatrix}$$

b. *Case markers*

$$/\text{-ne}/ \leftrightarrow \begin{bmatrix} -\text{obl} \\ +\text{subj} \end{bmatrix} \qquad /\text{-Ø}/ \leftrightarrow [\ \ ]$$

c. *Impoverishment rules*

(i) $[+\text{subj}] \rightarrow \varnothing \ / \ \_\_ \ [-\text{PERFECT}]$

(ii) $[-\text{obl}] \rightarrow \varnothing \ / \ \_\_ \ [\text{PERSON: LOCAL} \wedge \text{subject}]$[21]

---

[20] There is an additional complication if the subject receives lexical case instead of ergative. In such cases, the object does not exhibit a case marker alternation. Rather, it is always zero-marked. See (i) for examples with dative subjects. The key example is (ib): The object is zero marked despite being human and specific.

(i) a. raam=ko halwaa-Ø pasand hae
Raam=DAT halwaa-NOM liking be.PRES.3SG
'Raam likes halwaa.'

b. raam=ko wo laDkii-Ø pasand hae
Raam=DAT that girl-NOM liking be.PRES.3SG
'Raam likes that girl.' (de Hoop and Narasimhan 2005: 329)

A straightforward extension of the present account is to involve an impoverishment operation that affects the object's case feature in the context of a dative to be assigned to the subject. Because of the head locality restriction on impoverishment this operation has to apply before the object receives its case features, i.e. while both dative and accusative case are present within the verbal domain. As I will detail in chapter 5, this is exactly the analysis I am going to propose for nominative objects in Icelandic.

d. *ϕ-transparency*
DPs bearing [+subj] or [+obj] are opaque for the verbal ϕ-probe

e. *Feature content*

v: $\begin{bmatrix} \text{ERGATIVE} \\ \text{ACCUSATIVE} \end{bmatrix}$ T: $[u\phi]$

The abstract cases, markers and ϕ-transparency restrictions being the same as in Hindi, (29ci) has the same effects as in Hindi: Marker reduction due to non-perfectivity leads to verbal agreement. Now consider the new impoverishment operation (29cii). It deletes the case subfeature [–obl] for local person subjects regardless of aspectual features. Thereby it bleeds *ne*-insertion, leading to zero exponence. This accounts for the fact that local person subjects in Marathi/Punjabi are always zero marked, regardless of aspect. Note that this impoverishment operation does not affect ϕ-transparency: Both [+subj] and [+obj] prevent a DP from controlling ϕ-agreement. Hence, deletion of [–obl] does not influence ϕ-visibility in any way. It follows, then, that DPs having their case feature impoverished by (29cii) alone cannot trigger ϕ-agreement. This is correct, as both local and non-local subjects in perfective clauses do not trigger verbal agreement. In non-perfective clauses with local person subjects both impoverishment operations in (29c) apply. This yields deletion of both the case subfeatures [–obl] and [+subj]. The present analysis therefore predicts such subjects to be zero marked and trigger verbal agreement (because the shell created by [+subj] has been removed). This prediction is borne out (Pandharipande 1997: 284). See (30) for examples from Marathi. In both (non-perfective) sentences a local subject controls verbal agreement, precisely as predicted by the present approach. Figure 3.7 depicts the effects of the impoverishment rules.

(30) *Marathi*

a. mī sudhālā/s bheṭto
I Sudha.ACC meet.PRES.1SG.MASC
'I meet Sudha.' (Pandharipande 1997: 288)

b. tū malā madat karśīl kā?
you I.DAT help do.FUT.2SG Q
'Will you help me?' (ibid.: 297)

---

[21] This impoverishment rule is straightforwardly restated in terms of harmonic alignment of scales. The final ranking having the correct effect is given in (i).

(i) *Subj/3 & MAX-CASE ≫ *[–obl] ≫ *Subj/2 & MAX-CASE ≫ *Subj/1 & MAX-CASE

Like Hindi, Marathi and Punjabi exhibit a scale driven zero/non-zero alternation on objects (the marker at hand being *-lā* in Marathi and *-nũ* in Punjabi). Since I am only concerned with the question of how to derive the distinct agreement behavior of zero marked subjects, I will abstract away from this split, which can, however, be straightforwardly implemented into the analysis proposed here.

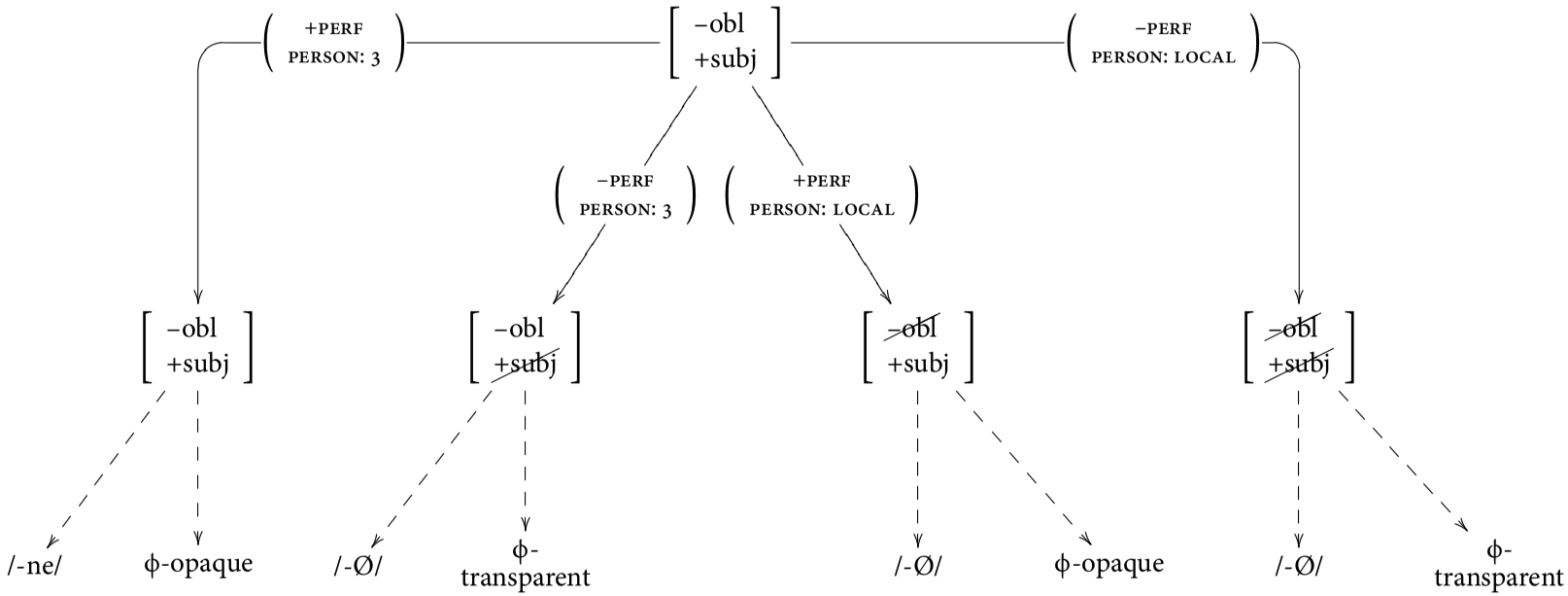

Figure 3.7
Derivation for case marker and agreement alternation on Marathi/Punjabi subjects

Warlpiri and Niuean According to the analysis in Legate (2008), S, A and O arguments in Warlpiri and Niuean receive distinct abstract case features. It is only due to the idiosyncratic specification of vocabulary items that S and O end up bearing the same exponent. Crucially, no impoverishment rules are involved. Under the present analysis it is not the case exponent but the impoverished feature matrix that is relevant for ϕ-agreement. Since no impoverishment rule is active here, the analysis is essentially non-distinct from an approach in terms of abstract case, as argued for by Legate. All that is needed are language-specific assumptions about ϕ-transparency.

3.3.3 Summary

In this section I have laid out the main proposal of the present study and provided empirical arguments in its favor.

I have argued that Agree and impoverishment do not apply within separate grammatical modules but interact freely with each other. Impoverishment takes place as soon as it can, possibly before Agree operations. Both ϕ-agreement and case assignment ('κ-Agree') are taken to be two instances of a general Agree operation. In order to reduce the computational space, impoverishment must obey the domain locality condition, restricting it to one local domain at a time. As impoverishment may apply before Agree, it may affect Agree in a variety of ways.

The main empirical observation in this section was that neither abstract case nor m-case alone suffice to determine verbal agreement in a cross-linguistic way. If, by contrast, potentially impoverished feature matrices constitute the input of Agree the range of patterns considered in this section can be given a unified analysis. The basic line of reasoning is that impoverishment may feed verbal agreement if it applies before ϕ-Agree but after κ-Agree.

The order of operations assumed in this section is thus the one in figure 3.8.

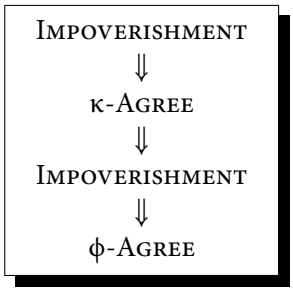

Figure 3.8
The order of operations in Hindi, Marathi, Punjabi

4 Eccentric Agreement

The previous section proposed the main claim of this monograph, i.e. that impoverishment and agreement are not ordered by virtue of applying in distinct grammatical modules. Instead, they may interact freely. Thus, impoverishment may apply before Agree and affect it in various ways. In this section, I consider several empirical phenomena in typologically non-related languages that can be given an analysis within the framework pursued here. Each of these cases shows the empirical applicability of the proposal as well as some of its consequences. This section involves examples of impoverishment that feeds and bleeds Agree.

The phenomenon under consideration is eccentric agreement[1] (or, 'agreement displacement'), i.e. verbal agreement with an argument that does not canonically control agreement. Both ergative displacement and dative displacement in Basque and Itelmen will be shown to arise if (i) the canonical controller of agreement is not available due to impoverishment, and (ii), the ergative/dative is ϕ-transparent.

4.1 Ergative Displacement

Ergative displacement (ED) refers to non-canonical verbal agreement controlled by an ergative subject. Neither case marking nor syntactic properties are affected. I will first develop an analysis within the present framwork for ED in Basque and then extend the account to Itelmen.

4.1.1 Basque

In this section, I focus on some intricacies of verbal ϕ-agreement in Basque. Since Basque agreement morphology is a highly complex matter, I restrict my attention to the prefix (PX) position of the verb and the plural exponent. Consider the basic structure of verbal agreement in (1) and the example in (2).[2]

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[1] The term *eccentric agreement* is due to Hale (2001).

[2] The verbal root in (1) shows a *have/be* alternation similar to certain Romance and Germanic languages. A morphological account is provided in Arregi (2004); see also Arregi and Nevins (2007). As this alternation does not bear on the argumentation in this chapter, I will abstract away from it by glossing the root as '$\sqrt{}$'.

(1) *General verbal structure* (based on Laka 1993: 35)
ABS-$\sqrt{\text{ROOT}}$-DAT-MOOD-ERG-TENSE

(2) Guraso-e-k niri belarritako ederr-ak erosi d- i-
parent(s)-DET$_{\text{PL}}$-ERG me.DAT earring(s) beautiful-DET$_{\text{PL}}$.ABS bought 3.ABS- $\sqrt{}$-
zki- da- te
PL.ABS- 1SG.DAT- 3PL.ERG
'(My) parents have bought me beautiful earrings.' (Preminger 2009: 624)

The prefix (PX) position (glossed 'ABS' in (1)) canonically agrees with the absolutive argument. Ergative and dative agreement morphemes appear after the root. These suffixes (SX) will be ignored here. There is some evidence that PX and SX are sufficiently independent of each other to justify such a separation. Note first that the SX agreement markers seem to be independent of PX. Interestingly, when the PX under certain conditions agrees eccentrically with the ergative or the dative argument, SX is unaffected, leading to *agreement doubling*. As argued by Rezac (2006: ch. 4), even in cases where there is only PX agreement but no SX agreement with an ergative it is merely a matter of spell-out filters that not both SX and PX agreement occur: SX agrees with the ergative independently of the behavior of PX but some additional morphological filter may prohibit double realization. Evidence for this claim comes from the observation that the appearance of agreement doubling seems to be conditioned mainly by morpho-phonological properties (number of syllables etc., cf. Rezac 2006: ch. 2, p. 31). Furthermore, it has been claimed in the literature (Rezac 2006, Arregi and Nevins 2008a,b, Preminger 2009) that only PX constitutes agreement. SX has instead been analyzed as clitic incorporation. I will remain agnostic as to whether the SX position instantiates agreement or clitic incorporation since this question is irrelevant to the discussion. The main point is rather that SX and PX markers are sufficiently independent of one another to justify an approach to the latter without worrying too much about the former.

As noted, PX canonically agrees with the absolutive argument, but, importantly, only for person. Number agreement with the absolutive is expressed by an independent number morpheme, ignored in (1), *zki* in (2). It is not tied to a certain position within the verb. Its position and exponent depend on other properties such as person combinations.

To sum up, absolutive arguments trigger person agreement in PX position and number agreement on a separate number morpheme. Crucially for this section, under certain conditions PX but not number can be controlled by the ergative subject (so-called *Ergative Displacement*, ED) or the dative (*Dative Displacement*, DD).

Canonical agreement In the default case the absolutive controls PX and number on the verb and the ergative and dative arguments trigger SX agreement (ignored here). Person and number agreement with the absolutive is marked by separate expo-

nents. If, however, the absolutive argument is 3rd person, a default marker is inserted into the PX position. Note that, number and person agreement being realized independently, 3rd person absolutives nevertheless trigger number agreement. This illustrated in (3).[3]

(3) a. ikusi z-in-tu-da-n
seen 2-TM-PL-√-1-PAST
'I saw you(pl).'

b. ikusi n-ind-u-en
seen 1-TM-√-PAST
'He saw me.'

c. ikusi n-ind-u-zu-n
seen 1-TM-√-2-PAST
'You saw me.' (Béjar and Rezac 2009: 37)

d. guk hura/haiek d-Ø/it-u-gu
we.ERG it/them.ABS DFLT-SG/PL-√-1
'We have it/them.' (Rezac 2006: ch. 2 p. 2)

In (3a) to (3c) the verbs shows person agreement with the absolutive in PX position plus number agreement. If the absolutive is plural it triggers plural agreement (cf. (3a)), if it is singular no overt marker shows up on the verb. The 3rd person absolutive in (3d) does not trigger person agreement but nevertheless retains its control over number marking on the verb (the alternation between *-Ø/-it* 'singular/plural' on the verb).

ERGATIVE DISPLACEMENT If the absolutive argument is 3rd person and the sentence is in a *non-present* tense (i.e. past or irrealis), the ergative DP triggers person agreement in PX position but no number agreement. Note that the exponent that appears in PX position is identical, regardless of whether the ergative or the absolutive controls PX. Number agreement is retained by the 3rd person absolutive and the ergative does not induce additional number agreement. This non-canonical agreement control by the ergative is commonly called *ergative displacement*. It is subject to a tense condition, as it is possible only in non-present tenses. In present tenses clauses, instead, the ergative triggers neither person nor number agreement. Number is still controlled by the absolutive and the PX position is filled with the default marker. The case marker attached to the relevant arguments is unaffected. The same is true for syntactic properties such as binding and scope (Laka 1993, Albizu and Eguren 2000,

[3] TM in the glosses abbreviates 'theme marker', an additional morpheme that generally occurs between PX and the stem (glossed as 'X' by Béjar and Rezac 2009). Its form is determined by tense/mood, application of ED, applicativity, verbal person and number features, verb root etc. Additionally, it is subject to vast variation among the dialects of Basque. Distribution and form of the theme marker do not in any striking way appear to correlate with the distinction between ED and non-ED structures (cf. Rezac 2006 for extensive discussion of synchronic and diachronic properties of the theme marker).

Rezac 2006). This suggests that the syntactic representation of ED versus non-ED structures is non-distinct. In fact, there has not been found any systematic syntactic syntactic difference between ED and non-ED structures. The only observable difference exists regarding verb agreement. The fact that the syntactic structure does not seem to be influenced is compatible with an account in terms of feature impoverishment. Of course, for impoverishment to have any effect on agreement, it has to apply *before* agreement. Some examples of structures involving ED are given in (4).

(4) a. Berak gu g-a-it-u
he.ERG us.ABS 1-TM-PL-√
'He has us.'

b. Berak gu g-in-t-u-en
he.ERG us.ABS 1-TM-PL-√-PAST
'He had us.'

c. Guk hura/haiek d-Ø/it-u-gu
we.ERG it/them.ABS DFLT-SG/PL-√-1
'We have it/them.'

d. Guk hura/haiek g-en-Ø/it-u-en
we.ERG it/them.ABS 1-TM-SG/PL-√-PAST
'We had it/them.' (Rezac 2006: ch. 2, p. 2)

(4a) stands in the present tense and has a 1st person object. ED is thus not possible and the absolutive controls both PX and number. (4b) is in a non-present tense, fulfilling the tense condition for ED. But since the absolutive is 1st person, ED is still not possible. Consequently, the object controls PX and number on the verb. The absolutive in (4c) is 3rd person and thus not capable of controlling person agreement (PX). But since the sentence is in the present tense, neither is the ergative. Hence, a default exponent is inserted. Number, however, is still controlled by the absolutive. Finally consider (4d). Here both conditions for ED are met: The absolutive is 3rd person and the clause is non-present. As a consequence, the ergative controls PX. Note again that number agreement is unaffected and still triggered by the absolutive.[4]

There thus exists an asymmetry between agreement with absolutives and ergatives: Whether a verb agrees with the absolutive argument can be solely determined by properties of this absolutive. No reference to other arguments is necessary: If the absolutive is 1st or 2nd person it triggers PX agreement, if it is 3rd person, it does not.

---

[4] As mentioned above, *agreement doubling* retains ergative controlled SX agreement even if the ergative controls PX. As an example, consider again (4c), which shows that a 1st person ergative triggers the SX marker *-gu*. If it controls PX, the exponent *g-* shows up (cf. (4d)). At least in some dialects, the doubling form *g-en-(it)-u-gu-n* [1-TM-PL-have-1-PAST] exists as well (Rezac 2006: ch. 2, p. 5). In this form the ergative triggers PX and SX agreement. I therefore conclude, in line with Rezac (2006), that SX agreement by the ergative takes place irrespective of ED. Additional surface filters may prohibit double realization. See Rezac (2006: ch. 4) for a detailed discussion of agreement doubling in Basque.

Compare this to ergatives: An ergative DP can trigger agreement only if the absolutive is 3rd person. Hence, in order to determine whether an ergative triggers agreement or not it is not sufficient to consider the properties of this ergative alone. This asymmetry between ergatives and absolutives must be captured under any analysis of ED.

Analysis In order to derive the independence of person and number agreement I assume that there exist separate probes for both features on the verb (Laka 1993, Taraldsen 1995, Béjar 2003, Sigurðsson and Holmberg 2008). Since both probes are independent of each other, separate markers are inserted into each (corresponding to the PX and number slot). Furthermore, both probes can in principle find a goal on different DPs. This was the case in (4d), where the ergative controls person and the absolutive number agreement on the verb.

For concreteness, let us assume that both absolutive and ergative case are assigned by *v*, just as in the Hindi analysis in the previous chapter. Notice incidentally that this assumption immediately accounts for the fact that unergatives in Basque may assign ergative to their subject, as in (5).

(5) a. Klara-k ondo eskia-tzen du
Klara-ERG well ski-IMPF has
'Klara skies well.'
b. Eguzki-a-k disdira-tzen du
sun-DET-ERG shine-IMPF has
'The sun shines.' (Laka 2005: 379f.)

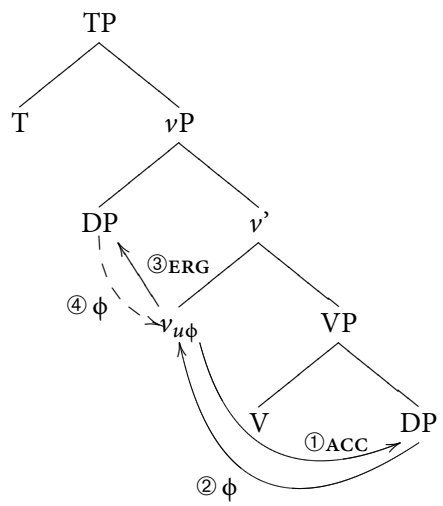
In both sentences in (5) the subject bears the ergative without there being an absolutive DP in the clause. Hale and Keyser (1993) conclude from sentences like these that unergative in Basque are hidden transitives. This assumption is unnecessary under the present perspective: All that is needed is to stipulate that *v* assigns ergative if it introduces a nominal argument (also see Preminger 2009 for an argument against a treatment of (5) as hidden transitives).

As for the person and number probe, I will assume that they are features of *v* as well. Thus, the feature content of the functional heads in Basque closely resembles Hindi with the one difference that in Hindi, the ϕ-probe resides on T, whereas in Basque it is part of the *v* head. This accounts for a striking difference between the two languages and is hence independently justified. As a matter of fact, the subject takes priority over the object when it comes to ϕ-agreement, i.e. if both subject and object are ϕ-accessible, it is invariably the subject that controls verb agreement. In Basque, the reverse holds: If both the subject and the object may enter into ϕ-agreement, it is the object that controls PX agreement. An example is (3a): The sentence is in a non-present tense, hence ED is in principle possible. Since the object is 2nd person it retains its full ϕ-specification. Consequently, both subject and object qualify as accessible goals for the verbal ϕ-probe. As is evident from (3a) it is the object that controls PX. This makes

it clear that in Basque—as opposed to Hindi—object agreement takes priority over subject agreement. This empirical difference between both systems is captured without further ado by assuming that in Basque the relevant ϕ-probe is a part of *v*. This move leads to the consequence that the probe encounters the object first. Only if the object does not provide the right feature specification is the probing domain extended to the subject.

With this in mind, consider the following general derivation for Basque (depicted in (6)): First, V merges with the object, followed by merging *v*. In the structure built up so far *v*—containing both case features and ϕ-probes—assigns the absolutive feature to the object (①; recall that in Basque κ-Agree takes priority over ϕ-Agree, cf. section 6.4.1). As the next step, ϕ-probing into the object takes place (②). Notice that the subject plays no role and especially does not intervene as it is not yet part of the structure. Subsequently, the subject is merged in Spec,*v*P. *v* assigns its ergative case feature to the subject (③), followed by ϕ-probing into the subject if not all ϕ-probes have yet been valued by the object (step ④). Notice incidentally, that the intuition that a head first probes into its complement and subsequently extends its search space to its specifier has various predecessors, such as Fernández and Albizu (2000), Frampton and Gutmann (2000), Frampton, Gutmann, Legate and Yang (2000), Rezac (2003, 2006, 2008b), and Béjar and Rezac (2009). Situating the ϕ-probe on *v* hence leads to an symmetry between subject and object: ϕ-Agree with the object is determined on the basis of object properties alone. Subject agreement, by contrast, depends on the absence of a suitable goal on the object. This derives the empirical fact that in Basque PX agreement with the object is independent of the subject. The reverse, however, does not hold.

(6)



In the standard case, ϕ-visibility introduces a second asymmetry between absolutives and ergatives. By assumption, absolutives are by default ϕ-transparent; ergatives are ϕ-opaque. This can be modelled if, as in Hindi, the case feature [+subj] renders a DP

invisible for ϕ-probing. That is, if nothing else happens, the verb agrees in person and number with the absolutive argument.

Impoverishment, however, may affect the feature content of both subjects and objects and thus lead to the complex agreement patterns discussed above. Specifically, I propose that there exists an impoverishment operation that deletes the person feature of a 3rd person absolutive DP, cf. (7ci). As a consequence, such DPs are personless and hence do not bear a goal feature for the verbal person probe. Impoverishment thus bleeds agreement here.[5] Finding no valued counterpart on the object, the person probe on the verb extends its search space and probes for the subject. Note that the subject is by default not capable of triggering agreement on the verb due to the case feature [+subj]. Recall the tense condition on ED: The ergative can only trigger verbal agreement in non-present tenses. This is derived by a second impoverishment operation, analogous to the one proposed for Hindi: Deletion of [+subj] in non-present tenses ((7cii)). The analysis proposed here thus identifies the phenomenon of Hindi split ergativity and Basque ED as two reflexes of the same process, namely, case feature impoverishment. To my knowledge, this analogy has not been drawn before. See section 4.3 for a defense of this claim.

Number behaves differently, since the impoverishment rule (7ci) deletes only a person feature, leaving number unaffected. Hence, it only partially bleeds agreement. The number probe on the verb consequently always finds a matching goal on the absolutive, thus never extending its search space to the subject. This derives the asymmetry between person and number: While person undergoes ED, number is invariably controlled by the absolutive.

Again as in Hindi, if a ϕ-probe on the verb does not find a goal, a default marker is inserted as a last resort.

The system is summarized in (7).

(7) a. *Case subfeatures*

$$\textsc{Absolutive}: \begin{bmatrix} -\text{obl} \\ -\text{gov} \\ -\text{subj} \end{bmatrix} \qquad \textsc{Ergative}: \begin{bmatrix} -\text{obl} \\ +\text{gov} \\ +\text{subj} \end{bmatrix}$$

[5] In order to derive the same effect, it has often been proposed that at least in Basque *all* 3rd person DPs *never* bear a person feature (see Laka 1993, Fernández and Albizu 2000, Rezac 2003, 2006, 2008c for Basque and, more generally, Kayne 2000, Sigurðsson 2003, Anagnostopoulou 2003, 2005). Hence, 3rd person is non-person. This claim is problematic cross-linguistically (cf. Nevins 2007 for a critique) as well as for Basque itself: 3rd person datives do trigger person agree, leading Rezac to stipulate that datives are different from other cases in always bearing a person feature. However, it is not immediately clear why person and case features should interact in such a way (though see Adger and Harbour 2007). Note, however, that the present system is in principle compatible with the view that 3rd persons are personless right from the start and not due to impoverishment.

b. *Case markers*
/-k/ ↔ [+gov] /-Ø/ ↔ [ ]

c. *Impoverishment rules*[6]
(i) [PERSON] → ∅ / __ [3 ∧ object]
(ii) [+subj] → ∅ / __ [−PRESENT]

d. *ϕ-transparency*
DPs bearing [+subj] are opaque for the verbal ϕ-probe

e. *Feature content*

$$v\text{:}\ \begin{bmatrix} \text{ERGATIVE} \\ \text{ABSOLUTIVE} \\ u\text{NUMBER} \\ u\text{PERSON} \end{bmatrix}$$

Let us go through some derivations to see how the system works. As a first example, consider again (4b), repeated here as (8) for convenience.

(8) Berak gu g-in-t-u-en
he.ERG us.ABS 1-TM-PL-√-PAST
'He had us.'

---

[6] Admittedly, the impoverishment rule in (7ci) is peculiar in that it delets a person feature in the context of a certain value of the same person feature. Note, however, that this problem does not arise under an approach to impoverishment that relies on harmonic alignment of scales. The relevant ranking would be as in (i):

(i) $\left\{ \begin{array}{l} \text{*Obj/1 \& MAX-}\pi, \\ \text{*Obj/2 \& MAX-}\pi \end{array} \right\} \gg \text{*}[\pi] \gg \text{*Obj/3 \& MAX-}\pi$

(i) is completely symmetric to the case-relativized rankings proposed in Keine and Müller (2008). Note furthermore that in the framework adopted by Aissen (1999b, 2003) there is no principled way to exclude person-specific rankings as in (i). If the object status of a DP is taken as indicated by a case subfeature as suggested on page 58, then (i) has the mirror effect of case-specific ranking such as the one in footnote 21 on page 65: The latter deletes a case feature in the context of a person feature; the former deletes a person feature in the context of a case feature. Note in addition that (i) could even be considered an instance of differential object marking: feature deletion in the context of an unmarked object.

As for the second impoverishment rule (7cii), a reasoning similar to Hindi applies (see footnote 17 on page 60). Tense-driven impoverishment has to apply before the case feature is assigned to the subject, as after assignment it no longer stands in a local relationship with the tense feature (recall the head locality condition on impoverishment adopted here). Thus, under the assumption that tense is represented on *v*, the (presumably) universal tense scale in (ii) leads to the constraint ranking in (iii). Just as (7cii), (iii) yields deletion of the feature [+subj] in non-present tenses.

(ii) *Tense scale*
non-present > present

(iii) present & MAX-CASE ≫ *[+subj] ≫ non-present & MAX-CASE

In (8) the absolutive controls both PX and number on the verb. Since the object is first person, no impoverishment takes place here. Consequently, both the object's person and number feature are present when the verbal ϕ-probes search for their valued counterparts. Since only the case feature [+subj] prevents a DP from controlling agreement, the object is visible and hence values person and number on the verb. Note that, since the sentence is non-present, [+subj] on the subject is deleted, rendering it ϕ-transparent. But since all the verbal probes find valued goals on the object, they do not extend their search space to include the subject. This derivation is schematized in figure 4.1.

As a second example, recall (4c), repeated as (9).

(9) Guk hura/haiek d-Ø/it-u-gu
we.ERG it/them.ABS DFLT-SG/PL-√-1
'We have it/them.'

(9) demonstrates that the verb shows number agreement with the absolutive and a default PX marker if the absolutive is third person and the clause is in the present tense. This is derived in the following way: Since the absolutive is third person, the impoverishment rule (7ci) deletes its person feature. The verbal ϕprobes thus only find a number feature on the object. Person and number probes being separate, the absolutive values number on the verb. As the derivation proceeds, the subject is merged in Spec,*v*P and assigned the ergative by *v*. Still being unvalued, the unvalued person feature on the verb probes into the subject. However, it bears the case feature [+subj] and is hence ϕ-opaque. Deletion of [+subj] does not take place since the clause is in the present tense. This derivation is illustrated in figure 4.2.

Take (4d)=(10) as a last example

(10) Guk hura/haiek g-en-Ø/it-u-en
we.ERG it/them.ABS 1-TM-SG/PL-√-PAST
'We had it/them.'

(10) constitutes an instance of ED: The absolutive controls number, but PX is controlled by the ergative DP. As in the last derivation, the person feature of the absolutive is deleted. Again, the verb finds a number but no person feature. As the sentence is in a non-present tense, impoverishment operation (7cii) applies on *v*, thus deleting [+subj]. As soon as the subject is merged into the structure, it is assigned the impoverished case feature $\left[\begin{smallmatrix}-\text{obl}\\+\text{gov}\end{smallmatrix}\right]$. Because [+subj] has been deleted, the subject is ϕ-transparent and hence capable of valuing the still unvalued person probe on the verb. Note furthermore that since the marker *-k* is not specified for [+subj], its insertion is unaffected by impoverishment of [+subj]. This derivation for ED is depicted in figure 4.3.

Case feature impoverishment on the subject only has a detectable effect on the outcome if, in addition, the person feature of the absolutive has been deleted. One might thus wonder whether tense/aspect-based case feature deletion on the subject is

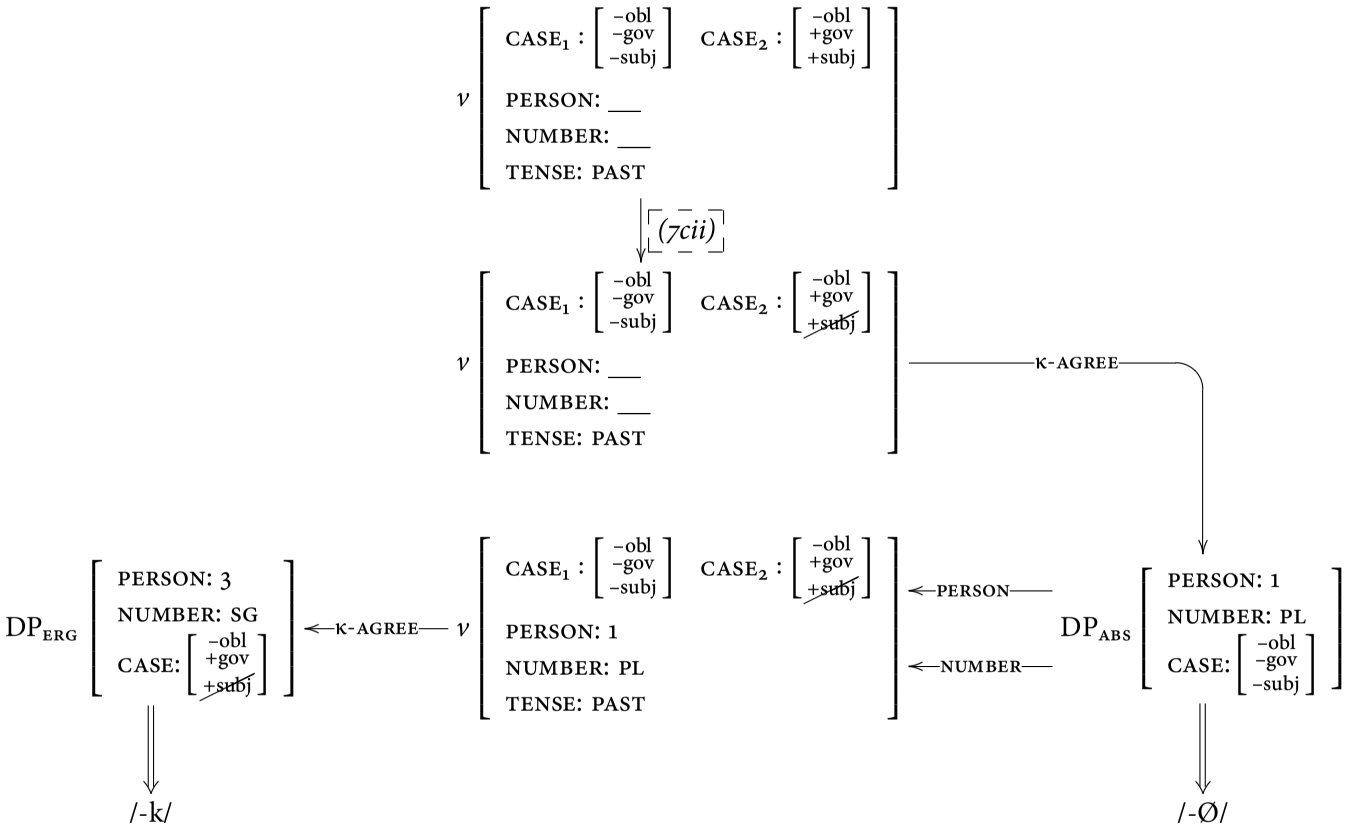


Figure 4.1
Sample derivation for (8): *Berak gu g-in-t-u-en.* 'She had us.'

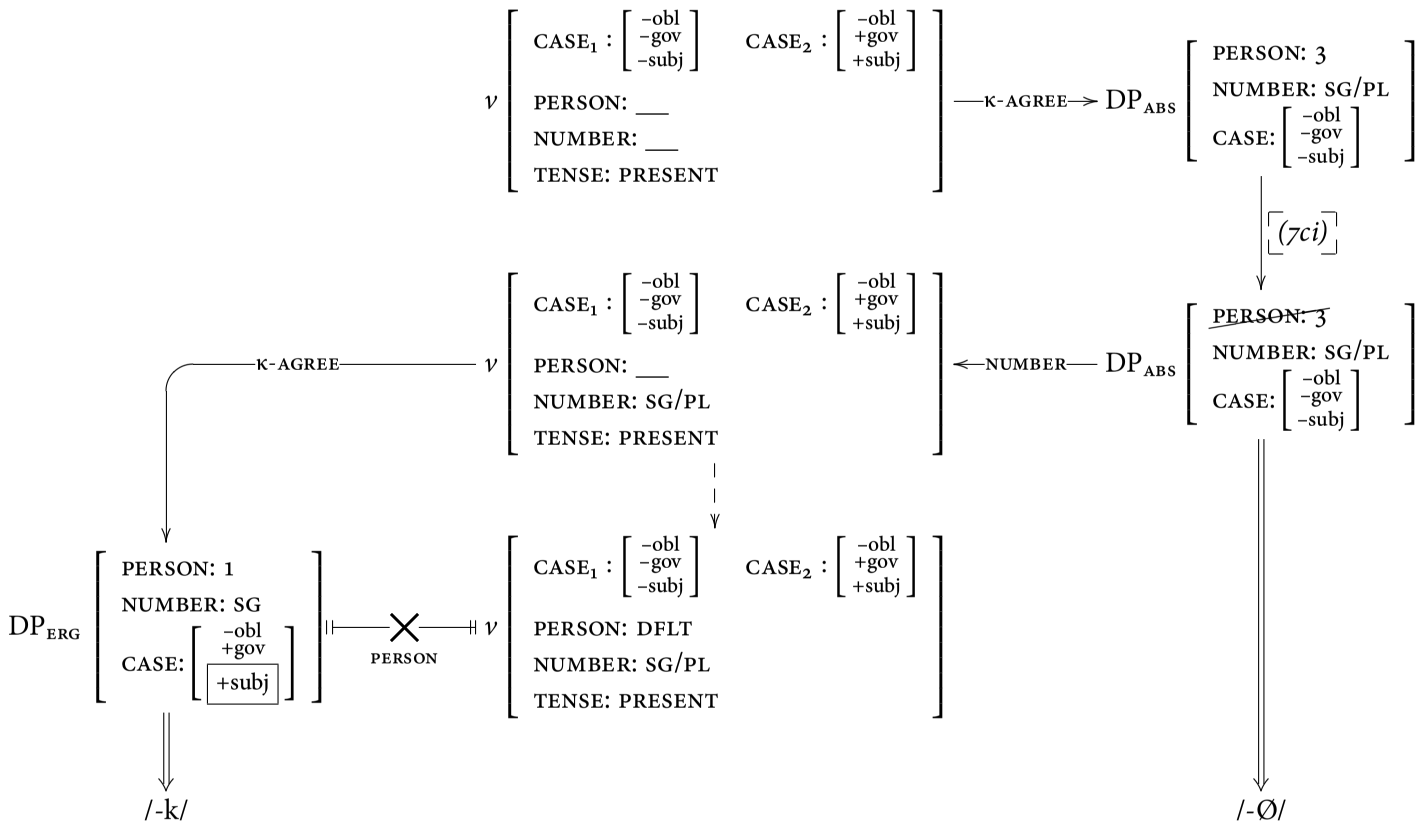
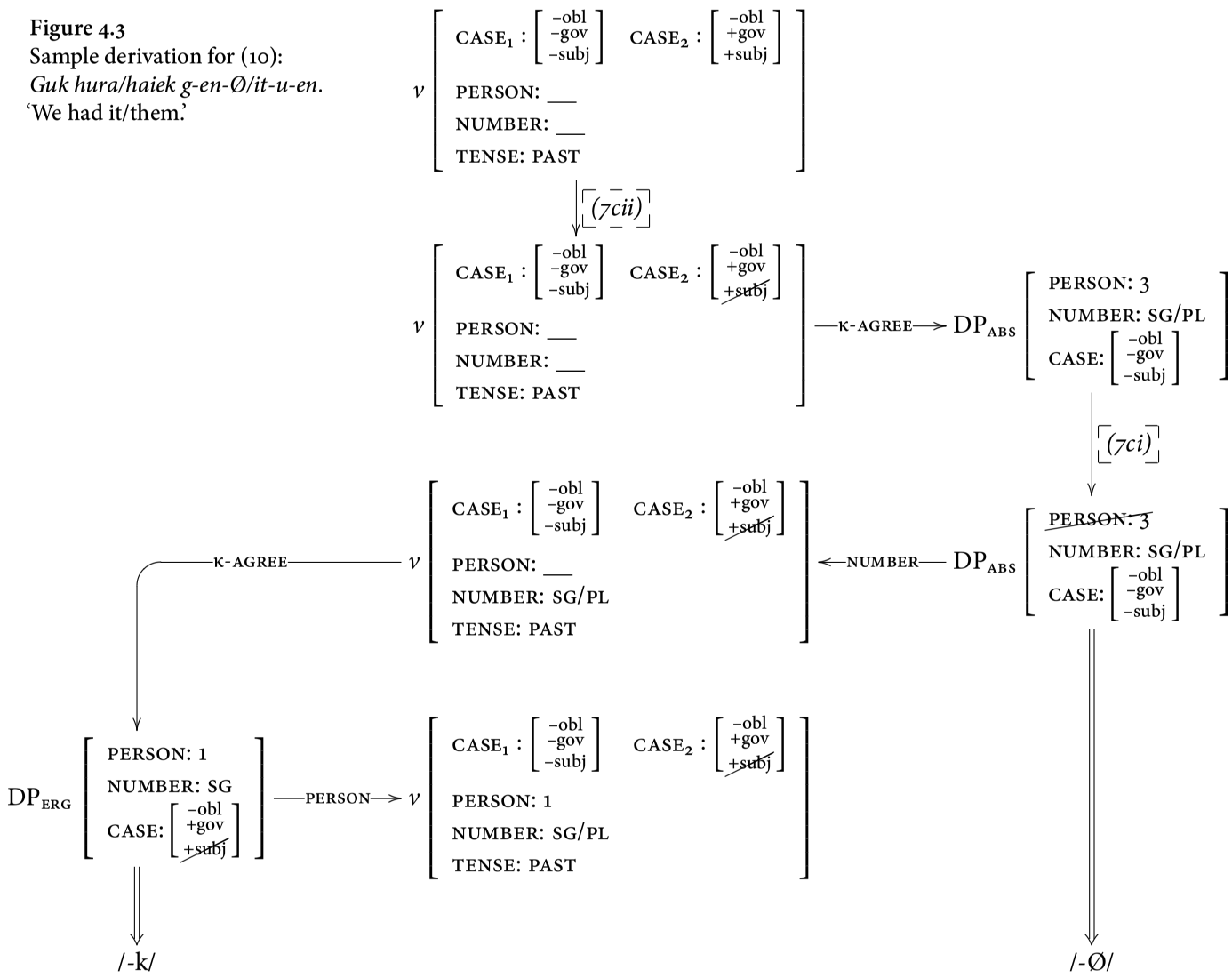


Figure 4.2
Sample derivation for (9): *Guk hura/haiek d-Ø/it-u-gu.* 'We have it/them.'

Figure 4.3
Sample derivation for (10):
Guk hura/haiek g-en-Ø/it-u-en.
'We had it/them.'



somehow dependent on object impoverishment. Hindi, Marathi and Punjabi provide an argument that this is not the case: These languages show tense/ aspect-based impoverishment independent of object impoverishment. The null hypothesis is that the same holds for Basque: Underlyingly the subject impoverishment operations are identical in Hindi and Basque. It is only due to the relatively low-specified ergative case marker in Basque that subject impoverishment only influences agreement.

Considering Itelmen in the next section, it will become obvious that person deletion on the object is also not dependent on the availability of subject impoverishment.

4.1.2 Itelmen

The Chutotko-Kamchatkan language Itelmen, like Basque, exhibits a system of ergative displacement: An ergative argument can trigger person agreement on the verb if the object cannot. Interestingly, there is no tense condition in Itelmen: ED exists throughout all tenses. The empirical data considered here stems from Bobaljik (1998, 2000a,b) and Bobaljik and Wurmbrand (2001, 2002). Bobaljik and Wurmbrand (2005) provide additional information about the Itelmen agreement system.

Itelmen does not mark case on subject and direct object DPs; indirect objects, however, are case marked. The verb potentially agrees with subjects, direct objects and indirect objects. But since there are only two agreement slots on the verb, agreement is never instantiated with three arguments simultaneously. Instead, argument DPs interact in interesting ways in controlling verbal agreement. Verbs in Itelmen have a prefix (PX) and a suffix (SX) agreement slot. In canonical clauses, PX agrees with the subject in person and number. SX agrees with the direct object, again in person and number. This is shown in (11). In intransitives, both PX and SX are controlled by the subject, as seen in (12).

(11) a. kma t'-əlčqu-ɣin
I 1SG-see-2SG.OBJ
'I saw you.'

b. n-əlčqu-ɣin
3PL-see-2SG.OBJ
'They saw you.'

c. n-əlčqu-z-um
3PL-see-PRES-1SG.OBJ
'They saw me.' (Bobaljik and Wurmbrand 2002: (5))

(12) kma t-k'oł-kičen
I 1SG-come-1SG.SUBJ
'I came/arrived.' (ibid.: (6a))

Bobaljik and Wurmbrand (2002) argue—without explicitly referring to it—that ED in Itelmen follows from largely the same principles as seen in Basque. They propose that SX and PX correspond to two separate ϕ-probes on the verb. PX always agrees with the subject. Crucially, SX agrees with the object if possible and with the subject otherwise. This in turn may lead to PX and SX both agreeing with the subject, if no object exists in the structure, as shown by (12) for intransitives.

Eccentric agreement arises if an object is present but 3rd person. In this case, SX agrees with the subject for person but with the object for number. Note that this is exactly the same situation as in Basque. Examples are given in (13).

(13) a. kma mił knin iŋ t'-il-ał-čen
I all your water 1SG-drink-FUT-1>3SG
'I will drink all your water.'

b. eː t-taβoŋ-čeʔn
yes 1SG-try-1>3PL
'Yes, I tried them [=wings].'

c. Ø-taβoŋ-eʔn sise-ʔn-čʔ
2SG-try-2SG>3PL wing-PL-DIM
'Did you try the little wings?' (Bobaljik 1998: (11))

The examples in (13) illustrate that, if the object is 3rd person, SX agrees in person with the subject. Note, however, that SX in (13a) and (13b) is distinct: (13b) contains in addition the segment [ʔ], which Bobaljik and Wurmbrand argue to be a marker for plurality on independent grounds. Thus, the contrast shows that even in ED configurations the object still controls number agreement, as was also the case in Basque. If no object is present (i.e. in intransitive clauses) number on the suffix is controlled by the subject. Thus, while in transitive clauses plurality of the object contributes the segment [ʔ] to the suffix, in intransitives the glottal stop appears if the S argument is plural. According to Bobaljik (2000b: (7)), if S=1SG the suffix *-kičen* appears, which contrasts with the SX marker for S=1PL, *-kiče ʔn*.[7]

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[7] A question arises as to how to account for the alternation between the markers *-čen* and *-kičen*. The former appears if A=1SG/PL and O=3SG (cf. (13a)), the latter if S=1SG ((12)). If the analysis of Basque ED is extended to Itelmen unchanged no such variation is expected (and is indeed absent in Basque). This is because in the intransitive clause, both the number and the person probe realized by SX are valued by the S argument, yielding [1SG]. In the transitive clause, number is contributed by the object and person, by ED, is controlled by the subject, again resulting in [1SG]. The resulting feature configuration is hence identical in both cases, apparently rendering mysterious the question of why marker insertion may distinguish between both. According to the data given in Bobaljik (2000b), however, this need not necessarily be a problem. Specifically, one might take the obvious similarity between the markers *-če(ʔ)n* and *-kiče(ʔ)n* as suggesting a subanalysis approach, segmenting *-kiče(ʔ)n* into *-ki-če(ʔ)n*. This first has the advantage of deriving the partial syncretism between both markers. Second, there exists a class marker that immediately precedes SX and has the exponent *-ki* for verbs of class II. Class I verbs, on the other hand, do not bear on overt class marker. Consider (i):

To capture these facts, Bobaljik and Wurmbrand assume that 3rd person is not a person, i.e. has no person features, but only number. Again as in Basque, the phrase structural architecture must ensure that the verbal probes first probe for the object and only if some probe remains unvalued extend their search space to the subject. This happens in the case of a 3rd person object, which can value number but not person. As a consequence, the verb agrees in person with the subject. This mechanism also accounts for the double agreement facts observed in intransitives ((12)). Here, no object is present so both verbal probes find only the subject and agree with it for number and person.[8]

(i) t- tɸ -s -ki -čeʔn (… č'eβuzlaχ-aʔn kłčl-eʔn)
1SG.SUBJ- bring -PRES -II -1>3PL.OBJ tasty-PL rotten.heads-PL
'I'm bringing tasty rotten (mouse) heads.' (Bobaljik 2000b: (9a))

In (i), tɸ 'bring' is a class II verb and hence bears the class marker *-ki*. Crucially, the intransitive SX form for 1st person S arguments (*-kiče(ʔ)n*) is a class I form (class two agreement is not given by Bobaljik). There is thus no overt class marker present, giving rise to the possibility of treating the *-ki* as an underspecified class marker rather than as part of the SX agreement marker. Arguably, this is the null hypothesis in light of the analysis of (i) above. Here as well the string *-kiče*ʔ*n* is divided into a class and an agreement marker. If such a treatment extends to the 1SG intransitive marker *-kičen* as well, then the problem mentioned above evaporates. Regardless of which arguments contribute the person and number agreement features, ϕ-features on the verb can then be treated as realized invariantly (e. g. by *-čen* for [1SG]). Although the obvious similarity between the *-kiče(ʔ)n* on the one hand and *-ki* and *-če(ʔ)n* on the other might be suggestive, further considerations of marker distribution in Itelmen agreement would have to be considered in order to set the argument on a firm basis. An alternative analysis fully compatible with the present system is to treat emergence of a special marker in ED environments as a *second cycle effect* (see Béjar 2003, Béjar and Rezac 2009).

8 This analysis contrasts with the account given in Bobaljik (2000b), who treats the SX alternation as an instance of contextual allomorphy. SX invariantly agrees with the object but the agreement exponent is sensitive to the agreement features contributed by the subject. Under this perspective, it is not the Agree relation that is affected but merely the morphological exponent for that relation. While in principle feasible, such an analysis has some shortcomings that I hold to make it inferior to the analysis in terms of agreement itself. Firstly, if the emerging pattern is merely due to idiosyncratic marker specification for 3rd person object agreement, it is treated as a pure coincidence that this allomorphy firstly is sensitive to *any* person but *no* number features of the subject, and (2) only arises for 3rd person object. The point is that this pattern appears to be pervasively systematic but cannot be treated as such if it only results from idiosyncratic marker allomorphy. Secondly, it is not immediately obvious how the analysis accounts for the fact that the same markers appear on intransitive verbs. Here, it is arguably implausible to assume that they realize agreement with a 3rd person object, simply because no such object is present. Thirdly, as will be detailed below in section 4.2.2 on Dative Displacement in Itelmen, a dative argument may, under certain circumstances, control SX as well. The crucial observation is that only dative arguments with high topicality can trigger such agreement (i.e. 1st, 2nd and topical 3rd person datives). This topicality information is, however, not present on the verb. It is therefore unclear how it should be capable of triggering allomorphy of the object agreement exponent. Consequently, a different account is needed for at least this case. By parsimony, if a non-morphological treatment is employed for DD, this approach should be extended to ED, if feasible. As I will argue below, DD and ED indeed emerge as a consequence of largely the same principles.

The present framework adopts this analysis but abandons the idea that 3rd persons inherently lack a person feature.[9] The analysis is largely identical to the one developed for Basque in section 4.1.1: Third person objects get their person feature deleted and are hence not capable of valuing a verbal person probe. Number, on the other hand, is unaffected, so that SX reflects number features of the object. Note that, in contrast to Basque, there is no tense/aspect condition on ED in Itelmen: ED is not tied to certain tenses, but takes place whenever the object is third person. This is straightforwardly captured under the assumption that in Itelmen the subject is by default ϕ-transparent. This way, it can agree with verbal probes whenever it lies within their search space.[10] So as opposed to Basque, the subject does not depend on case feature impoverishment to become ϕ-visible. Consequently, this shows that person impoverishment on objects and case feature deletion on subjects are independent of each other: Hindi only has case feature deletion on the subject, Itelmen only person feature deletion on the object and

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[9] Recall footnote 5 on page 75 for criticism. The same concerns hold for Itelmen: Here too 3rd person datives trigger person agreement and must therefore bear a corresponding feature. Bobaljik and Wurmbrand (2002: fn. 14) note some problems with the view that 3rd person is inherently the lack of person. None of these problems arises if third person direct objects lack their person feature due to impoverishment.

[10] In all the cases considered so far, there seems to exist a correlation between ϕ-transparency and default markers (where the default marker is the marker that is attached if no impoverishment applies). In Hindi, both the default marker on subjects and objects (*-ne* and *-ko*, respectively) are overt and both subjects and objects are ϕ-opaque. In Basque, the ergative subject bears the overt marker *-k*, whereas the absolutive is unmarked. Correspondingly, only the absolutive is ϕ-visible by default. As will be shown in section 4.2.1, the same holds for the dative: It bears the overt marker *-(r)i* and is ϕ-opaque. Itelmen, on the other hand, does not mark subjects and direct objects for case but does so for the indirect object. This is in concord with the analysis proposed in section 4.2.2 that both subject and direct objects are standardly ϕ-transparent. Datives, however, are analyzed to be ϕ-opaque.

At present, I do not know what to make of these apparent correlations. Note that this does *not* reduce to the claim that agreement feeds on m-case. In Basque, datives and ergatives can trigger agreement without any change in the case marker. Instead, it looks as if ϕ-transparency is determined depending on whether there exists an overt marker that realizes a given feature (say, [+subj]) on a given argument in the default case. Impoverishment may modify the abstract case feature and hence render a DP ϕ-transparent. Note that there does not appear to exist any straightforward way to capture this generalization within standard Distributed Morphology. This is because since agreement takes place before vocabulary insertion, it should not be sensitive to the feature specification of certain markers. There is thus no way for marker properties to influence the syntactic/morphological derivation. In addition, reference to a default marker that is attached if no impoverishment applies appears to make *transderivational optimization* necessary. Interestingly, the same kind of apparent paradox has been proposed for Icelandic nominative objects (Sigurðsson 1996, Schütze 1997, Sigurðsson and Holmberg 2008): Agreement with certain nominative objects seems to be possible only if the resulting marker on the verb is syncretic for person features. Consequently, in a minimally different configuration that only differs in that the verb does not pick a syncretic marker, agreement is ruled out.

There even exists a triple agreement language that conforms to this generalization: Southern Tiwa does not mark subjects, direct and indirect objects for case (hence, the default case marker is trivially the zero marker). Interestingly, all these arguments trigger agreement on the verb (Allen, Frantz, Gardiner and Perlmutter 1990, Rosen 1990, Heck and Richards 2007). Thus they are arguably not dependent on an (always applying) impoverishment rule but are ϕ-transparent by default.

Basque makes use of both. The range of empirical predictions of the impoverishment approach is thus borne out.

In order to highlight the similarities and differences to Basque ED let me go through some Itelmen cases in detail. The Itelmen system is given in (14).

(14) a. *Case subfeatures*

$$\textsc{Absolutive}: \begin{bmatrix} -\text{obl} \\ -\text{gov} \\ -\text{subj} \end{bmatrix} \qquad \textsc{Ergative}: \begin{bmatrix} -\text{obl} \\ +\text{gov} \\ +\text{subj} \end{bmatrix}$$

b. *Case marker*
/-Ø/ ↔ [ ]

c. *Impoverishment rule*
[PERSON] → ∅ / ___ [3 ∧ object]

d. *ϕ-transparency*[11]
DPs bearing [+obl] are opaque for the verbal ϕ-probe

e. *Feature content*

$$v: \begin{bmatrix} \textsc{ergative} \\ \textsc{absolutive} \\ u\textsc{number} \\ u\textsc{person} \end{bmatrix} \qquad \text{T}: \begin{bmatrix} u\textsc{number} \\ u\textsc{person} \end{bmatrix}$$

The relevant differences to Basque are that, first, there is no designated ergative marker. Instead, both absolutive and ergative arguments are zero case marked. Second, the case feature [+subj] does not induce ϕ-opaqueness. More generally, no subfeature of either ergative of absolutive bars the verbal ϕ-probe from establishing an Agree relation with the respective argument. Thus, ergative and absolutive arguments are accessible by default and hence do not depend on an impoverishment operation. Third, there is only one impoverishment rule, corresponding to the observation that in Itelmen there exists no tense condition on ED. As in Basque, 3rd person objects get their person feature deleted; the number feature, however, remains intact. Finally, to model the fact that in Itelmen there is suffix and prefix agreement with verbal arguments, I assume that T as well comprises ϕ-probes. The ϕ-features on *v* are realized morphologically as a suffix, while the features on T lead to prefix exponence. On that basis, let us turn to some derivations.

First, consider an example of canonical transitive agreement, such as (11a), repeated here as (15) for convenience.

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[11] ϕ-opaqueness induced by [+obl] is not immediately relevant for the cases of ED at hand. It is adopted here to account for the independent fact that datives—by assumption [+obl]—do not trigger verbal agreement. As a matter of fact, though, datives may control verbal agreement under certain circumstances. See section 4.2.2 on dative displacement for an extension of the present system.

(15) kma t'-əlčqu-ɣin
I 1SG-see-2SG.OBJ
'I saw you.'

The derivation for (15) involves the following steps. First, V and the object argument are merged. The resulting VP is then merged with the *v* head. Because in Itelmen, just an in Basque, case assignment takes priority over ϕ-agreement, the object agrees with *v* for absolutive case, thus valuing the object's case feature. Note that no impoverishment on the object is possible as it is not 3rd person. Consequently, ϕ-Agree between *v* and the object is established , furnishing *v* with 2SG features. The derivation proceeds by merging the subject in Spec,*v*P and assignment of the ergative by *v*. *v* having undergone Agree with the object thus becomes inactive. Merging T adds new ϕ-probes to the structure, which agree with their closest goal, viz., the subject. As a result, T comprises a 1SG feature. The result is verbal prefix agreement for 1SG (T), and suffix exponence for 2SG (*v*).[12]

An example for ED is provided by (13a), repeated here as (16).

(16) kma mił knin iŋ t'-il-ał-čen
I all your water 1SG-drink-FUT-1>3SG
'I will drink all your water.'

(16) differs from (15) only in one crucial respect: The object is 3rd person, fulfilling the context of impoverishment (14c). After merging V and the object, (14c) applies, deleting the object's person feature. *v* assigns absolutive and probes for person and number features into the object. Because of impoverishment, it finds only a number feature, leaving its person probe unvalued and therefore active. After merging the subject in Spec,*v*P, it is assigned ergative by *v*. *v* still containing a person probe, it enters into an Agree relation with its specifier. Upon merging T, Agree between T and the subject for ϕ-features is established. The result is prefix (T) agreement with the subject and suffix (*v*) agreement with the number feature of the object and person of the subject. As for the special suffix agreement marker *čen* '1>3SG' instead of *kičen* '1SG.SUBJ' (appearing in, e.g., (12)) see footnote 7.

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[12] As for intransitives such as (12), note that the verb agrees in both suffix and prefix position with its only argument. Under present assumptions there are several possibilities to achieve this outcome. First, the relevant argument may undergo ϕ-Agree with several probes. Of course, ϕ-agreement then must not render a DP inactive for further Agree operation. The second possibility would be to invoke cyclic agree between T and *v* with subsequent vocabulary insertion into both heads (for the concept of cyclic agree see Chomsky 2001, Legate 2005, Lahne 2008, and Preminger 2009). A third way is to treat the phenomenon as purely morphological. Under this view, the ϕ-probes on T are indeed not valued syntactically. One might hypothesize that Itelmen differs from Hindi and Basque in not retreating to default agreement in such a case but rather copying the features of the subject position into the prefix position. I will refrain from a choice between these alternatives here. All seem to be viable under present assumptions at least in principle.

4.2 Dative Displacement

In addition to ED, where an ergative DP exceptionally controls person agreement on the verb, some Basque dialects (though not Standard Basque) and Itelmen show similar phenomena for datives. Here a dative may, under certain circumstances, trigger verbal agreement. This phenomenon is known as *Dative Displacement* (DD). In this section, the main empirical generalizations are discussed and an analysis in terms of impoverishment affecting agreement is developed.

4.2.1 Basque

Empirical evidence In some Basque dialects but not Standard Basque, first person or first and second person datives are able to control person agreement on the verb (PX). Notice first that Basque ditransitives are subject to the *Person Case Constraint* (PCC), a restriction found in several unrelated languages according to which an accusative/absolutive argument may not be 1st or 2nd person in the context of a dative coargument (Perlmutter 1971, Bonet 1991, 1994, Albizu 2001, Ormazabal 2000, Anagnostopoulou 2003, 2005, Béjar and Rezac 2003, Rezac 2004, 2008c, Haspelmath 2004, Adger and Harbour 2007, Ormazabal and Romero 2007, Boeckx 2008). As an example, consider (17).

(17) a. Zuk etsaiari misila saldu d-Ø-i-o-zu
you.ERG enemy.DAT missile.ABS sell PRES-3.ABS-√-3.DAT-2.ERG
'You sold the missile to the enemy.'

b. *Zuk etsaiari ni saldu na-i-o-zu
you.ERG enemy.DAT me.ABS sell 1.ABS-√-3.DAT-2.ERG
'You sold me to the enemy.'

c. *Etsaiak zuri ni saldu n-i-zu-Ø
enemy.ERG you.DAT me.ABS sell 1.ABS-√-2.DAT-3.ERG
'The enemy sold me to you.' (Ormazabal and Romero 2007: 316)

(17b, c) are ungrammatical due to a PCC violation: A non-third person absolutive argument co-occurs with a dative DP. As a consequence of the PCC absolutives in ditransitives may never control PX agreement, as they are always 3rd person. It can thus not be tested whether DD is possible only if the absolutive argument is barred from person agreement, as was the case for ED.

If the dative argument controls the PX slot, the exponent is the same as when the absolutive controls agreement. Compare the DD structure from the Bidasoa dialect in (18a) with the non-DD configuration from Standard Basque in (18b).

(18) a. Guri bokatak gustatzen ga-tt-u
us.DAT sandwiches.ABS like 1-PL-√
b. Guri bokatak gustatzen zai-zki-gu
us.DAT sandwiches.ABS like √-PL-1
'We like sandwiches. (Sandwiches appeal to us)' (Rezac 2006: ch. 3, p. 51)

Matters are more complex with respect to number. In some dialects, number is still controlled by the absolutive (as was the case in ED constructions). In other dialects, however, datives actually do control number, with absolutives controlling additional, non-canonical number exponence (Rezac 2006, 2008a,b). This double number agreement seems to be independent of DD, since it also holds for contexts where DD has not taken place. This is shown in (19).

(19) a. Guri sagarrak eman ga-it-u-zki
us.DAT apples.ABS given 1-PL-√-PL
'He gave us apples.'
b. Guri sagarrak eman d-i-zki-gu-te
us.DAT apples.ABS given DFLT-√-PL-1-PL
'He gave us apples.' (Rezac 2006: ch. 3, p. 51)

(19a) shows double number agreement triggered by the dative and the absolutive in a DD structure. That whatever is responsible for this double number marking should best not be tied to DD theoretically is suggested by (19b). Here, double number marking occurs as well, but DD crucially does not. It seems, then, that the second number slot is epiphenomenal: Ditransitive verbs simply contain two separate number probes in some dialects. Consequently, they might agree with the two nearest goals—absolutive and dative. In other dialects ditransitive verbs behave as transitives in only containing a single number probe. As was the case for ED, this single number probe is without exception controlled by the absolutive. In sum, I will assume that multiple number exponence controlled by absolutive and dative is not related to DD and consequently not tie it to DD analytically.

Another similarity to ED is that syntactic relations, binding properties etc. and case marking of the dative are unaffected by DD. Consider the examples in (20).[13]

(20) a. Mokixek$_i$ (guri$_j$) tabakua$_k$ erragala g$_j$-a-itx$_j$-u / *d-o-s-ku$_j$
Mokixe.ERG us.DAT tobacco gifted 1-TM-PL-√ / DFLT-TM+√-DF-1
'Mokixe gave us tobacco.' (Rezac 2006: ch. 3, p. 4)

[13] The so-called *'dative flag'* (DF) in (20a) is an additional morpheme sometimes attached to the verb if the dative controls SX agreement morphology (Rezac 2006: ch. 1, p. 38). Rezac (2006) treats it as an incorporated Applicative head. Whatever the correct analysis, I will assume that it is not directly related to the mechanisms underlying DD.

b. Bai, neri gustatzen n-a-u baiña nere aittonari ez d-i-o
yes me.DAT liking 1-TM-√ but my grandfather.DAT not DFLT-√-3
gustatzen
liking
'Yes, I like it, but my grandfather does not like it.' (Rezac 2006: ch. 3, p. 9)

(20a) shows an instance of DD for a 1st person dative. It triggers person agreement in PX position since the absolutive cannot, being 3rd person and thus containing no person feature due to impoverishment. In fact, DD is obligatory here and the non-DD alternative (the dative triggering SX agreement) is ruled out. Note that (20a) stems from a dialect with two number probes on ditransitives, so that the dative can trigger plural agreement. As mentioned above, in these dialects a plural absolutive triggers a second plural marker, making it clear that number agreement with the absolutive is not barred. (20b) exemplifies the person asymmetry: Only first or first and second person datives trigger DD (depending on the dialect), whereas third person datives never do. Correspondingly, a first person dative controls PX agreement in (20b), but a third person dative does not.[14] In contrast to ED, which is only licit in non-present tenses, there is no such tense condition for DD. It occurs throughout all tenses, as shown in (21).

(21) Berak niri bokata eman n-a-u / n-ind-u-n
he.ERG me.DAT sandwich.ABS given 1-TM-√ 1-TM-√-PAST
'He gives/gave me the sandwich.' (Rezac 2006: ch. 3, p. 10)

That the number feature of the absolutive has to remain accessible for agreement is suggested by (22).

(22) Ze bokata (pro) (pro) eman n-a-zki-zu?
what sandwich.ABS you.ERG me.DAT giving 1-TM-PL-2
'What sandwiches did you give me?' (Rezac 2006: ch. 3, p. 27)

As (22) shows, the verb agrees with the absolutive in number even when DD occurs.

Finally, note that as in ED structures, SX agreement with the dative is in principle unaffected by DD. Thus, agreement doubling may occur here as well and is only restricted by surface factors (Rezac 2006: ch. 3, p. 27). Hence there exist verb forms like the one in (23).

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[14] As noted by Rezac (2006: ch. 3, p. 38) there is a generalization that holds throughout all Basque dialects that allow DD: Whenever DD with second person datives is allowed, so is DD with first person DPs. This is captured under an approach employing harmonic alignment of scales, assuming that datives align with the upper end of markedness scales. Additional evidence for such a treatment comes from Itelmen in the next section. See also the fuller discussion and formal treatment in section 4.2.3.

(23) Nik zuri sagarrak eman z-a-u-zki-tzu-t
I.ERG you.DAT apples.ABS given 2-TM-√-PL-2-1
'I have given you apples.' (Rezac 2006: ch. 3, p. 31)

In (23), the 2nd person dative object controls PX and SX morphology simultaneously. The absolutive triggers number but no person agreement. This suggests that DD is not a purely morphological process that shifts dative agreement to the prefix position.[15]

ANALYSIS To account for DD, the system proposed in section 4.1.1 can be extended along the following lines: The relevant abstract case subfeatures now include the dative in (24a). Correspondingly, the dative marker *-(r)i* also has to be considered ((24b)). Note that neither of these extensions affects the derivation of the ED effects in any way. Since datives are not subjects but nevertheless do not trigger agreement by default, the claim that the case feature [+subj] renders DPs ϕ-opaque is insufficient. Hence, a second feature, [+obl], bars oblique case marked DPs from triggering ϕ-agreement. The availability of DD is brought about by an additional impoverishment operation that deletes [+obl] if the dative is 1st person (in some dialects) or 1st or 2nd person (in other dialects), cf. (24ciii). As detailed immediately, I assume the indirect object to be introduced by an applicative head with assign dative case to it and agrees with it for number (see (24e)) This system is summarized in (24).

(24) a. *Case subfeatures*

ABSOLUTIVE: $\begin{bmatrix} -\text{obl} \\ -\text{gov} \\ -\text{subj} \end{bmatrix}$ DATIVE: $\begin{bmatrix} +\text{obl} \\ +\text{gov} \\ -\text{subj} \end{bmatrix}$ ERGATIVE: $\begin{bmatrix} -\text{obl} \\ +\text{gov} \\ +\text{subj} \end{bmatrix}$

b. *Case markers*

/-(r)i/ ↔ $\begin{bmatrix} +\text{gov} \\ -\text{subj} \end{bmatrix}$ /-k/ ↔ [+gov] /-Ø/ ↔ [ ]

c. *Impoverishment rules*
(i) [PERSON] → ∅ / __ [3 ∧ object]
(ii) [+subj] → ∅ / __ [−PRESENT]
(iii) [+obl] → ∅ / __ [1(/2) ∧ indirect object]

d. *ϕ-transparency*
[+subj] and [+obl] render a DP opaque for the verbal ϕ-probe

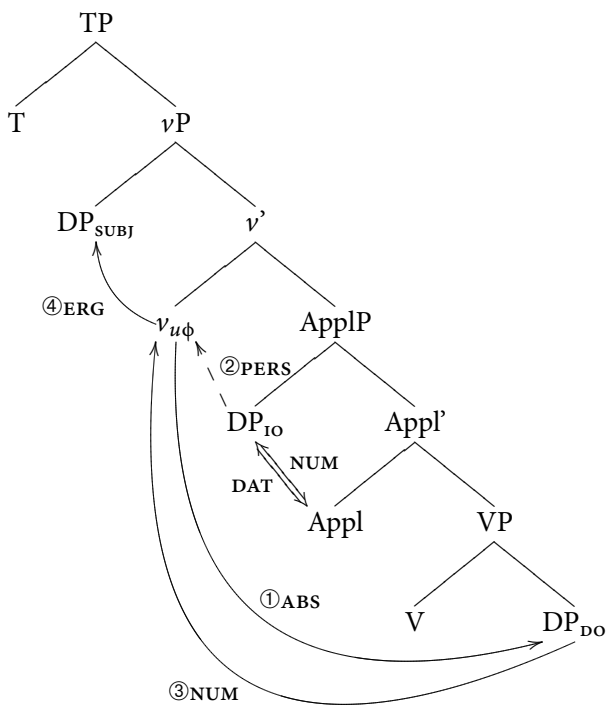
[15] Rezac (2006, 2008b) develops an additional argument that in the case of DD it is indeed agreement relations that change and not just morphological spell-out.

e. *Feature content*

$$v\text{:}\begin{bmatrix}\textsc{ergative}\\ \textsc{absolutive}\\ u\textsc{number}\\ u\textsc{person}\end{bmatrix} \qquad \text{Appl:}\begin{bmatrix}\textsc{dative}\\ u\textsc{number}\end{bmatrix}$$

As for the syntactic background assumptions, consider the structure in (25). The indirect object is introduced by an additional applicative head (see Marantz 1993, Ura 1996, Pylkkänen 2002, 2008, and Anagnostopoulou 2003 for applicative heads in general and Elordieta 2001 for Basque in particular). As in the analysis of ergative displacement in Basque, I assume *v* to comprise absolutive and ergative case features and a person and number probe. The applicative head has the special property of assigning dative case to its specifier and agreeing with it for number. Dative being a lexical case, it is tied to a certain argument position (Spec,ApplP). It is hence assigned to the indirect object regardless of the presence of the direct object in Comp,VP. By assumption, dative assignment is coupled with number agreement between the indirect object and Appl. Thus, both operations are inherent in the sense that they take place regardless of the syntactic environment. This is depicted as double line arrows in (25). Number agreement between Appl and Spec,ApplP has two effects: First, in Basque dialects with morphological exponence for a number feature on Appl it leads to overt plural exponence. As this operation takes place regardless of whether dative displacement has applied or not, it is a general property of ditransitive verbs. This accounts for the independence between dative number agreement and dative displacement (recall (19)). Second, I assume that this operation renders the dative's number feature inactive for further Agree operations. As a consequence, the number probe on *v* cannot establish an Agree relation with the number feature of the indirect object, therefore probing all the way down to the direct object in Comp,VP. Apart from these additional properties of ditransitive constructions, the derivation proceeds as in the case of the transitive constructions considered in section 4.1.1 on ergative displacement: As soon as *v*' has been formed *v* assigns absolutive case to the direct object (①). Next, the person and number probes on *v* search into ApplP. If the indirect object is ϕ-accessible due to impoverishment, it values *v*'s person probe (②). As its number feature has become inactive because of prior Agree with Appl, it does not constitute a potential goal. Consequently, *v* agrees with the absolutive argument for number (③). If the indirect object has not undergone impoverishment, *v*'s person probe remains unvalued as the direct object invariably will have its person feature deleted because, due to the PCC, it has to be 3rd person. Hence, its person feature is deleted by (24ci). Next, the subject is merged in Spec,*v*P and assigned ergative case by *v* (④). If *v* still contains an unvalued person probe (viz., if dative impoverishment has not taken place) it may in principle agree with the subject, thereby giving rise to ergative displacement. This additional possibility has been neglected in (25) for the sake of clarity.

(25)



To see how this systems works, consider again (19a), repeated here as (26).

(26) Guri sagarrak eman ga-it-u-zki
us.DAT apples.ABS given 1-PL-√-PL
'He gave us apples.'

The derivation includes to following relevant steps. The direct object in Comp,VP is 3rd person, hence impoverishment (24ci) applies, deleting its person feature. In addition, the indirect object in Spec,ApplP is first person. This leads to application of (24ciii), which deletes [+obl] on the indirect object, resulting in the case matrix $\left[\begin{smallmatrix}+\text{gov}\\-\text{subj}\end{smallmatrix}\right]$. As a consequence, the indirect object becomes ϕ-transparent. Appl agrees with its specifier for number. Upon merging *v*, it assigns absolutive to the direct object and probes for valued person and number features. It first finds the dative, which, being transparent, values *v*'s person probe. It cannot, however, value *v*'s number probe as its number feature has become inactive because of prior agreement with Appl (inactivity is depicted by boxing in figure 4.4). Consequently, *v* probes further down to the direct object, initiating number Agree with it. As for the subject, everything proceeds just as in transitive clauses: It is merged in Spec,*v*P and assigned ergative by *v*. Double number agreement in (26) is a result of both the applicative head and *v* having agreed with the

indirect and the direct object, respectively. This derivation is depicted in figure 4.4 (the subject has been ignored for the sake of clarity).[16]

4.2.2 Itelmen

In section 4.1.2, an analysis for ED in Itelmen was proposed based on the idea that agreement may be affected by impoverishment. Like Basque, Itelmen possesses DD in addition to ED (Bobaljik and Wurmbrand 2002 refer to this by the term *Oblique Agreement*). This section will outline the main empirical generalizations and propose an analysis that makes use of pre-agree impoverishment. While analogous to Basque DD, the empirical patterns of DD in Itelmen provide strong support for an analysis in terms of impoverishment that is triggered by harmonic alignment of scales.

In Itelmen, the verbal suffix standardly agrees with the direct object. Under certain circumstances, however, it is controlled by the indirect object. Note that the verb *never* agrees with both the direct and the indirect object. The conditions that choose among both objects are not entirely clear but Bobaljik and Wurmbrand (2002) propose the following strong tendencies: (1) if one of the objects is 1st or 2nd person, it is the one

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[16] A remark is in order here concerning the interaction of ED and DD. Rezac (2006) notes that in constructions where the conditions for both are fulfilled optionality arises. This point is not immediately relevant to the impoverishment portion of the analysis since if both the ergative and the dative are ϕ-accessible, the choice among both is conditioned by other factors, presumably locality and phrase-structural closeness. Rezac goes on to argue that this optionality between ED and DD is only apparent: ED is only possible if the dative is ϕ-opaque. Independent evidence suggests that DD is indeed optional. Consider the Labourdin dialect: Here, non-DD and DD forms with and without agreement doubling coexist to some extent (Rezac 2006: ch. 3, p. 31):

(i) *Dative agreement in Labourdin*

Non-DD:	d-a-u-ta-k	[DFLT-TM-√-1-FUT]
DD:	n-a-u-k	[1-TM-√-FUT]
DD + Dat:	n-a-u-ta-k	[1-TM-√-1-FUT]

One way to implement the optionality of DD is to make the relevant impoverishment operation optional. Note, however, that it is not clear from Rezac's discussion whether DD is in fact optional for one and the same speaker or whether this is a variation between speakers. Blocking of ED by DD but not the other way around would then follow if failure to agree with the absolutive for person first expands the search space to the dative. Only if the dative does not provide a person feature as well due to ϕ-opaqueness is the ergative considered. As for the alternation between 'DD' and 'DD + Dat' forms, I assume, as noted above, that all DD forms are underlying 'DD + Dat' (dative controls PX and SX) but that surface filters may cut down the overt structure to only PX agreement of the dative. The same holds for ED (cf. footnote 4 on page 72).

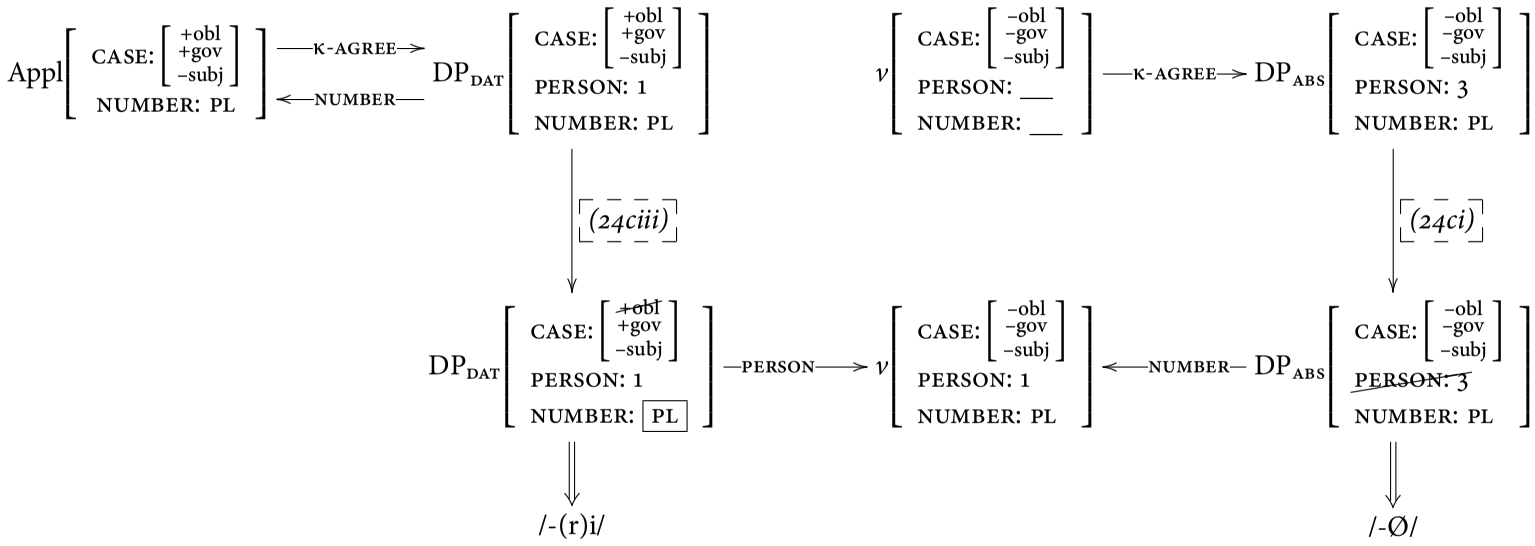

Figure 4.4
Sample derivation for (26): *Guri sagarrak eman ga-it-u-zki.* 'He gave us apples.'

that triggers agreement; (2) if both are 3rd person, it is the more topical one that triggers agreement.[17] Claim (1) is exemplified in (27), claim (2) in (28).[18]

(27) a. maʔ kəman βałč? kna-nk qaʔm zəl-aq t'-iɬ-in.
where my knife you-DAT not give-NEG 1SG-AUX-2SG.OBJ
'Where's my knife? Didn't I give it <u>to you</u>?'
(Bobaljik and Wurmbrand 2002: (21b))

b. knin laχsx k'oɬ-aɬ-in, qneŋ i t-zəl-aɬ-in
your mother come-FUT-3SG then and 1SG-give-FUT-2SG.OBJ
'When your mother comes, I will give <u>you</u> to her.' (ibid.: (22))

(28) a. maʔ βałč? qełnu zlatumx-enk t-zəl-čen?
where knife really brother-DAT 1SG-give-1>3SG
'Where is the knife? Didn't I give <u>it</u> to my brother?' (ibid.: (20a))

b. zlatumx k'oɬ-in. i kma ənna-nk βałč t-zəl-nen
brother come-3SG.SUBJ and I him-DAT knife 1SG-give-3SG.OBL
'My brother came. And I gave the knife <u>to him</u>.' (ibid.: (20b))

In (27a) the dative object is 2nd person, while the direct object is 3rd. In (27b), it is the other way around. In both cases, SX agrees with the 2nd person argument. If both objects are third person, the factor topicality becomes relevant. In both (28a) and (28b) it is the more topical argument that triggers SX agreement.[19]

These facts are captured in nearly the same way as in Basque. Concretely, I assume that indirect, but not direct, objects are standardly ϕ-opaque. From the phenomenon of ED and the analysis in section 4.1.2 it is evident that the person feature of 3rd person direct objects is deleted. I line with the analysis of Basque DD, I propose that datives may become ϕ-transparent due to case feature impoverishment. As will turn out, the only difference between Itelmen and Basque are the kinds of datives that are case feature impoverished. Recall that in Basque some dialects allow DD only with 1st person datives, while others allow for 1st and 2nd person datives to control agreement (and still others allow it for no datives at all). In Itelmen, all datives *except non-topical ones* may in principle trigger agreement, as exemplified in (27) and (28). I conclude, therefore, that case feature impoverishment applies to all 1st, 2nd and topical 3rd person datives,

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[17] Matters are less clear if both direct and indirect object are 1st or 2nd person. For such configurations it seems to be optional which object controls agreement. In the analysis developed below, both direct and indirect object are fully ϕ-accessible if 1st or 2nd person. Hence, no choice can be made based on impoverishment alone. Consequently, external factors, such as which object is nearer to the probe and therefore encountered first, become relevant. It is nevertheless worth pointing out that in exactly the configuration where the impoverishment approach predicts both objects to be ϕ-transparent, optionality is observed.

[18] For the sake of clarity, the argument that controls SX agreement is underlined.

[19] Of course, being an ED configuration, if a 3rd person direct object triggers agreement, it only triggers number agreement. Person is controlled by the subject (cf. (28a)).

rendering them ϕ-transparent. Notice that, in contrast to Basque, Itelmen does not fall under the PCC. Thus, the absolutive argument may be 2nd person even in the presence of an indirect object (cf. (27b)). This fact allows one to directly observe configurations with both accessible direct and indirect object, such as (27b). Here, both objects are transparent and may thus in principle control SX agreement. As a matter of fact, only the direct object does so (evident from the 2nd person suffix). Situating the relevant ϕ-probe on *v* would predict the opposite pattern: The indirect object, being closer to *v*, should act as the only available goal. In order to circumvent this consequence I will assume that the suffixal ϕ-probe resides on Appl, thus encountering the direct object first (as soon as Appl' has been formed and the indirect is not yet part of the structure). In addition, *v* in ditransitives (i.e. *v* that selects an ApplP) does not contain ϕ-probes (alternatively, it may contain ϕ-probes just as in transitivs but they do not receive overt exponence as the suffix position is already filled by the ϕ-features on the applicative head). As a general consequence of this system, the indirect object may only trigger agreement if (i) it has undergone impoverishment rendering it ϕ-transparent, and (ii) the direct object is 3rd person, leading to deletion of its person feature. The system is sketched in (29).

(29) a. *Case subfeatures*

$$\textsc{Dative}: \begin{bmatrix} +\text{obl} \\ \vdots \end{bmatrix}$$

b. *Impoverishment rules*
(i) [PERSON] → ∅ / ___ [3 ∧ object]
(ii) [+obl] → ∅ / [+top ∧ indirect object][20]

c. *ϕ-transparency*
DPs bearing the feature [+obl] are opaque for the verbal ϕ-probe.

d. *Feature content*

$$\text{Appl}: \begin{bmatrix} \textsc{dative} \\ u\phi \end{bmatrix} \qquad v: \begin{bmatrix} \textsc{ergative} \\ \textsc{absolutive} \end{bmatrix} \qquad \text{T}: [u\phi]$$

Let us turn to the data in (27) and (28) to see how the system copes with them. First, in (27a), the direct object is 3rd person and the indirect object is 2nd person. Consequently, (29bi) and (29bii) both apply. The direct object is thus not able to contribute a person feature, leading to search space extension to the indirect object.[21] Due to impoverish-

[20] I assume that 1st and 2nd person DPs are inherently topical (cf. Rosen 1990, Adger and Harbour 2007, Heck and Richards 2007).

[21] A caveat is in order: The present analysis predicts that SX should only agree with the dative for person. Number, on the other hand, should be controlled by the direct object. This is because it is only the person feature that is deleted on the direct object. The number probe hence does not have to consider the indirect object. While this was true for ED, it does not hold for DD. Instead, SX is sensitive to

ment rule (29bii) the dative may agree with the ϕ-probe on Appl. Consider as a contrast (27b). Here the direct object is second person and the dative is a topical third person argument. (29bii) makes the dative ϕ-visible but since the context of (29bi) is not met, the verbal person and number probes find all their valued counterparts on the direct object. Next, consider the examples with two 3rd person objects: (28a) shows that, if the direct object is topical, it controls agreement. In this configuration, (29bi) applies but (29bii) crucially does not since the dative argument is not topical. Consequently, the dative is opaque for verbal ϕ-probing. The verbal person probe thus extends its search space to the subject, yielding ED. As a last illustration, consider (28b): if the dative is topical and the direct object is 3rd person, the IO controls agreement. This follows in the present analysis because both impoverishment rules in (29) can apply, making the dative ϕ-transparent. Because the direct object cannot value all verbal probes on Appl, search space extension to the dative takes place.

4.2.3 Scale Effects on Dative Displacement

The DD facts of Itelmen, together with DD in several Basque dialects, provide evidence for an approach to impoverishment in terms of harmonic alignment of scales, since these data exactly conform to the empirical predictions made under such an approach (Keine and Müller 2008). For all Basque dialects, the generalization holds that if DD is allowed for 2nd person datives, it is allowed for 1st person datives as well (Rezac 2006: ch. 3, pp. 23ff.). (30) summarizes this finding.

(30) Triggers of dative displacement (Bobaljik and Wurmbrand 2002, Rezac 2008a)

Standard Basque:	agreement with no datives
Oñate:	agreement with 1st person datives only
Ainhoa:	agreement with 1st and 2nd person datives
Itelmen:	agreement with 1st, 2nd and topical 3rd person datives

The pattern in (30) appears to be a striking example of a scale effect: It has often been noted that indirect objects pattern with together with subjects in aligning with the higher end of markedness scales (Fillmore 1968, Pesetsky 1995, Adger and Harbour 2007). In other words, canonical indirect objects have properties high on these scales (as Adger and Harbour 2007 put it, they are "capable of experience" (p. 21)). The most

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both number and person of the dative and insensitive to the direct object. The generalization seems to be that while in Basque person and number probes behave independently of each other, they are tied together in Itelmen. Thus in Basque *v* may agree with the ergative/dative argument for person and with the absolutive object for number. In Itelmen the two probes depend on each other, i.e. both must agree with the same argument. Notice incidentally that the question whether person and number are separate probes or not is subject of much recent discussion. Illuminating though this issue might prove, I will leave it aside here.

straightforward way to implement this property of indirect objects is by means of the object scale in (31b): Harmonic aignment applied to this scale accounts for the fact that indirect objects pattern with subjects. Direct objects, on the other hand, still align with the lower end of markedness scales, as desired.

Given the scale in (31a), the generalization in (32) captures the pattern in (30).

(31) SCALES

a. *Person scale*[22]
1 > 2 > 3.topical > 3.non-topical

b. *Object scale*
indirect object (IO) > direct object (DO)

(32) *Dative displacement generalization*
If a language allows agreement with a dative having a certain property on (31a), then it allows agreement with all datives having properties on its left.

This generalization is derived under the following assumptions: (1) Impoverishment may apply before agreement, (2) ϕ-accessibility of datives is brought about by impoverishment, (3) the contexts for impoverishment are restricted by harmonic alignment of scales, and (4) indirect objects associate with the upper end of markedness hierarchies.

Harmonic alignment of the person scale (31a) with the object scale in (31b) yields the harmony scale in (33a) and the constraint ranking in (33b). Subsequent local conjunction with the faithfulness constraint MAX-CASE results in the constraint ranking in (34).

(33) *Harmonic alignment of (31a) and (31b)*

a. IO/1 > IO/2 > IO/3.top > IO/3.non-top

b. *IO/3.non-top ≫ *IO/3.top ≫ *IO/2 ≫ IO/1

(34) *Ranking of faithfulness constraints*
*IO/3.non-top & MAX-CASE ≫
*IO/3.top & MAX-CASE ≫
*IO/2 & MAX-CASE ≫
*IO/1 & MAX-CASE

---

[22] (31a) actually comprises the two markedness scales in (i).

(i) a. *Person scale*
1 > 2 > 3

b. *Prominence scale*
X > x
(discourse-prominent argument > non-discourse-prominent argument)

Since 1st and 2nd persons are always discourse-prominent the distinction between both is only relevant for 3rd persons, yielding the scale in (31a).

Insertion of the markedness constraint *[+obl], which penalizes the presence of the case feature [+obl], into the ranking in (34) yields deletion of [+obl] for certain kinds of datives but not for others. This conforms exactly to the distribution in (30), cf. (35).[23]

(35) *Possible insertion places for* *[+*obl*]

*IO/3.non-top & MAX-CASE ≫		
	⟵ *[+obl]:	Itelmen
*IO/3.top & MAX-CASE ≫		
	⟵ *[+obl]:	Ainhoa
*IO/2 & MAX-CASE ≫		
	⟵ *[+obl]:	Oñate
*IO/1 & MAX-CASE		
	⟵ *[+obl]:	Standard Basque

Consider, in contrast, an approach that does not restrict impoverishment of [+obl], or dative agreement, in any non-stipulative way. Such an approach predicts languages to arbitrarily pick out certain dative configurations that are capable of controlling agreement. This, however, is not what (30) suggests.

Summarizing this section, it has been argued on independent grounds that impoverishment should be conceived of as the result of harmonic alignment of scales and the interaction of markedness and faithfulness constraints. In such a way, scale effects on argument encoding can be naturally derived. If in addition the central proposal of this study is adopted, i.e. that impoverishment may apply before agreement, scale effects on *agreement* are straightforwardly captured as well. This yields an account for the apparent fact that argument encoding and verb agreement obey identical principles.

4.3 The Unity of Split-Ergativity and Eccentric Agreement

The present analysis gives a unified approach to both split-ergativity and eccentric agreement: In both cases subfeatures are impoverished in the context of temporal/aspectual

[23] One might wonder whether there exist languages that allow DD with all datives. In such a language, a dative would trigger agreement whenever a direct object cannot, regardless of the properties of the datives. This would come into existence if *[+obl] is inserted into the topmost position in (35). Note, however, that such a system would give rise to reanalysis, since instead of assuming that all datives are inherently ϕ-opaque and then made visible by impoverishment, a learner might instead adopt a system where datives are ϕ-transparent from the start. No impoverishment has to be involved. The same applies to argument encoding: If all datives are impoverished, there exists no observable marker alternation between different types of datives. Proposing an impoverishment rule without any visible effect would then be needlessly cumbersome. It might therefore be the case that such a system is ruled out for external reasons.

information (or, as in DD, in the context of certain person features). But the effect on the surface differs, leading most researchers to treat them differently. In Hindi, impoverishment affects both case exponence and ϕ-agreement. In Basque, however, only verbal agreement is modified. Neither ED nor DD have an impact on case marker insertion. Under the view proposed here, this difference is in no sense "deep", but only due to independent properties of the case exponents: For Hindi it has been assumed that the relevant ergative marker *-ne* is specified for the feature [+subj]. Deletion of this feature thus bleeds insertion of *-ne*. In Basque, on the other hand, both the dative and the ergative markers *-(r)i* and *-k* are neither specific for [+subj] nor for [+obl]. Impoverishment of these case features thus leaves insertion of both markers unaffected and only has an affect on agreement.

There is indeed tentative independent evidence that this is on the right track. In Hindi, the ergative marker *-ne* only shows up on subjects, but not on any DPs that are not in subject position.[24] This independent distribution of *-ne* is straightforwardly captured if the marker is specified for [+subj]. Deletion of [+subj] hence makes insertion of *-ne* impossible, leading to marker alternation.

Compare this to Basque. The markers under consideration, *-(r)i* and *-k*, are not restricted to datives and subjects, respectively, but also appear combined in the *partitive* marker *-(r)ik*, that can be subanalyzed as *-(r)i-k*. An argument that at least *-(r)i* is the same marker in both cases can be constructed based on the observation that in both instances the allomorph *-ri* is selected after vowels and *-i* after consonants (Hualde 2003: 175). So the partitive forms of the proper names *Bilbo* and *Irun* are *Bilbo-rik* and *Irun-ik*, respectively. Accordingly, the dative forms are *Bilbo-ri* and *Irun-i*. This cannot be due to a general phonological rule that inserts [r] between two vowels, as their exist such stems as *oihan* 'forest' or *oilo* 'chicken'. In addition, adjacent vowels are also possible across morpheme bounderies, as (36) attests.

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[24] To see this, consider the list of Hindi case markers given in (i) (from Mohanan 1994: 66).

(i) *Hindi case markers*

case	marker
Nominative	*-Ø*
Ergative	*-ne*
Accusative	*-ko*
Dative	*-ko*
Instrumental	*-se*
Genitive	*-kaa*
Locative$_1$	*-mē*
Locative$_2$	*-par*

(i) shows that the marker *-ne* is only used as an ergative marker and is not compatible with other environments, especially not with non-subjects.

(36) etxe-a-n
house-ART-LOC
'in the house' (Preminger 2009: 633)

The reverse process—deleting [r] between a consonant and a vowel—is also problematic in light of forms like *presidente* or *andre* 'lady'). As there is no likely candidate for a general phonological rule that accounts for the distribution of the allomorphs, I conclude that the alternation is morpheme-specific. The fact that both *-(r)i* and *-(r)ik* exhibit the same alternation provides thus evidence that *-(r)i* is indeed the same marker in both instances.

The partitive appears on absolutive objects "within the scope of a negative, interrogational or conditional element [...if] their referent is construed as indefinite, or rather, nonspecific" (de Rijk 2008: 292). Hence this case is crucially not tied to subjects and not θ- or verb-related. So it does not behave as an oblique case. In fact it has the same distribution as the absolutive. From this I conclude that the partitive abstract case contains the subfeatures [–subj] and [–obl] (in addition to some other features to distinguish it from the absolutive). Because of the subset principle, *-k* and *-(r)i* cannot be specified for either [+subj] or [+obl] since in this case they could never realize the partitive. If neither *-(r)i* nor *-k* are specified for either [+subj] or [+obl], impoverishment of these case features does not affect the distribution of the two markers but only influences ϕ-Agree.[25] The result is an agreement alternation without marker alternation.

In summary, I have provided an independent argument based on case marker distribution that the differences between split-ergativity in Hindi and eccentric agreement in Basque are due to idiosyncratic specification of case markers. This constitutes evidence for the claim made by the present analysis that both are identical on a more abstract level of derivation—impoverishment before agreement.

This analysis makes a further prediction: So far, I have presented a case where early impoverishment affects agreement *and* case markers (Hindi) and a second case where impoverishment affects only agreement (Basque). The present analysis predicts there to exist languages with impoverishment operations that affect marker insertion but not ϕ-agreement. Such a system arises if, e.g. in a given language [+subj] does *not* render a DP ϕ-opaque. If, however, the default subject case marker is specified for [+subj], deletion of this feature affects case marking but not ϕ-agreement, yielding the mirror image of Basque. Nepali arguably constitutes such an example. Simplifying a bit,

[25] Given the marker specification in (24b), one might wonder how both *-(r)i* and *-k* can be attached to a stem if both realize [+gov]. One possibility is to maintain this marker specification and invoke morphological *enrichment* (Müller 2007). The feature [+gov] is hereby doubled and can be realized twice. Other technical possibilities to ensure the right outcome include *extended exponence* (Noyer 1992, 1998) or non-discharge of features (Anderson 1992, Stump 2001). A second possibility is to modify the marker specification in (24b) in such a way that the intersection of *-(r)i* and *-k* is empty. It is only necessary that both markers are *not* specific for [+subj] and [+obl]. Nothing, however, is implied regarding the features they do realize.

Table 4.1 Overview: Effects of early impoverishment

	agreement effects	*no agreement effects*
marker effects	Hindi	Nepali
no marker effects	Basque	–

Nepali exhibits a tense/aspect based split just as Hindi. It affects case marking in such a way that the ergative marker *-le* marks the subject of perfective but not imperfective clauses. This can be accounted for in an analogous way to Hindi. Crucially, verbal agreement is unaffected: The verb agrees with the subject regardless of it being marked by *-le* or not. Consider the contrast in (37).

(37) *Nepali*

a. mɒi-le pauroʈi kaʈ-ē
I-A.MARKER bread cut-PAST.1SG
'I cut the bread.'

b. mɒi pauroʈi kaʈ-dɒi-ts^{h}u
I bread cut-IMPF-PRES.1.SG
'I am cutting the bread.' (Li 2007: 1465f.)

In (37a) the subject is marked with *-le* and the verb agrees with it. (37b) is imperfective and hence the subject is unmarked. Nevertheless, the verb agrees with it. This is accounted for within the present approach by deletion of the case feature [+subj]. Specification of *-le*, but not ϕ-transparency are relativized to this feature, yielding an impoverishment effect on marker insertion but not agreement.

The relation between case exponence and ϕ-agreement is summarized in table 4.1.

The fourth logical possibility, impoverishment having an effect on neither marker distribution nor ϕ-agreement, would give rise to reanalysis. If an impoverishment operation is not detectable by any means, then it would be superfluous to assume its existence.

4.4 Summary

In this section, I have laid out a treatment of eccentric agreement within a framework that allows free interaction of impoverishment and Agree. The analysis was built around the assumption that impoverishment may *bleed* agreement by deletion of potential goal features and *feed* agreement by deletion of case subfeatures that otherwise render

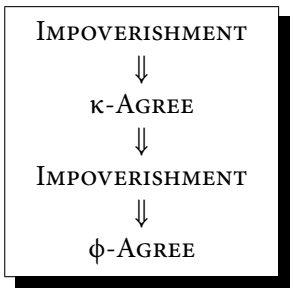

Figure 4.5
The order of operations in Basque and Itelmen

a DP ϕ-opaque. Under this conception, impoverishment was shown to be capable of deriving the complex agreement interactions in Basque and Itelmen.

Furthermore, an approach to impoverishment by means of harmonic alignment of markedness hierarchies derives the scale effects on dative displacement. If it is indeed impoverishment that is responsible for the agreement patterns, the account in Keine and Müller (2008, 2009) straightforwardly extends to these patterns.

Finally, the present approach opens up the possibility of treating eccentric agreement and split-ergativity as underlyingly identical phenomena. Surface differences in this view only arise because of external factors, i.e. marker specification and ϕ-opaqueness.

The order of operations involved in the analyses in this section are summarized in figure 4.5.

Appendix: Nepali Split-Ergativity

In the discussion of Nepali in section 4.3 it was stated that Nepali split-ergativity is conditioned by aspect just as in Hindi. Upon closer scrutiny, this turns out to be an oversimplification. Although the system appears to involve more factors although no consensus has yet been reached in the relevant literature. In this appendix, I will give a brief overview of two proposals. In section 3.3.1 two possibilities were mentioned of how the context of an impoverishment operation (or the faithfulness constraint) can be defined. First, one might define it as a function of the structural context. Under this view, 'direct object' essentially means 'Comp,VP'. Under the case-based view, it is case features such as [±subj] that determine the grammatical function of a DP. In this appendix, I will illustrate that the latter view is more powerful in that impoverishment of a case feature may bleed a later impoverishment rule that is based on grammatical function. No such bleeding is expected under the view that takes grammatical function

Table 4.2 Marker distribution in Nepali (Butt and Poudel 2007)

	STAGE-LEVEL	INDIVIDUAL-LEVEL
PAST	*le*	*le*
NON-PAST	Ø	*le*

Table 4.3 Marker distribution in Nepali (Li 2007)

	+ANIMATE	−ANIMATE
PAST	*le*	*le*
NON-PAST	*(le)*	*le*

to be a function of structural context. Thus, to the extent that the Nepali split adheres to the principle below it may be taken as evidence for the case-based view. As mentioned above, the exact nature of the split is unclear. Therefore, it seems to hasty to abandon one view or the other on the basis of Nepali alone. Rather, the main tenet of this appendix is to show that the two views differ and may be disentangled empirically.

Butt and Poudel (2007) argue that the aspect-based split interferes with a second, semantic split. In the past, the subject always bears the marker *-le*. In the non-past, however, the choice is conditioned by the stage-level vs. individual level distinction. Individual level predication correlates with ergative marking. The subject of stage-level predicates, however, is zero marked. This is summarized in table 4.2.

There is independent evidence for the stage vs. individual level distinction in the verbal domain (as some verbs differ in their morphological realization depending on the distinction). The pattern in table 4.2 can thus be captured by pre-agree impoverishment. Since both tense and level information are represented on the verb, they trigger case feature deletion before the case is assigned to the subject. Depending on impoverishment on the verb, the morphological realization on the subject will vary.

According to Li (2007), however, matters are even more complex. Li argues that it is the animacy of the subject that is relevant for *le*-marking instead of the semantic level distinction. Consider table 4.3.

This is a more intricate state of affairs and appears to be problematic for the assumption made here that impoverishment is strictly local. Since the verb shows no marker variation wth respect to the subject's animacy there is little to warrant the assumption that animacy of the subject is represented within the verbal domain. On the other hand it is questionable whether tense is represented on the subject. If it is not the case that both features are represented on one head, strictly local impoverisment as proposed here may not handle the data because there does not exist a way for a marker to be bled *if two separate impoverishment rules have applied*, corresponding to subject and verb. Impoverishment may either affect a marker or not. There does not exist

the possibility that only joint application of two separate impoverishment operations bleeds a marker, as seems necessary to derive the distribution in table 4.3. Interestingly, this distribution can be captured by assuming that there exists an impoverishment operation on animate subjects that bleeds *le*-insertion, cf. (38ci) below. Why does it not apply in the past? I have proposed on page 58 the possibility that it might be case features such as [±subj] and [±object] that determine grammatical function, rather than syntactic context. Under this assumption, one might assume there to exist a second impoverishment rule on the verb that deletes the impoverishment-inducing feature [+subj] in the past but does not affect marker insertion ((38cii)). If [+subj] is deleted, animacy-based deletion on the subject does not apply, since it only applies on animate subjects. Being strictly domain-local, it may only determine grammatical function status on the basis of features present on the nominal. If [+subj] is present, impoverishment is licensed. If not, then impoverishment may not apply. This analysis makes crucial use of the idea that impoverishment is not sensitive to the environment of a given head. Instead, grammatical function is determined solely on the basis of case features that may be deleted by prior impoverishment. Hence, [+subj] plays a double role: as a case feature and as an indication of grammatical function. Consider the sketch of the system in (38):

(38) a. *Case subfeatures*

ERGATIVE: $\begin{bmatrix} -\text{obl} \\ +\text{subj} \end{bmatrix}$

b. *Case markers*

/-le/ ↔ [−obl] /-Ø/ ↔ [ ]

c. *Impoverishment rules*

(i) [−obl] → ∅ / [+ANIMATE ∧ +subj]

(ii) [+subj] → ∅ / [+PAST]

The crucial point here is that (38ci) does not apply in the past because (38cii) has applied on the verb before the case feature has undergone κ-Agree. Hence, *-le* appears on all subjects in the past tense, regardless of animacy. For (38cii) not to affect subject marker insertion it is crucial that *-le* is not specified for [+subj]. One might wonder whether there is independent distributional evidence for this claim. Indeed, there is. *-le* is also attached to instrumentals, as seen in (39).

(39) mai=le malam=le lekh-y-ē

1SG=ERG pen=INSTR write-PAST-1SG

'I wrote with the pen.' (Butt and Poudel 2007: 9)

Since instrumentals are not plausibly subjects, *-le* cannot be specified for [+subj]. This is particularly interesting since in the related language Hindi, as seen above, the

corresponding ergative marker *-ne* is indeed restricted to subjects. Instrumentals are marked by a different case exponent (*-se*).

Such an approach seems to be ultimately compatible with an approach in terms of harmonical alignment of scales, but requires some non-trivial departures from the system proposed by Keine and Müller (2008, 2009).

To sum up, in this appendix I have briefly considered differential subject marking in Nepali, which presents an interesting quirk in that it appears to make necessary more interaction between impoverishment operations than is expected if grammatical function is determined by syntactic context. If, on the other hand, case features are relevant, deriving this split becomes straightforward. I will leave the question of the correct treatment of Nepali for future research. Note again that the empirical patterns are not fully understood to begin with. I will also not explore possible ways to extend the 'syntactic context' view to account for Li's (2007) analysis.

5 Icelandic Nominative Objects

In section 3.1.2, an argument based on Icelandic nominative objects was developed in favor for the position that it is m-case, as opposed to grammatical function, that is relevant for verbal agreement. Specifically, it was argued that nominative objects are indeed objects, as they do not pass any subjecthood test. Nevertheless, they trigger verbal agreement. This behavior was tied to the nominative m-case. However, as is well known, matters are more complex. Although some nominative objects do trigger agreement, others systematically do not. The present section aims to develop a theory of nominative objects in greater detail. A crucial role is played by impoverishment that applies before Agree operations. Firstly, a case feature assigned to the object may be impoverished on the verb, leading to insertion of the nominative exponent on the object after it is assigned. Secondly, case feature impoverishment after assignment to the object but before verbal ϕ-agreement may render an otherwise ϕ-opaque object accessible for the verbal probe—in the same vein as proposed for Hindi, Marathi/Punjabi, Basque and Itelmen in the preceding sections.

5.1 Empirical Patterns

Nominatives in subject position always trigger verbal agreement. There is no person restriction. This is exemplified in (1).

(1) a. Ég hef lesið bókina
I.NOM have.1SG read book
'I have read the book.'

b. Þú hefur lesið bókina
you.NOM have.2SG read book
'You (sg.) have read the book.'

c. Hún hefur lesið bókina
he.NOM have.3SG read book
'He has read the book.'

d. Við höfum lesið bókina
we.NOM have.1PL read book
'We have read the book.'

e. Þið hafið lesið bókina
you.NOM have.2PL read book
'You (pl.) have read the book.'

f. Þær hafa lesið bókina
they.NOM have.3PL read book
'They have read the book.' (Sigurðsson 1996: (18))

Only nominatives may trigger verbal agreement. In case there is no nominative in the clause, the verb shows default agreement (3SG), cf. the impossibility of agreement with a dative ((2)).

(2) Strák-unum leidd-ist / *leidd-ust
boy-DAT.PL bored-3SG bored-3PL
'The boys were bored.' (Sigurðsson 1996: (2))

In Icelandic there is a class of transitive verbs that idiosyncratically take dative subjects. Although most of these are *psych*-verbs, this property does not seem to be predictable, as there are also *psych*-verbs that take a nominative subject (Sigurðsson 2004b). This is illustrated in (3).

(3) a. Hún skelfist hættuna
she.NOM is.terrified.by danger.the.ACC
'She is terrified/horrified by the danger.'
b. Hana hryllir við hættuni
her.ACC is.horrified by danger.the.DAT
'She is horrified by the danger.'
c. Henni ógnar hættan
her.DAT terrifies danger.the.NOM
'She is terrified/horrified by the danger.' (Sigurðsson 2004b: (9))

As (3) shows, there is at least no obvious way to deduce the subject case from semantic properties. This implies that the case to be assigned to the subject must be coded on individual verbs. Another implication does hold, however. Whenever a transitive verb takes a dative subject, its object is nominative. The reverse is also true: Nominative objects are only licensed if the subject is dative.[1] Any theory of Icelandic nominative objects has to somehow capture this implication. As for agreement, these 'quirky'

[1] There exist some claims to the contrary in the literature. Yip, Maling and Jackendoff (1987) give the example *Mig sækir syfja.* "Me.ACC gets sleep.NOM", meaning 'I am getting sleepy.' According to Sigurðsson (1996: fn. 16), its status is questionable. In addition, some predicate constructions allow for a genitive-nominative pattern (cf. *Hans er bráðum von.* "His.GEN is soon expectation.NOM.", meaning 'He is expected to arrive soon.') Such cases of nominative objects seem to be subject to rather strong restrictions and it is unclear whether they should be given a productive account. Woolford (2003) suggests that, generally speaking, nominative objects are licensed whenever the subject bears lexical case. Accusative is then analysed as being ambiguous between lexical and structural case. Note that the analysis proposed below can in principle be straightforwardly accounted to accommodate such examples as well.

subjects are never able to value a ϕ-probe on the verb since datives never trigger agreement.

Dative subjects behave exactly as nominative subjects with regard to all syntactic tests, such as reflexivization, subject-verb inversion, control, conjunction reduction, exceptional case-marking, raising and subject floating (Andrews 1976, Thráinsson 1979, Zaenen et al. 1985, Sigurðsson 1989 *et seq.*). Thus they are true subjects syntactically. The only properties that they do not share with nominative subjects are case marking and the possibility of verbal agreement. Nominative objects, on the other hand, pattern with accusative objects for all syntactic criteria (Harley 1995, Jónsson 1996). Again, the conclusion is that these objects are true objects in syntactic terms. They only diverge from accusative objects in case marking and verbal agreement.

Having stated that nominative objects behave as accusative objects syntactically, let us turn to their behavior with respect to ϕ-agreement. As was shown in (1), all nominative *subjects* trigger verbal agreement. This, however, does not hold for nominative *objects*: Only 3rd person nominative objects trigger verbal agreement, while 1st and 2nd person objects never do. In the case of 1st and 2nd person nominative objects the verb shows default agreement instead, at least for some speakers (see below). Agreement with 3rd person nominative objects is exemplified in (4).

(4) a. Henni leiddust strákarnir
her.DAT bored.3PL the boys.NOM
'She found the boys boring.' (Sigurðsson 1996: (49a))

b. Henni líkuðu þeir
her.DAT liked.3PL they.NOM
'She liked them.' (ibid.: (85))

As for non-agreement with 1st and 2nd person nominative objects, observe the contrast in (5).

(5) a. *Henni líkaðir þú
she.DAT liked.2SG you.SG
'She liked you.' (Sigurðsson 1996: (68))

b. ?Henni leiddist þú
she.DAT bored.3SG you.SG
'She bored you.' (ibid.: (69))

c. *Henni líkuðu það
her.DAT liked.3PL you.PL.NOM
'She liked you.' (ibid.: (84))

Verb agreement with the 2nd person object in (5a) is ruled out. In constrast, default agreement is judged as significantly better, though not perfect ((5b)). (5c) shows that partial agreement for only number is not an option either. However, this generalization is not uncontroversial. Many analyses of Icelandic nominative objects were developed

Table 5.1 Overview of grammaticality judgements for non-3rd person nominative objects (Sigurðsson 1996)

		OK	?	??	?*	*
Henni líkaðir þú.	(NOM: 2SG, ϕ_{verb}: 2SG)	–	–	–	1	8
Henni líkaði þú.	(NOM: 2SG, ϕ_{verb}: DFLT)	3	1	2	–	3
'She liked you (sg).'						
Henni leiddumst við.	(NOM: 1PL, ϕ_{verb}: 1PL)	1	1	1	–	6
Henni leiddist við.	(NOM: 1PL, ϕ_{verb}: DFLT)	3	2	1	2	1
'She found us boring.' (lit. *'Her bored we.'*)						
Henni líkuðuð þið.	(NOM: 2PL, ϕ_{verb}: 2PL)	–	–	–	1	8
Henni líkaði þið.	(NOM: 2PL, ϕ_{verb}: DFLT)	2	–	2	–	5
'She like you (pl).'						

in order to derive a different generalization: According to this generalization, nominative objects are only allowed if 3rd person. 1st and 2nd person nominative objects are ruled out, regardless of whether the verb agrees with them or shows default agreement.[2] Under these analyses, both the agreeing and the non-argeeing construction in (5) are excluded for the same reason—presence of a 2nd person nominative object. The main obstacle with this approach lies in the considerable variation with respect to the grammaticality judgements of such constructions. In a seminal paper, Sigurðsson (1996) claimed that verbal agreement with 1st/2nd person nominative objects is categorically ruled out, but default agreement significantly improves the sentences—hence the contrast in (5). As observed by Sigurðsson, the grammaticality status of (5a) and (5b) is *not* identical for many speakers, as would be expected if both violate one and the same principle, i.e. a general constraint against 1st/2nd person nominative objects. Some speakers even find sentences like (5b)—1st/2nd person object and default agreement—perfect while completely rejecting the agreeing counterparts in (5a) (Thráinsson 2007: 236ff.). I consider this variation as evidence that the status of (5a) vs. (5b) is not due to one general constraint applying to both. Consequently, the distributional properties of nominative objects cannot be reduced to an absolute ban on 1st and 2nd person objects.

The same conclusion is reached by an informal survey carried out by Sigurðsson (1996: (73–75)) among nine native speakers of Icelandic. Consider the examples given in table 5.1.

[2] Examples are Boeckx (2000) and Adger and Harbour (2007), who seek to subsume the Icelandic facts under the *Person Case Constraint* (Bonet 1991), the (language-specific) *person restriction on nominative objects* of Anagnostopoulou (2003), and Richards (2008b), who proposes that the quirky subject is 3rd person and the object has to match it.

As evident, 1st and 2nd person nominative objects are rejected by some speakers even if the verb shows default agreement. However, what table 5.1 indicates is that the agreeing variants are by far worse. More importantly, there do exist speakers that accept the default agreement variant while finding the agreeing counterpart entirely ungrammatical.

Any view that attributes the ungrammaticality of agreeing structures like (5a) to the mere presence of a non-3rd person nominative object predicts that default agreement is equally bad. This is because the offending object is present here as well. The ban on non-3rd person objects must thus be absolute. In contrast, under the view that it is verbal agreement with 1st or 2nd person objects rather than the object itself that causes ungrammaticality, these sentences are predicted to be fine if the verb does not agree with the object. This captures the difference in grammaticality judgements between (5a) and (5b), as there are speakers who accept the latter while rejecting the former. What is surprising under such an account is that there exist speakers that judge both agreeing and non-agreeing structures bad. Under the present approach, this might be captured by a second constraint—independent of the one against verbal agreement—that is violated in these structures. Under this view, there are thus two constraints at work in determining the grammaticality of agreeing and non-agreeing clauses.[3] This assumption accounts for the fact that grammaticality judgements between both constructions may vary between speakers, as both constraints are independent of each other. This is exactly the pattern in table 5.1. As for the second constraint, an idea that might be explored is that in sentences with nominative objects for some speakers default agreement as a last resort operation is ruled out. I will not develop an explicit analysis of this claim. However, see section 5.3 below for additional empirical support for the idea that it is indeed default agreement that is at stake here. These data show that, whenever there is no need to resort to default agreement, such sentences improve considerably.

As an additional piece of evidence, consider ECM structures, which interestingly show the same alternation as mono-clausal constructions: If the matrix verb assigns nominative to its subjects, then the embedded subject is in the accusative, cf. (6).

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[3] The position that I am arguing for has also been adopted by, e.g., Marantz (2007). The difference between this view, i.e. agreement inducing ungrammaticality, and the opposing one according to which it is the non-3rd person object in itself that is ruled out is not as substantial as it may seem. Under either perspective, an additional constraint is necessary: If agreement is considered the crucial factor, i.e. the position proposed here, some additional constraint against default agreement for some speakers is necessary. By contrast, if the 1st/2nd person object in itself is identified as the source of ungrammaticality, default agreement must be available for some speakers as a last resort operation. Consequently, the point here is not that no alternative analysis is possible but rather that the competing view is not inherently simpler than the one pursued here. I'm grateful to Marc Richards for discussing this point with me.

(6) a. Strákarnir voru gáfaðir
the.boys.NOM were intelligent.NOM.MASC.PL
'The boys were intelligent.'
b. Ég taldi strákana (vera) gáfaða
I.NOM believed the.boys.ACC be intelligent.ACC.MASC.PL
'I believed the boys to be intelligent.' (Sigurðsson 1996: (27,28))

Only if the matrix predicate selects for a dative subject is the embedded subject marked nominative, cf. (7). Syntactically, these constructions behave like a single predicate with a dative subject and a nominative object (Zaenen et al. 1985). This suggests that the embedded subject receives its case from the matrix verb. Interestingly, such constructions are fine for all speakers with default agreement of the matrix verb, regardless of the person of the embedded subject. In addition, in the case where the embedded subject is 3rd person, the matrix verb may optionally agree with it or show default agreement.

(7) a. Ykkur þykir / *þykum / *þykia við góð í fótbolta
you.PL.DAT think.3SG think.1PL think.3PL we.NOM good in football
'You think we are good in football.'
b. Mér þykja þau dóð í fótbolta
me.DAT think.3PL they.NOM good in football
'I think they are good in football.' (Hrafnbjargarson 2002: 2)

As in the case of nominative objects of transitive verbs, 1st and 2nd person DPs that receive their case feature from the matrix predicate do not trigger matrix agreement, while 3rd person DPs do (compare (7a) and (7b)). This suggests that identical principles are at work here. If there was an absolute ban on 1st/2nd person nominative objects, it is mysterious why 1st/2nd person DPs are fine in (7) exactly if they do not trigger agreement. If, on the other hand, the ungrammaticality of (5a) is attributed to verbal agreement with the 2nd person nominative object, the availability of (7a) is immediately derived, since here the verb does not agree with the relevant DP but arguably with the whole embedded clause (Sigurðsson and Holmberg 2008). Thus, there does not seem to be a *general ban* against 1st/2nd person nominative objects (Sigurðsson 1996, Hrafnbjargarson 2002).

Another piece of evidence for the claim pursued here that it is verbal agreement that is barred in the case of 1st/2nd person nominative objects, and not the object in itself, comes from infinitival clauses. As noted by Sigurðsson (2004b: 155, fn. 14) and Sigurðsson and Holmberg (2008), 1st/2nd person nominative objects improve considerably if the clause is non-finite. If 1st and 2nd person objects themselves would invariantly lead to ungrammaticality, this would be unexpected since finiteness of the verb should be irrelevant. On the other hand, if agreement with 1st/2nd person objects

is treated as inducing ungrammaticality, then this improvement is straightforwardly captured, as non-finite verbs do not agree.

To sum up, I have suggested that the behavior of 1st and 2nd person nominative objects is best captured under an account that rules out agreement ((5a)) but in principle allows non-agreeing structures ((5b)). This derives the fact that many speakers reject the former while still accepting the latter. Other speakers may make use of an additional constraint that also prohibits non-agreeing structures. Further evidence that it is agreement with and not the mere presence of a 1st/2nd person nominative object came from ECM constructions and infinitives.

The empirical pattern that is to be derived is summarized below.

- All and only transitive verbs that take dative subjects allow for nominative objects.
- Nominative objects can in principle be of any person and number.
- With respect to agreement, they diverge: 3rd person objects trigger verbal agreement, 1st and 2nd do not.

5.2 Analysis

I propose an analysis of the Icelandic nominative object facts illustrated in the previous section that is based on the free interaction of impoverishment and κ- and ϕ-agreement. This interaction is complex, meaning that impoverished structures may form the input to agreement and, conversely, the output of agreement may be impoverished. No extrinsic ordering between impoverishment and agreement is compatible with this picture. To the extent that it accounts for the Icelandic facts, it thus constitutes evidence that impoverishment and agreement apply within the same grammatical component.

5.2.1 The Case of the Object

The first implication to be captured is that the object is nominative if and only if the subject is dative. Whether a verb takes a dative or a nominative subject, though, is largely idiosyncratic, implying that the relevant information must be stored on individual verbs. Since this section is not concerned with dative subjects, I assume for the sake of simplicity that verbs taking quirky subjects have a dative feature that is to be assigned to the subject. I will treat this feature as a primitive since nothing is gained by decomposition here. To capture the fact that nominative objects behave differently from nominative subjects as far as verb agreement is concerned (recall that only 3rd person nominative objects may trigger agreement while no such restriction applies

to subjects), I further assume that underlyingly, i.e. as default, the object case present within the verbal domain is not nominative, but accusative. Quirky subject verbs thus bear the same object case as verbs with nominative subjects. An impoverishment rule deletes case subfeatures of the accusative, if there exists a dative feature in the verbal domain that is to be assigned to the subject. This impoverishment operation applies whenever its context is met and only then, deriving the logical equivalence between dative subjects and nominative objects.[4] It further accounts for the fact that only verbal properties are relevant for determining the object's case. A priori, nothing rules out a system in which properties of the object are also distinctive, so that e.g. only animates are nominative marked, while inanimates still bear the accusative. Instead, in Icelandic it is only the case that is assigned to the subject that matters. This follows from the assumption that impoverishment is strictly head-local: Impoverishment of a feature on a verbal head may only be triggered by features on the same head. It follows, then, that properties of the object may not influence impoverishment. The case of the subject, on the other hand, is presupposed to be represented within the verbal domain, for the simple reason that it depends on the verb. Subject and object case features are then simultaneously coded on the verb before assignment. Impoverishment may therefore modify the object case in the context of a given subject case. Crucially, all this happens before the case is actually assigned to the object. Head-locality of impoverishment can be maintained if impoverishment may apply before κ-Agree.

5.2.2 Abstract Nominative versus Morphological Nominative

If nominative objects come into being by means of impoverishment, as I propose, then nominative subjects and nominative objects bear distinct abstract cases. Only subjects can be assigned 'true', i.e. abstract nominative, while objects bear abstract accusative. This is a strong claim calling for further justification. As I will outline below, nominative on subjects and on objects behaves differently syntactically. This is entirely unexpected if both are instances of one single abstract case. In fact, nominative on objects behaves as an accusative, suggesting that both are identical on an abstract level.

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[4] Faroese provides an interesting contrast to Icelandic. Here DAT NOM structures are ruled out and DAT ACC structures are used instead. See (i) for an example.

(i) Mær líkar henda filmin
me.DAT likes this film.ACC (*NOM)
'I like this film.' (Woolford 2003: (12))

Under the view taken here this can be analysed as Faroese lacking the relevant impoverishment rule. The theory predicts that such objects are without exception ϕ-opaque. This is correct as verbs in DAT ACC structures always show default agreement (Woolford 2003, but see Thráinsson, Petersen, Jacobsen and Hansen 2004 for qualifications).

Consider ECM infinitives first. As in English, nominative on overt subjects is not available in non-finite clauses but the accusative is. The embedded subject can thus be marked with an accusative assigned by the matrix verb.

(8) a. Guðrún saknar Haraldar
Gudrun.NOM misses Harold.GEN
'Gudrun misses Harold.'
b. Ég taldi Guðrúnu í barnaskap mínum sakna Haraldar
I believed Gudrun.ACC in foolishness my to.miss Harold.GEN
'I believed Gudrun in my foolishness to miss Harold.' (Zaenen et al. 1985: 100)
c. Ég hafði talið Maríu vita svarið
I had believed Mary.ACC to.know the.answer.ACC (Woolford 2006: 122)

Crucially, nominative on objects does *not* pair with the subject nominative but with the accusative—it is available in infinitival clauses (note that the dative, being a lexical case, is unaffected by non-finiteness as well).

(9) a. Við töldum [henni hafa leiðst strákarnir/*strákana]
we believed her.DAT have.INF found.boring boys.the.NOM/*ACC
'We believed her to have found the boys boring.'
b. Að líka svona fáránleiki/*fáránleika!
to like.INF such absurdity.NOM/*ACC
'To like such absurdity!' (Sigurðsson 2006b: 293)

If the nominative on subjects and on objects is one and the same abstract case it is unclear why it is available for objects but not for subjects in infinitival clauses. If, on the other hand, the nominative in (9) is in fact an underlying accusative its different behavior is straightforwardly captured, as assignment of the accusative is unaffected by finiteness (cf. (8c)). Since infinitival verbs assign dative to their subjects just as finite verbs do, impoverishment yields the surface nominative form of the object.

Note furthermore that the object in DAT NOM constructions remains nominative if the clause is part of a control construction. This is illustrated in (10).

(10) Hún vonast til [að PRO leiðast ekki bókin]
she hopes for to PRO.DAT bore not book.the.NOM
'She hopes not to find the book boring.' (Sigurðsson 2004b: (12))

If the impoverishment analysis proposed here is to account for this fact there obviously has to exist a dative case feature that is to be assigned to the PRO subject because only then can the underlying accusative be impoverished to take nominative case exponents. As indicated in the gloss in (10), there is indeed some evidence that the PRO subject is marked with a dative (Sigurðsson 1991, 2008). It can be established on the basis of

simple finite clauses that floating quantifiers and certain indefinite pronouns, such as *einn* 'alone', agree with the subject for case (among other features):

(11) a. Strákarnir komust allir í skóla
the.boys.NOM got all.NOM.PL.MASC to school
'The boys all managed to get to school.'
b. Strákunum leiddist öllum í skóla
the.boys.DAT bored all.DAT.PL.MASC in school
'The boys were all bored in school.' (Sigurðsson 1991: 331)

(12) a. Ólafur fór einn í veisluna
Olaf.NOM went alone.NOM.MASC.SG to party.the
b. Ólafi leiddist einum í veilunni
Olaf.DAT was.bored alone.DAT.MASC.SG in party.the (Sigurðsson 2008: 412)

Strikingly, if the subject of a DAT NOM verb is PRO, these quantifiers and indefinite pronouns retain their dative agreement (or agreement for any other case that they would show in finite clauses). This is exemplified in (13) to (15).

(13) a. Strákarnir vonast til [að PRO komast allir í skóla]
the.boys.NOM hope for to PRO.NOM get all.NOM to school
b. Strákarnir vonast til [að PRO leiðast ekki öllum í skóla]
the.boys.NOM hope for to PRO.DAT bore not all.DAT in school
(Sigurðsson 1991: 331)

(14) a. Ólafur hafði ekki gaman af [að PRO leiðast einum í
Olaf.NOM had not pleasure of to PRO.DAT be.bored alone.DAT in
veislunni]
party.the
b. Ólafi leiddist [að PRO leiðast einum í veislunni]
Olaf.DAT was.bored to PRO.DAT be.bored alone.DAT in party.the

(15) a. Ólafur hafði ekki gaman af [að PRO fara einn í veiluna]
Olaf.NOM had not pleasure of to PRO.NOM go alone.NOM to party.the
b. Ólafi leiddist [að PRO fara einn í veiluna]
Olaf.DAT was.bored to PRO.NOM go alone.NOM to party.the
(Sigurðsson 2008: 412)

If these dependent elements show dative agreement with the PRO, then PRO must itself be assigned dative. The data just considered thus provide evidence that the dative feature is active in non-finite clauses as well. Therefore, the impoverishment rule at hand also applies to non-finite clauses without further assumptions.

5.2.3 Verbal Agreement

The impoverishment operation of the object case feature discussed above has the effect that it bleeds insertion of accusative case markers on the object. However, as for ϕ-agreement, the object is still opaque (given that accusatives never trigger verb agreement and are therefore assumed to be standardly ϕ-opaque). This is why not all nominative objects are capable of triggering verbal agreement. As proposed for Hindi, Marathi/Punjabi, Basque, and Itelmen in the previous sections, non-standard agreement is brought about by impoverishment that deletes an offending case subfeature. Interestingly, for determining whether a given nominative object may trigger agreement or not only object properties are relevant. Features on the verb do not play a role. This suggests a second impoverishment operation that applies to the object's case feature but takes place *after* assignment. This impoverishment rule has no effect on markers but renders the object ϕ-transparent. Again, domain-locality ensures that only object features trigger impoverishment. Put more concretely, since only 3rd person objects trigger agreement, impoverishment applies on objects with a 3rd person feature.

5.2.4 The System

The relevant assumptions to account for the Icelandic facts outlined above is summarized in (16). The case feature under consideration here is the accusative in (16a). The nominative is decomposed in order to identify the markers in (16b). For sake of exposition, I will confine myself to personal pronouns since 1st and 2nd person objects must be personal pronouns. As for 3rd person DPs, the system can equally well be extended to include accusative and nominative case markers. Given the case specification of the personal pronouns and subfeatures of nominative and accusative it is obvious that the forms on the left-hand side are nominative. On their right the corresponding accusative form is listed. Markers for forms not listed (e.g. 3SG.MASC) are syncretic for nominative and accusative, so that there exists only one form for both cases in the first place. The impoverishment rules in (16c) correspond to the impoverishment operations discussed above: (16ci) applies on verbs *before* κ-Agree. (16cii) is active *after* κ-Agree. This, however, is not due to an extrinsic ordering but results from the fact that their respective context is met only at these points in the derivation. Visibility of DPs to ϕ-probing is constrained by (16d). The feature content of the syntactic heads is given in (16e).[5] Again, other structures are equally conceivable.

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[5] Under present assumptions, for the dative to influence the accusative via impoverishment both features have to be represented on a single head at one stage of the derivation. (16e) simply presupposes that this is the case. Several possibilities arise to achieve this result. First, under the assumption the the dative, being idiosyncratic, is a case of V, one might employ V-to-*v*-movement before case assignment applies. Second, the dative might be on *v* to begin with. Lexical idiosyncrasy can then be accomodated

(16) a. *Case subfeatures*

$$\textsc{Nominative}: \begin{bmatrix} -\text{obl} \\ -\text{obj} \\ -\text{gov} \end{bmatrix} \qquad \textsc{Accusative}: \begin{bmatrix} -\text{obl} \\ -\text{subj} \\ +\text{gov} \end{bmatrix} \qquad \textsc{Dative}: \begin{bmatrix} +\text{obl} \\ +\text{gov} \\ \vdots \end{bmatrix}$$

b. *Markers*

$$/\text{ég}/ \leftrightarrow \begin{bmatrix} \textsc{1sg}, \\ [-\text{obl}] \end{bmatrix} \qquad /\text{mig}/ \leftrightarrow \begin{bmatrix} \textsc{1sg}, \\ [-\text{obl},+\text{gov}] \end{bmatrix}$$

$$/\text{þú}/ \leftrightarrow \begin{bmatrix} \textsc{2sg}, \\ [-\text{obl}] \end{bmatrix} \qquad /\text{þig}/ \leftrightarrow \begin{bmatrix} \textsc{2sg}, \\ [-\text{obl},+\text{gov}] \end{bmatrix}$$

$$/\text{hún}/ \leftrightarrow \begin{bmatrix} \textsc{3sg.fem}, \\ [-\text{obl}] \end{bmatrix} \qquad /\text{hana}/ \leftrightarrow \begin{bmatrix} \textsc{3sg.fem}, \\ [-\text{obl},+\text{gov}] \end{bmatrix}$$

$$/\text{við}/ \leftrightarrow \begin{bmatrix} \textsc{1pl}, \\ [-\text{obl}] \end{bmatrix} \qquad /\text{okkur}/ \leftrightarrow \begin{bmatrix} \textsc{1pl}, \\ [-\text{obl},+\text{gov}] \end{bmatrix}$$

$$/\text{þið}/ \leftrightarrow \begin{bmatrix} \textsc{2pl}, \\ [-\text{obl}] \end{bmatrix} \qquad /\text{ykkur}/ \leftrightarrow \begin{bmatrix} \textsc{1pl}, \\ [-\text{obl},+\text{gov}] \end{bmatrix}$$

$$/\text{þeir}/ \leftrightarrow \begin{bmatrix} \textsc{3pl.masc}, \\ [-\text{obl}] \end{bmatrix} \qquad /\text{þá}/ \leftrightarrow \begin{bmatrix} \textsc{3pl.masc}, \\ [-\text{obl},+\text{gov}] \end{bmatrix}$$

c. *Impoverishment rules*[6]

(i) $[+\text{gov}] \rightarrow \varnothing \,/\, \_\_\, [\textsc{dative}]$

(ii) $[-\text{subj}] \rightarrow \varnothing \,/\, \_\_\, [\textsc{person}: 3 \wedge \text{object}]$

d. *ϕ-transparency*

[−subj], [+gov], and [+obl] render DPs opaque for the verbal ϕ-probe

e. *Feature content*

$$v: \begin{bmatrix} \textsc{dative} \\ \textsc{accusative} \end{bmatrix} \qquad \text{T}: [u\phi]$$

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by assuming that this special, dative assigning *v* head may only merge with an idiosyncratic class of V heads. Lastly, one might relax the requirement of head locality for impoverishment. Instead, all heads within an extended projection may be visible for impoverishment. V, comprising the dative, may then influence the accusative on *v* as both verbal heads belong to a single extended projection. Pending further evidence, I will not make a choice among these possibilities here.

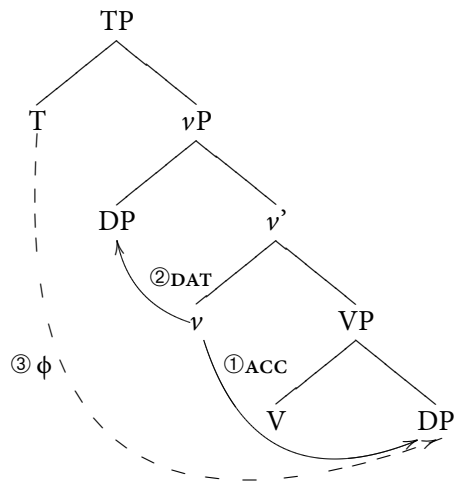
[6] The impoverishment rule (16cii) is easily translated into a constraint ranking with the same effect, cf. (i).

(i) $\left\{ \begin{array}{l} *\text{Obj}/1 \;\&\; \textsc{max-case}, \\ *\text{Obj}/2 \;\&\; \textsc{max-case} \end{array} \right\} \gg *[-\text{subj}] \gg *\text{Obj}/3 \;\&\; \textsc{max-case}$

As for rule (16ci), notice that in normal ditransitives the indirect object bears dative case, while the direct object appears as a morphological accusative. Thus, impoverishment must not apply in these

The feature distribution in (16e) gives rise to the following general derivation, depicted in (17): First, V and its complement are merged, followed by adding *v*. *v* may undergo structural optimization (16ci), depending on its feature content. Next, the (possibly impoverished) accusative is assigned to the object (①). Subsequently, the subject is merged into Spec,*v*P and assigned case by *v* (if dative; step ②). Lastly, T is merged, probing into its complement for ϕ-features. If the subject is dative it is opaque, hence probing continues further down, eventually encountering the object (③). Here the availability of ϕ-agreement depends on whether impoverishment rule (16cii) has taken place.

(17)



The working of this system is now illustrated on the basis of some examples. Take (5b)=(18) first. Here, the subject is dative and the (nominative) object second person.

(18) ?Henni leiddist þú
she.DAT bored.3SG you.SG
'She bored you.'

As a default, the verb assigns the standard object case to its complement—the accusative. Since, however, the verbal domain also contains a dative feature to be assigned to its subject, impoverishment rule (16ci) deletes the subfeature [+gov]. The remaining

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contexts. This follows without further ado from the head locality condition on impoverishment if the dative is assigned by a different head than the accusative (plausibly an applicative head). A minor point concerns the technical question whether (16ci) deletes [+gov] of a dative case in the context of the same dative. Notice that a reminiscent deletion operation applied to 3rd person absolutive DPs in Basque and Itelmen: Deletion of a person feature was licensed under a certain value of this very feature. All else being equal, nothing prevents a similar operation on datives in Icelandic. Notive, however, that the dative remains ϕ-opaque regardless of whether deletion of [+gov] has taken place or not as the dative by assumption comprises the subfeature [+obl]. Thanks to Marc Richards and Fabian Heck for pointing this out to me.

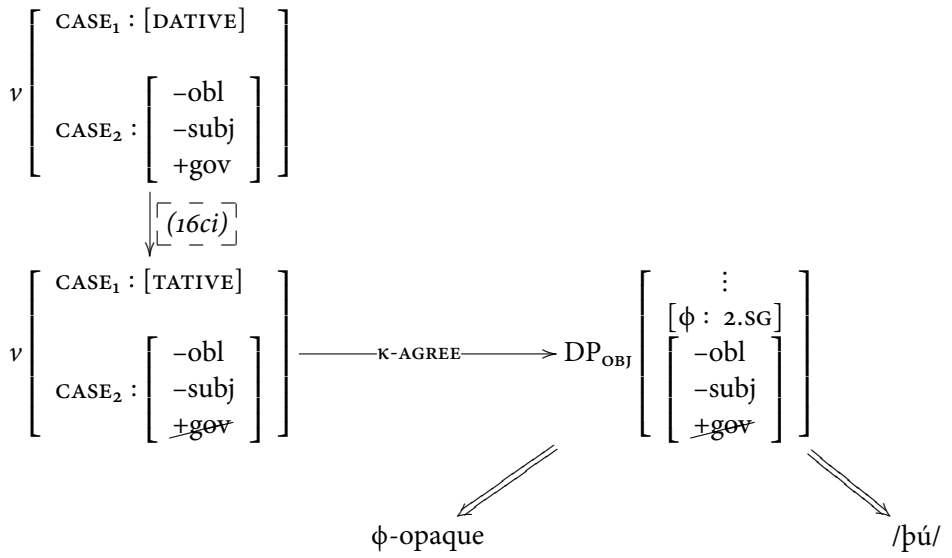

Figure 5.1
Sample derivation for (18): *Henni leiddist þú.* 'She bored you.'

feature matrix $\left[\begin{smallmatrix}-\text{obl}\\-\text{subj}\end{smallmatrix}\right]$ is therefore assigned instead of the fully specified case. Since the object DP is second person the context of (16cii) is not met at any stage of the derivation. Thus, the object ends up with the case feature $\left[\begin{smallmatrix}-\text{obl}\\-\text{subj}\end{smallmatrix}\right]$. Due to deletion of [+gov], insertion of *þig* is bled, leading to the choice of the exponent *þú*. Because of the presence of [−subj] the object is still ϕ-opaque. The verbal ϕ-probe hence cannot be valued by means of agree and resort to default agreement is necessary instead (and, in fact, might also be unavailable for those speakers who find (18) bad). This derivation is depicted in figure 5.1.

As the next example, consider a similiar configuration with a 3rd person object, such as (4b), repeated as (19). Again, the subject is dative but now the object is 3rd person.

(19) Henni líkuðu þeir
her.DAT liked.3PL they.NOM
'She liked them.'

As in the case of the previous example, the accusative on the object is impoverished by (16ci). After case assignment of $\left[\begin{smallmatrix}-\text{obl}\\-\text{subj}\end{smallmatrix}\right]$ to the object, the context of (16cii) is met, leading to further impoverishment. The result is the case feature [−obl] on the object. The subset principle again rules out attachment of the accusative form *þá*. Instead, *þeir* is inserted. Because both impoverishment rules have applied, [−subj] as well as [+gov] are deleted, rendering the object ϕ-transparent. ϕ-probing of the verb thus finds the object features and enters into an agree relation. See figure 5.2 for an illustration of this case.

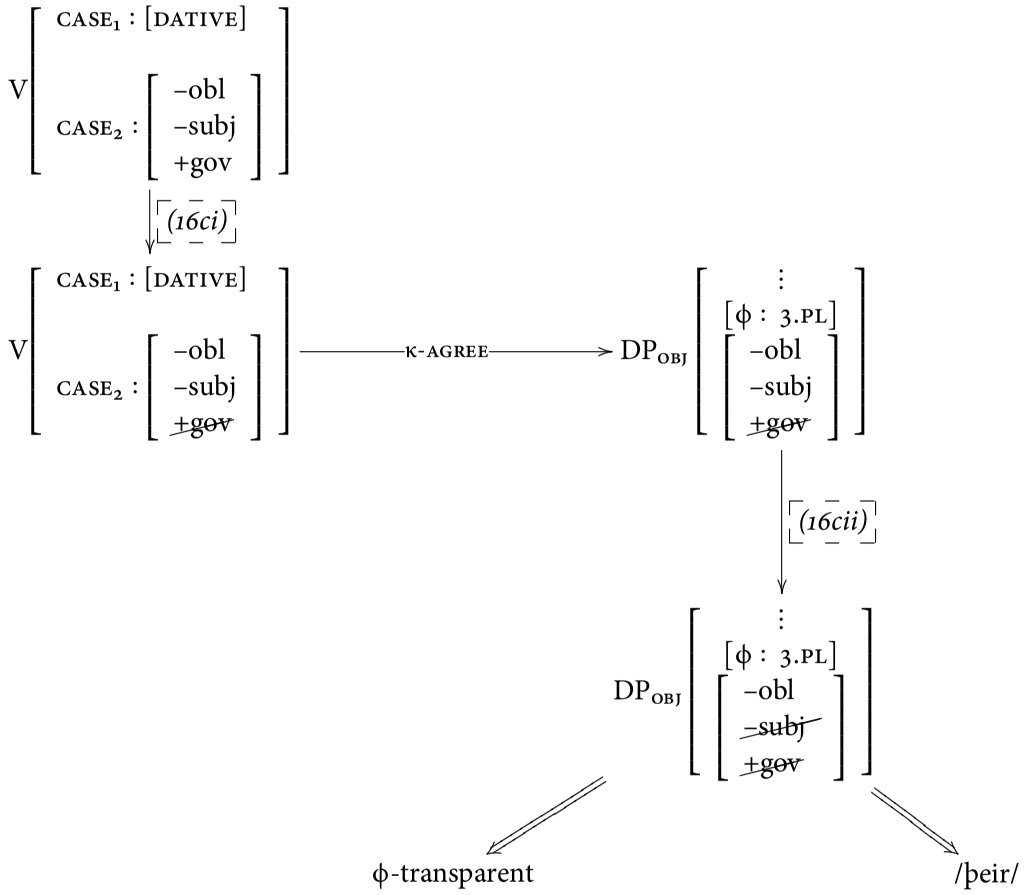

Figure 5.2
Sample derivation for (19): *Henni líkuðu þeir.* 'She liked them.'

So far, I have given a derivation with impoverishment on the verb but no impoverishment on the object and another one with applications of both impoverishment operations. If only (16ci) applies, the object bears a nominative and is ϕ-invisible. Application of both (16ci) and (16cii) yields a nominative object that triggers verbal agreement. What happens if impoverishment on the object applies without prior impoverishment on the verb? The relevant cases are those with a nominative subject and third person object, such as (20). In these configurations, the object takes an accusative exponent and does not trigger verb agreement.

(20) Ég hafði séð hana
I had seen her.ACC
'I had seen her.' (Zaenen et al. 1985: 97)

Given the system in (16), the result turns out to be indistinguishable from non-impoverished objects on the surface. It is only [–subj] that is deleted, yielding insertion of the accusative marker. Since [+gov] is still present, the object is ϕ-opaque. This derivation hence ends up with an accusative form that does not trigger agreement, which is also true for default accusatives (for illustration, see figure 5.3). It thus turns out that there is no necessity to restrict the impoverishment rules at hand in their application. That is an important result because it specifically illustrates that the impoverishment rule (16cii) need not be made sensitive to impoverishment in (16ci). Such a move would constitute a non-trivial extension of the proposed system because in order to achieve this, the context of impoverishment (16cii) on the object would need to make reference to the *absence* of the feature [+gov], i. e. it would have to be negatively defined. Another possibility would be to make impoverishment sensitive to prior operations in the derivation, which would also greatly enhance the complexity of impoverishment operations. Thus, the result achieved for (20) under the proposed system is desirable, as it shows that no such extension in computational complexity is necessary to achieve empirical coverage.

The fourth logical possibility (i.e. neither impoverishment rule applies) is not particularly interesting from the point of view of the present discussion. In this case the object ends up bearing the default accusative feature, resulting in accusative exponence and ϕ-opaqueness.

5.2.5 Ditransitives

Case feature impoverishment may also apply in derived contexts. Icelandic famously has two passive structures for NOM DAT ACC verbs such as *gefa* 'to give' (note that there also exist ditransitives with different cases but the NOM DAT ACC class is the only one productive today, cf. Jónsson 2000). In the *gefa*-class it is either the dative or the accusative that may become the subject.

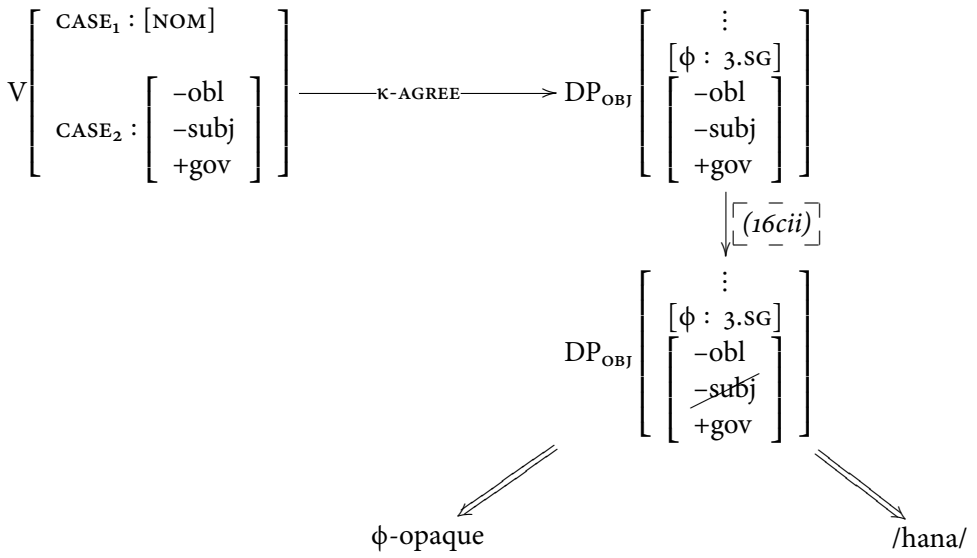

Figure 5.3
Sample derivation for (20): *Ég hafði séð hana.* 'I had seen her.'

(21) a. Konunginum voru gefnar ambáttir
the.king.DAT were given.FEM.PL slaves.NOM.FEM.PL
'The king was given maidservants.'
b. Ambáttin var gefin konunginum
the.slave.NOM.SG was given.FEM.SG the.king.DAT
'The maidservant was given to the king.' (Zaenen et al. 1985: 112)

In (21a), *konunginum* 'king.DAT' is the subject and passes all subjecthood tests. In contrast, *ambáttin* 'slave.NOM' is promoted to subject in (21b). This corresponds to transitive clauses: In NOM ACC constructions the accusative is turned into a nominative and becomes the subject, while for NOM DAT verbs the dative is promoted to subject, retaining its case. This is illustrated in (22) and (23), respectively.

(22) a. Hún stækkaði garðinn
she.NOM enlarged garden.the.ACC
b. Garðurinn var stækkaður
garden.the.NOM was enlarged (Sigurðsson 2006a: (22))

(23) a. Hún seinkaði ferðinni
she.NOM delayed journey.the.DAT
b. Ferðinni var seinkað
journey.DAT was delayed (ibid.: (24))

In passives of ditransitives with both an accusative and a dative object both may become the subject of *gefa*-class verbs. I have proposed above that an accusative assigned to an object may be impoverished (resulting in nominative exponents) if dative case is assigned to the subject. One might extend this analysis to (21a). Under this perspective, then, the object is underlyingly assigned an impoverished accusative. The derived subject *konunginum* 'king.DAT' is assigned dative, so that the object case is impoverished. In (21b), on the other hand, passivization absorbs the accusative feature and hence 'true' nominative is assigned to the subject. Indeed, the nominatives in (21a) and (21b) behave differently, as expected if they are distinct abstract cases. Consider, e.g., ECM constructions.

(24) a. Ég tel konunginum hafa verið gefnar ambáttir
I believe the.king.DAT have been given.FEM.PL slaves.NOM
'I believe the king to have been given maidservants.'

b. Ég tel ambáttina hafa verið gefna konunginum
I believe the.slave.ACC have been given.ACC the.king.DAT
'I believe the maidservant to have been given to the king.'

(Zaenen et al. 1985: 112)

(24b) shows that the nominative assigned to the subject is not available in infinitives, leading to accusative assignment from the matrix verb. Nominative on the object, however, is unaffected by non-finiteness, cf. (24a). This is unsurprising if the object case is actually abstract accusative.

The behavior of derived dative subjects indicates that the impoverishment rule at hand is not verb-specific. Rather, it applies whenever there is a dative to be assigned to the subject. This holds for ditransitive verbs like *gefa* 'to give' only if they are passivized.[7]

Interestingly, the restriction for the person of the nominative (or, as I have argued, verb agreement with it) is found for the DAT NOM passive (25a), but not for the NOM DAT passive (25b). *Sýna* 'to show' is a *gefa*-class ditransitive (Rezac 2000).

(25) a. *Henni voruð sýndir / sýndar þið
her.DAT were.2PL shown.NOM.MASC.PL shown.NOM.FEM.PL you.NOM.PL

b. Þið voruð sýndir / sýndar henni
you.NOM.PL were.2PL shown.NOM.MASC.PL shown.NOM.FEM.PL her.DAT
'You were shown to her.' (Sigurðsson 1996: (65a, 66a))

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[7] Recall from footnote 6 that I have assumed that dative and accusative in ditransitives to be assigned by distinct heads. This was suggested by the observation that no impoverishment of the accusative takes place in ditransitives. As evident from the discussion in the main text, the dative seems to affect the accusative if passivization applies. This might well be taken as an argument for lexical passivization. Note also that DAT ACC ditransitives are peculiar in themselves as they appear to violate Burzio's generalization, suggesting that there is indeed something more going on here. I will leave this matter for future research.

In sum, the above argument indicates that the approach to transitive DAT NOM predicates can be extended to underlying NOM DAT ACC ditransitives that undergo passivization and promotion-to-subject of the dative.

5.3 The Role of Default Agreement

As illustrated in figure 5.1, under the present approach there exists a convergent derivation for sentences with $1^{st}/2^{nd}$ person nominative objects. As argued at length above, I consider this a virtue since such objects arguably do not cause ungrammaticality in themselves. Consequently, some speakers find such sentences perfectly grammatical with default agreement on the verb. This is indeed the prediction of the proposed analysis. However, as also noted above, far from all native speakers judge sentences like (18) to be grammatical. For some, they are marginal; for others they are completely ungrammatical. To the best of my knowledge, there exists no variation with respect to $1^{st}/2^{nd}$ person objects that trigger verb agreement—such constructions are bad for *all* speakers. The present analysis accounts for this fact since, given the necessity of impoverishment (16cii) for agreement, $1^{st}/2^{nd}$ person objects are never ϕ-transparent. It follows, then, that variation only exists for constructions with default agreement. Note that the above analysis rules out agreement with $1^{st}/2^{nd}$ person objects but is silent about the availability of default agreement as a last resort operation. One might therefore speculate that the variation concerning (18) is tied to the availability of default agreement in such structures. Speakers that do not allow $1^{st}/2^{nd}$ person nominative objects might simply not have default agreement available in these constructions. As a consequence, there is no way for them to get rid of the unvalued verbal ϕ-features (subject and object being ϕ-opaque), resulting in a crash due to non-interpretability. This line of reasoning extends the present analysis to accomodate the range of judgements on (18).

If it is the possibility of default agreement that is the crucial issue here, these sentences are predicted to improve *whenever there is no need to resort to default agreement*. There is some indication that is indeed the case: Firstly, sentences with nominative objects are judged fine if the object is third person. Those are ϕ-transparent, so that no default agreement is necessary. Secondly, there is no restriction on ECM nominatives, all persons being equally fine. Consider (7a), repeated here as (26) for convenience.

(26) Ykkur þykir / *þykum / *þykia við góð í fótbolta
you.PL.DAT think.3SG think.1PL think.3PL we.NOM good in football
'You think we are good in football.'

Arguably, the 3SG matrix verb form is *not* default agreement but real agreement with the embedded clause. This is suggested by Sigurðsson and Holmberg (2008) and Kučerová (2007), who notes that 3SG agreement in the presence of a third person plural nominative object is only possible in a bi-clausal environment (also cf. Sigurðsson 2004a). Consider the following contrast:

(27) a. Mér þóttu / þótti [þær vera duglegar]
me.DAT thought.3PL thought.3SG they.NOM be industrious
'I thought they were industrious.' (Sigurðsson 1996: (59))

b. Henni tæmdust / *tæmdist margir arfar
her.DAT emptied.3PL emptied.3SG many inheritances.NOM
'She got many inheritances.' (ibid.: (54c))

The availability of 3SG agreement in (27a) but its unavailability in (27b) suggests that it is indeed the embedded clause that allows 3SG agreement by functioning as a potential goal. Thus, no last resort mechanism is involved here.[8] As a third indication that the variation at hand is indeed tied to default agreement comes from embedded infinitives. Sigurðsson and Holmberg (2008) note that any differentiation between third and non-third person nominative objects disappears if the verb is non-finite, cf. (28).

(28) ?Hún vonaðist auðvitað til að leiðast við/þið/þeir ekki mikið
she hoped of course for to find-boring.INF we/you/they.NOM not much
'She of course hoped not to find us/you/them very boring.'
(Sigurðsson and Holmberg 2008: (271))

Since in (28) the verb is non-finite, there is no need to resort to default agreement. Consequently, there is no grammaticality difference between third person and non-third person nominatives. This strongly suggests that it is indeed default agreement that is crucial here.[9]

Summing up, I have suggested that the variation of grammaticality judgements for sentences with non-third person nominative objects + default agreement of the verb might be treated as variation in the availability of default agreement. Empirically, such a treatment straightforwardly captures the fact that judgements are levelled across all three persons whenever no retreat to default agreement is necessary. Conceptually, it is consistent with the analysis proposed in this section.

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[8] Cf. for example the well-known case of Tsez, which allows agreement between a matrix verb and an embedded clause for gender (e.g. in (i)).

(i) eni-r [uz-a magalu b-ac-ru-li] r-iy-xo
mother-DAT [boy-ERG bread.III.ABS III-eat-PAST-NMLZ].IV IV-know-PRES
'The mother knows the boy ate the bread.' (Chandra 2007: 49)

In (i) the embedded clause has the default gender class IV, which the matrix verb *riyxo* 'know' agrees with (see also Polinsky and Potsdam 2001).

[9] See, however, Bobaljik (2008), who claims that the person restriction holds for infinitives as well.

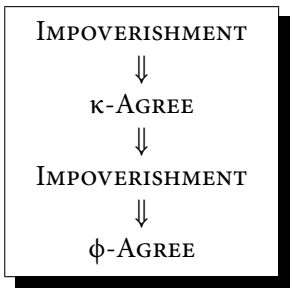

Figure 5.4
The order of operations in Icelandic

5.4 Summary

In summary, I have proposed an analysis for the behavior of Icelandic nominative objects that crucially relies on the idea that impoverishment and agreement may freely interact, being part of the same module. Case feature impoverishment may apply on the verb in the presence of another case feature. This, coupled with the head locality restriction on impoverishment, derives the fact that object properties are irrelevant for the actual case marker that is attached to the object. After this impoverishment might have taken place, κ-Agree applies. A second impoverishment rule may then further affect the case feature. Again, by head locality, this impoverishment is insensitive to verbal properties. That second impoverishment operation affects ϕ-transparency of the object by feeding agreement. As a last step, ϕ-Agree takes place. Speakers that do not allow local person nominative objects even with default agreement on the verb have been argued to make use of an additional, independent constraint against default agreement under certain conditions. Some empirical evidence was presented in favor for this view. Concretely, these sentences improve whenever there is no need for default agreement.

The order of operations employed in this section is summarized in figure 5.4. This free interaction between agreement and impoverishment is incompatible with a view of grammatical architecture that situates all impoverishment and all Agree operations within different grammatical modules that are extrinsically ordered. Instead, Agree and impoverishment must be active within one and the same component. Only then is this kind of interaction possible.

6 Global Case Splits

A phenomenon in natural language which poses an intriguing problem for approaches that seek to minimize the syntactic computation space are so-called *global case splits* (Silverstein 1976).[1] As is well known, many languages show case marker alternation on arguments depending on properties of this very argument, yielding differential argument encoding. They are attested in, e.g., Hindi (cf. section 3.1.1), Dyirbal (Dixon 1972), Hebrew (Danon 2006), Swahili (Lyons 1999), Turkish (Enç 1991), Spanish (Torrego 1998), and many other languages. In the case of global case splits, the marker attached to one argument depends on the properties of another argument. Such constructions seem to enforce a *non-local* analysis: If the marker on, say, the subject depends on properties of the object, then—at first glance—both must be simultaneously present within the domain of syntactic computation, calling for a concept of computational locality that arguably comprises the whole clause. In this section I propose an analysis of these apparent non-local dependencies that makes crucial use of the free interaction of Agree and impoverishment. Specifically, as defined in section 2.4, I treat case assignment as an instance of feature copying and therefore as an instance of Agree. As already suggested for Hindi, Marathi/Punjabi, Basque, Itelmen and Icelandic in the preceding chapters, a case feature may be impoverished before it undergoes Agree. Following Keine and Müller (2008, 2009), I consider differential argument encoding as being brought about by impoverishment which in turn results from harmonic alignment of scales. The basic line of reasoning will be the following: Impoverishment applies to a feature α_+ on head Γ, triggered by features on Γ. The result is the impoverished feature α_-. Agree then copies α_- to a second head Δ where vocabulary insertion takes place and is sensitive to the presence of α_+ or α_-. This yields the impression that marker insertion into Δ is sensitive to features on Γ. Under the perspective taken here, however, this is an epiphenomenon. Strict head-locality of vocabulary insertion and impoverishment can be maintained if AGREE, if applying after impoverishment, may spread the information that impoverishment has taken place to a second head. Globality of computation is thus only superficial.

In this section, I will propose analyses for three languages that exhibit a system of global case splits: Umatilla Sahaptin, Yurok, and Kolyma Yukaghir.[2]

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[1] Previous treatments of global case splits are Aissen (1999b), de Hoop and Malchukov (2008), Béjar and Rezac (2009), and Georgi (2009).

[2] Other attested examples of global case splits are Tauya (MacDonald 1990), Awtuw (Feldman 1986), Fore (Scott 1977), Kashmiri (Wali and Koul 1997), and Arizona Tewa (Kroskrity 1978, 1985).

6.1 Umatilla Sahaptin

This section will outline the general properties of the global case split in Umatilla Sahaptin (Penutian; Washington, Oregon) and propose an analysis based on the free interaction of agreement and impoverishment.

The main subject of this section is the distribution of the subject case marker *-nɨm* (the so-called 'inverse ergative'), which appears if the subject is 3rd person singular and the object is 1st or 2nd person. In all other cases the subject is zero marked (Rigsby and Rude 1996, Rude 1997a, Zúñiga 2002). This marker distribution appears global at first glance since properties of the object have to be taken into account when determining case marking of the subject. (1) and (2) provide relevant data.

(1) a. ín=aš á-q'inu-ša payúwii-na łmáma-an
I=1SG 3ABS-see-IMPV sick-OBJV old.woman-OBJV
'I see the sick old woman.' (Rigsby and Rude 1996: 674)

b. i-q'ínu-ša=aš ɨwínš-nɨm
3NOM-see-IMPV=1SG man-INV.ERG
'The man sees me.' (Rude 1997a: 332)

c. ɨwínš i-tuxnána yáamaš-na
man 3NOM-shot mule.deer-OBJV
'The man shot a mule deer.'

d. ín=aš á-tuxnána yáamaš-na
I=1SG 3ABS-shot mule.deer-OBJV
'I shot a mule deer.' (Rigsby and Rude 1996: 676)

(2) xʷɨsaat-nɨm=naš i-ní-ya ináy k'úsi
old.man-INV.ERG=1SG 3NOM-give-PST me horse
'The old man gave me a horse.' (ibid.: 674)

Out of (1) only in (1b) is the subject 3SG and the object 1st or 2nd person. As a consequence, the subject is marked with *-nɨm* in (1b) but zero marked in all other examples. (2) shows that in ditransitives it is only the indirect object that is relevant. It being 1st person in (2), the subject bears *-nɨm*. If, on the other hand, it was the direct object *k'úsi* 'horse' that was relevant for the choice of the subject marker, the zero marker would be attached instead (this being a 3>3 configuration).

The contrasts in (1) might be plausibly analyzed as differential argument encoding. Based on Hale/Silverstein hierarchies, 3rd person subjects are more marked than non-3rd person subjects. Correspondingly, 1st or 2nd person objects are less canonical than 3rd person objects. Therefore, the appearance of the marker *nɨm* corresponds to hierarchical markedness: Morphological case marking occurs in highly untypical configurations, i.e. those comprising a 3rd person subject and a non-3rd person object.

The crucial difference to local case splits such as in Hindi is that the marker alternation is—at least partly—conditioned by a co-argument. The main claim of this chapter is that under the assumption that the marker alternation in differential argument encoding is brought about by impoverishment and impoverishment may apply *before* Agree, the contrast in (17) is straightforwardly accounted for.

The empirical generalization concerning the distribution of the subject case markers is summarized in (3).

(3) *Conditions for subject case markers*

a. /-nɨm/ ↔ [SUBJ=3SG] ∧ [OBJ=1/2]

b. /-Ø/ ↔ $\left\{\begin{array}{c}\text{[OBJ=3]}\\ \vee \\ \text{[SUBJ=1/2]}\\ \vee \\ \text{[SUBJ=PL]}\end{array}\right.$

The subject marker thus solely depends on person and number properties of subject and object. As will turn out to be crucial for the analysis of global case splits, the verb agrees with subject and object for ϕ-features. There is hence independent morphological evidence that these features must be represented within the verbal domain. We might therefore entertain the possibility that it is not the ϕ-features of the object itself that influence case marking of the subject. Rather, the object's ϕ-agreement features on the verb may affect case marking of the subject. The basic intuition of the analysis proposed below will be that ϕ-agreement of subject and object on the verb trigger impoverishment of the case feature subsequently assigned to the subject. This analysis crucially relies on the assumption that in Umatilla Sahaptin, ϕ-Agree takes place before case assignment.

As for the exponence of verbal ϕ-agreement, 3rd person subject and object agreement is instantiated as a verbal prefix and 1st/2nd person agreement as a second-position enclitic. Take (1a) as an example: 3rd person object agreement is coded by the verbal prefix *á-*. The marker for 1st person subject agreement is the enclitic *-aš*, which is attached to the subject pronoun *ín* '1SG'. I assume that both pieces of agreement information are local enough to trigger case feature impoverishment on the verb as both are arguably present within the verbal domain. In other words, I assume that syntactically the relevant agreement features are present on T (see below). Displacement of these ϕ-features to the second position takes places by means of a *morphological* dislocation operation. It is hence irrelevant as far as narrow syntax is concerned.[3] A list

[3] Note that within Distributed Morphology there is no difference concerning the theoretical status of clitics on the one hand and affixes on the other. Clitics, like affixes, are treated as syntactic heads. The only difference between the two is that clitics undergo morphological *merger* (Marantz 1988, Halle and Marantz 1993, 1994, Embick and Noyer 2001).

Table 6.1 Agreement markers in Umatilla Sahaptin

AGREEMENT ENCLITICS			
naš	1SG	*pam*	2PL
na	1PL.INCL	*maš*	1SG>2SG
nataš	1PL.EXCL	*mataš*	1>2 (one or both PLURAL)
nam	2SG		
AGREEMENT PREFIXES[4]			
i-	3.NOM	*pa-*	3PL.NOM
á(w)-	3.ABS		

based on Rigsby and Rude (1996: 675)

of the relevant morphemes is given in table 6.1. It is obvious that the verbal agreement markers are sensitive for person and number features of subject and object, which thus must be represented on the verb.

Note the asymmetry between direct and indirect objects observed on the basis of (2): Only the indirect object is relevant for determination of subject marking. Strikingly, this correlates with object agreement: only the indirect object triggers object agreement (*naš* in the case at hand). The present proposal treats the case marker alternation as not being directly determined by the arguments themselves but indirectly by their agreeing ϕ-features. On this view, the different behavior of direct and indirect objects follows immediately: Since the direct object evidently does not agree (quite plausibly due to an intervention effect of the indirect object), its ϕ-features are not present within the verbal domain. Therefore, it cannot have any effect on the subject case marker. This constitutes further evidence for one of the central claims pursued here, namely, that impoverishment is a strictly local operation.

Having established that the verbal domain contains the relevant ϕ-features of subject and object, I now turn to the derivation of the context of impoverishment. Because of the meta-principle of Iconicity the overt marker *-nim* has to be treated as the default subject case marker. Impoverishment may then lead to insertion of the zero marker. Note, however, that the configurations where the zero marker appears do not form a natural class: if *either* the object is 3rd person *or* the subject is non-3rd person *or* the subject is plural (see (3)). If the context of impoverishment is explicitly stated, disjunction or negation would have to be employed. An approach in terms of harmonic alignment of scales, on the other hand, can capture such seemingly inhomogeneous applications of impoverishment. There is independent evidence that such an approach is on the right track, since 3rd person subjects and 1st/2nd person objects are hierarchically

[4] This is only a subset of the possible verbal prefixes in Sahaptin. See Rigsby and Rude (1996: 675f.) and Zúñiga (2002: 155ff.) for further discussion.

marked. Harmonic alignment of scales can straightforwardly capture the fact that overt markedness (presence or absence of a marker) correlates with hierarchical markedness. It is only crucial that the relevant contexts are *less marked than a certain cut-off point* established by the insertion of a markedness constraint. No resort to natural classes is thus necessary.

There is, however, one inconsistency—the *number* condition. Assuming that the number scale is 'singular > plural', plural subjects are *more* marked than singular subjects, as subjects align with the upper end of the hierarchy. It is therefore unclear why 3SG subjects can be marked with *-nim* but (more marked) 3PL subjects cannot. In order to handle this fact I assume that the number property is not derived by scales but that the marker *-nim* is idiosyncratically specified for [NUMBER: SG] and can thus never be attached to plural subjects. Thus, the number scale does not enter into harmonic alignment. It is only brought about by marker specification. Since *-nim* is attached to subjects, this claim furthermore derives the fact that only the number feature of the subject but not the object is relevant (as can be verified by (3)). This is because a subject marker cannot be sensitive to number features on the object.[5]

The scale effects are derived by means of harmonic alignment and local conjunction in the following way: Having excluded number, the relevant scales for Umatilla Sahaptin are the ones in (4).[6]

(4) SCALES

a. *Person Scale*

$$\overbrace{1^{st} > 2^{nd}}^{\text{Local}} > \overbrace{3^{rd}}^{\text{Non-local}}$$

[5] With that in mind, one might wonder whether a further specification of *-nim* for 3rd person subjects is also tenable. This specification would void the argument made above that a rule-based conception of impoverishment would need to resort to a disjunction. Impoverishment would then only apply if the object is 3rd person. Non-appearance of the marker in '1/2>1/2' combinations would instead be implemented by the morpho-syntactic specification of *-nim* (I am grateful to Gereon Müller for pointing this possibility out to me). While tenable in principle, such a move would leave unaccounted for the fact that *-nim* is attached only in the most marked person combinations, a fact that immediately falls into place if impoverishment is conditioned by both subject and object properties. Under the marker specification approach, furnishing *-nim* with, e.g., a first person feature would be equally possible, making the clear prediction that the distribution of these case markers does not in any relevant way correlate with markedness. This, however, is not what the evidence suggests. As will be discussed in more detail in section 6.4.2, there exists a striking correlation between morphological markedness and hierarchical markedness in both local and global case splits. Given that impoverishment may derive this correlation from a principled basis but mere marker specification may not, an impoverishment approach is to be preferred. Consequently, the person feature of the subject seems best treated as a conditioning factor for impoverishment.

[6] For the sake of convenience, I will work with the simplified person scale 'Local > Non-local' here. The following derivation can however equally well be carried out with the more complex version of the person scale.

b. *Grammatical Function Scale*
Subject > Object

For the sake of exposition, I will go through the derivation of the constraint ranking step by step. First, harmonical alignment yields (5).

(5) *Harmony Scales*
a. Subj/Loc > Subj/NLoc
b. Obj/NLoc > Obj/Loc

These harmony scales are then transformed into constraint rankings with the reversed order, cf. (6).

(6) *Constraint ranking*
a. *Subj/NLoc ≫ *Subj/Loc
b. *Obj/Loc ≫ *Obj/NLoc

As both subject and object properties are relevant for triggering impoverishment, the rankings in (6) have to be combined. This is achieved by local conjunction in (7). Recall that the local conjunction of two constraints A and B is violated if both constraints A and B are violated within a given domain (by assumption the syntactic head).

(7) *Local conjunction of (7)*
a. *Subj/NLoc & *Obj/Loc ≫ *Subj/NLoc & *Obj/NLoc
b. *Subj/Loc & *Obj/Loc ≫ *Subj/Loc & *Obj/NLoc
c. *Obj/Loc & *Subj/NLoc ≫ *Obj/Loc & *Subj/Loc
d. *Obj/NLoc & *Subj/NLoc ≫ *Obj/NLoc & *Subj/Loc

To exemplify, the first constraint in (7a) is violated if a certain domain (the syntactic head, under present assumptions) comprises both a 3rd person subject specification and a 1st or 2nd person object specification. This is fulfilled if a 3rd person subject and a local person object trigger agreement on the same verbal head. Notice that the rankings in (7) correspond to markedness in terms of Hale/Silverstein hierarchies. Thus **Subj/NLoc & *Obj/Loc* is ranked higher than **Subj/NLoc & *Obj/NLoc* because non-local objects are more canonical than local objects. Correspondingly, they are associated with a lower-ranked contraint.

In order to relativize the constraints in (7) for case features, they are locally conjoined with the faithfulness constraint MAX-CASE, which penalizes case feature deletion from input to output, cf. (8). Notice that the ranking relations inherited from (7) are unaffected.

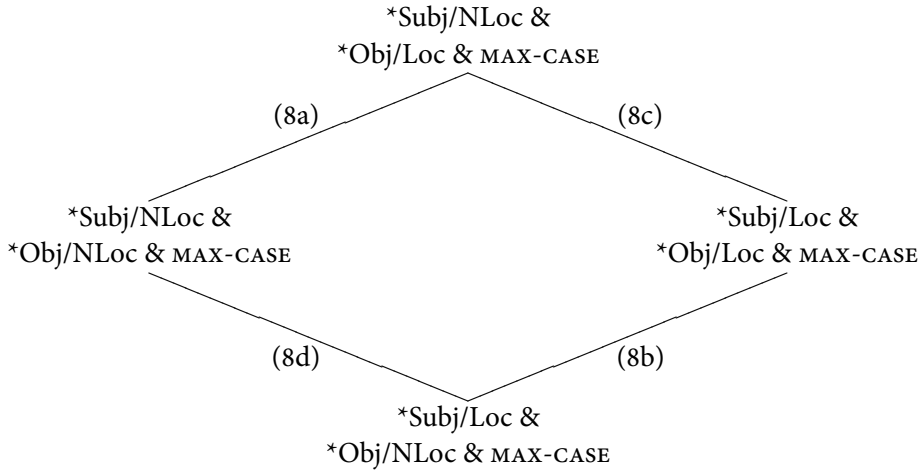


Figure 6.1
Inherent ranking of faithfulness constraints

(8) *Local conjunction with* MAX-CASE

a. *Subj/NLoc & *Obj/Loc & MAX-CASE ≫ *Subj/NLoc & *Obj/NLoc & MAX-CASE
b. *Subj/Loc & *Obj/Loc & MAX-CASE ≫ *Subj/Loc & *Obj/NLoc & MAX-CASE
c. *Obj/Loc & *Subj/NLoc & MAX-CASE ≫ *Obj/Loc & *Subj/Loc & MAX-CASE
d. *Obj/NLoc & *Subj/NLoc & MAX-CASE ≫ *Obj/NLoc & *Subj/Loc & MAX-CASE

As an example, the first constraint of (8a) is violated if there is (i) a 3rd person subject specification, (ii) a local person object specification, and (iii) a case (sub)feature has been deleted. The constraint rankings in (8) can be represented as the lattice in figure 6.1.

The markedness constraint (9), which penalizes the presence of the case feature [+subj], is then inserted into the ranking in figure 6.1 in a language-specific position, yielding the final ranking in (10).

(9) *Markedness constraint*
*[+subj]

(10) *Final ranking for Umatilla Sahaptin*[7]
*Subj/NLoc & *Obj/Loc & MAX-CASE

≫ *[+subj]

≫ { *Subj/NLoc & *Obj/NLoc & MAX-CASE
*Subj/Loc & *Obj/Loc & MAX-CASE }

≫ *Subj/Loc & *Obj/NLoc & MAX-CASE

The ranking in (10) has the effect that for all combinations except the most marked one (having a non-local subject and a local object) the markedness constraint *[+subj] outranks the faithfulness constraint, resulting in deletion of [+subj]. Only in the case of a non-local subject combined with a local object is [+subj] retained. This captures the correlation between morphological markedness and hierarchical markedness. Note furthermore that no disjunction is necessary under this approach. What the contexts of the zero marker—and, hence, impoverishment—in (3) have in common is that they form a homogeneous area on the ranking in 6.1.

In addition to the ranking in (10) the system that I am going to propose for Umatilla Sahaptin comprises the case features in (11a) and the vocabulary items in (11b). The object marker *-na* never enters into competition for insertion into the subject and is only included for the sake of completeness. For concreteness let us assume that the relevant case features and ϕ-probes are contained on T, cf. (11c). Under this perspective, then, it is exactly the tight connection between several case and ϕ-features, all appearing on one head, that allows the interaction witnessed in Umatilla Sahaptin and other languages with global case splits.[8]

(11) a. *Case subfeatures*

ERGATIVE: $\begin{bmatrix} -\text{obl} \\ +\text{subj} \end{bmatrix}$ OBJECTIVE: $\begin{bmatrix} -\text{obl} \\ -\text{subj} \end{bmatrix}$

b. *Markers*

/-nɨm/ ↔ $\begin{bmatrix} \begin{bmatrix} -\text{obl} \\ +\text{subj} \end{bmatrix} \\ [\text{NUM: SG}] \end{bmatrix}$ /-na/ ↔ $\begin{bmatrix} -\text{obl} \\ -\text{subj} \end{bmatrix}$ /-Ø/ ↔ [ ]

---

[7] Of course, in order for the ranking in (10) to apply correctly, subject and object ϕ-specifications have to be distinguishable on the verb. As it turns out, there is independent morphological evidence that this is the case. In a '3>1' configuration such as (1b) agreement with the 3rd person subject is encoded by the prefix *i-* '3NOM'. In constrast, agreement with a 3rd person object in a '1>3' combination is marked morphologically by the marker *á-* '3ABS (cf. (1d)). Morphological evidence thus makes it unambiguously clear that that subject and object ϕ-specifications can be distinguished on T. It is only natural, then, to assume that impoverishment is sensitive to this distinction as well.

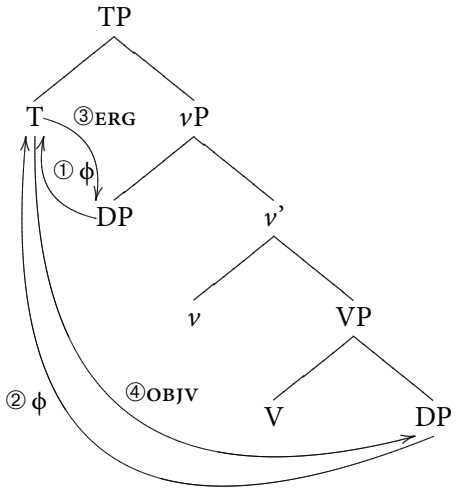
[8] This reasoning is reminiscent to some extent to the analysis of the Chukchi spurious antipassive proposed in Bobaljik and Branigan (2006) and Bobaljik (2007). Here as well T enters into agreement with both subject and object. This tight connection leads to the emergence of certain language-specific filters against particular ϕ-combinations. In the present approach, the ϕ-features of subject and object plus the relevant case features are present on T, allowing them to be accessed simultaneously. The result is deletion of the subfeature [+subj] in certain configurations, according to (10). Hence in both approaches appearance on the same head is a necessary condition for mutual influence.

c. *Feature content*

$$\text{T:}\begin{bmatrix} \textsc{ergative} \\ \textsc{objective} \\ u\phi_1 \\ u\phi_2 \end{bmatrix}$$

As a consequence, the general derivation looks like follows. The relevant Agree operations are depicted in (12). By assumption, ϕ-Agree takes priority over κ-Agree in Umatilla Sahaptin. Thus the situation is the mirror image of the Hindi, Marathi/Punjabi, Basque, and Icelandic analyses above. While there case influenced ϕ-agreement, here it is ϕ-agreement that influences case (cf. section 6.4.1 for a formalization of this difference). First, the object DP merges with V. Secondly, *v* is brought into the structure. As *v* does not bear any features relevant for the present analysis, the subject is merged in Spec,*v*P next. After merging T with *v*P, both κ- and ϕ-Agree may in principle take place. ϕ-Agree taking priority, the subject's and object's ϕ-features appear on T (cf. steps ① and ②). Depending on the values of these features impoverishment takes place or not, affecting the ergative case feature not yet assigned. Lastly, ergative and objective are assigned to subject and object, respectively (③ and ④). Here vocabulary insertion takes place, depending on whether impoverishment has applied on T or not.

(12)



For illustration, consider (1c), repeated as (13).

(13) ɨwínš i-tuxnána yáamaš-na
man 3NOM-shot mule.deer-OBJV
'The man shot a mule deer.'

As soon as T has been merged, ϕ-Agree takes place, furnishing T with both the ϕ-features of subject and object and the (still unassigned) subject case matrix. Since

in (13) both the subject and the object are 3rd person (non-local), the markedness constraint *[+subj] in (10) outranks the relativized faithfulness constraint MAX-CASE (cf. the tableau in (14)). Consequently, the optimal candidate has an impoverished case feature $\left[\begin{smallmatrix}-\text{obl}\\ \cancel{+\text{subj}}\end{smallmatrix}\right]$ that is assigned to the subject. Because of the subset principle, the marker *-nim* is thus bled from insertion, yielding zero marking of the subject. This is depicted in figure 6.2.

(14) *Tableau for (13)*

Input: SUBJ: NLoc OBJ: NLoc CASE: [–obl,+subj]	*Subj/NLoc & *Obj/Loc & MAX-CASE	*[+subj]	*Subj/NLoc & *Obj/NLoc & MAX-CASE	*Subj/Loc & *Obj/Loc & MAX-CASE	*Subj/Loc & *Obj/NLoc & MAX-CASE
O_1: $\left[\begin{smallmatrix}-\text{obl}\\ +\text{subj}\end{smallmatrix}\right]$		*!			
O_2: [+subj]		*!	*		
☞ O_3: [– obl]			*		
O_4: [ ]		*!*			

In contrast, recall (1b)=(15).

(15) i-q'ínu-ša=aš ɨwínš-nɨm
3NOM-see-IMPV=1SG man-INV.ERG
'The man sees me.'

The derivation proceeds as seen in the last example with one crucial difference: Since in (15) the subject is non-local and the object local (this being the most marked configuration), the relativized faithfulness constraint MAX-CASE outranks the markedness constraint. Therefore, the optimal candidate has an unaltered case feature (see the

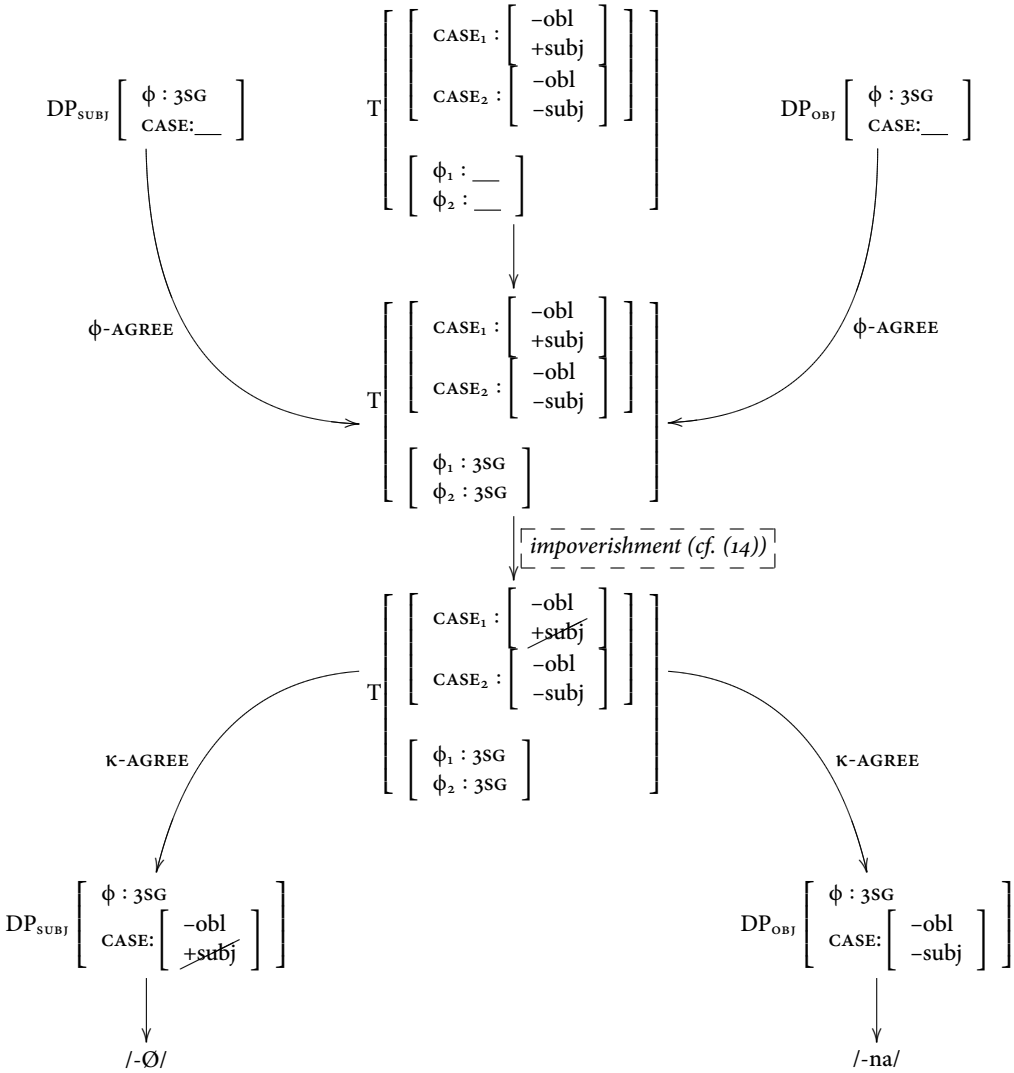


Figure 6.2
Sample derivation for (13): *ɨwínš i-tuxnána yáamaš-na.* 'The man shot a mule deer.'

tableau in (16)), which is assigned to the subject. Since *ɨwínš* 'man' is singular, the marker *-nɨm* fulfills the subset principle and is hence inserted. The object receives objective case, realized by *-na*. However, being a pronoun, it is dropped so that this marker does not show due to independent reasons (recall that the 1SG clitic attached

to verb is agreement rather than the pronoun itself). This derivation is illustrated in figure 6.3.

(16) *Tableau for (15)*

Input: SUBJ: NLoc OBJ: Loc CASE: [−obl,+subj]	*Subj/NLoc & *Obj/Loc & MAX-CASE	*[+subj]	*Subj/NLoc & *Obj/NLoc & MAX-CASE	*Subj/Loc & *Obj/Loc & MAX-CASE	*Subj/Loc & *Obj/NLoc & MAX-CASE
☞ O_1: [− obl, +subj]		*			
O_2: [+subj]	*!	*			
O_3: [− obl]	*!				
O_4: [ ]	*!*				

To summarize, the present section proposed an analysis of the global case split in Umatilla Sahaptin that crucially relies on impoverishment interacting with Agree. Under this analysis, it is verbal ϕ-agreement that affects a case feature not yet assigned. Upon case assignment, the effects of local impoverishment show up on a verbal argument, yielding the false impression of global computation. The next two sections illustrate how the present account can be straightforwardly extended to Yurok and Kolyma Yukaghir as well.

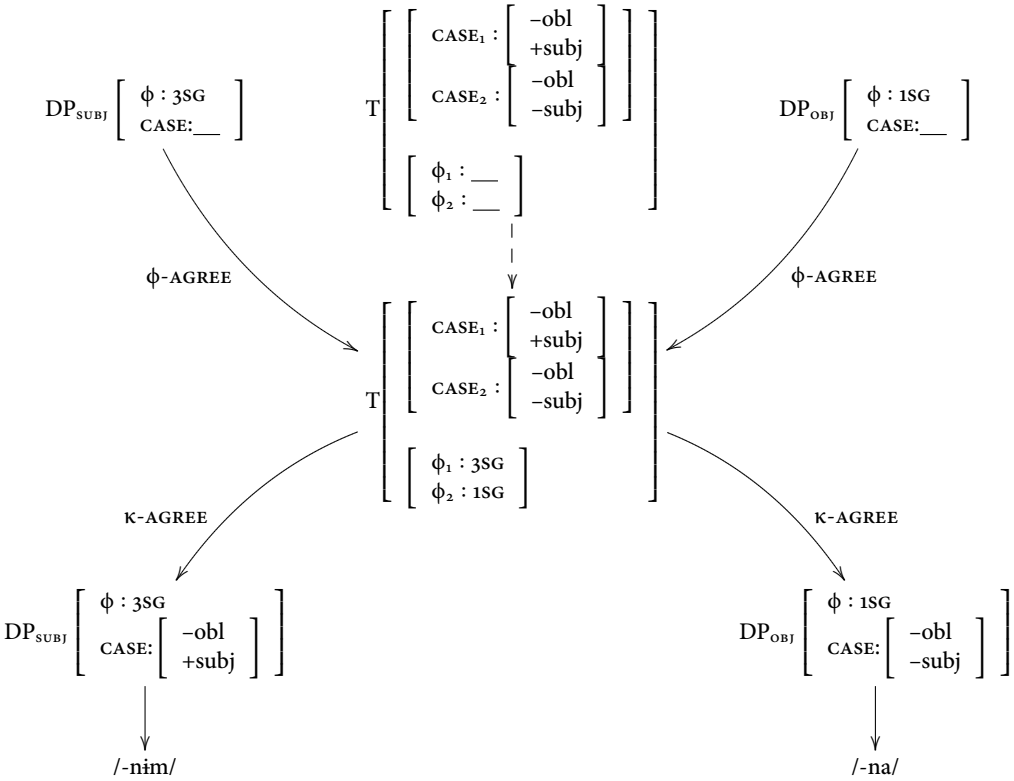


Figure 6.3
Sample derivation for (15): *i-q'ínu-ša=aš ɨwínš-nɨm.* 'The man sees me.'

6.2 Yurok

In Yurok (Algic), the object is marked with *-ac* if there is a 3rd person subject and the object itself is 1st or 2nd person singular. Otherwise the object is zero marked (Robins 1958, Bickel in press).[9] This is shown in (17).

(17) a. keʔ nek ki newoh-paʔ
2SG.NOM 1SG.NOM FUT see-2>1SG
'You will see me.'

b. yoʔ nek-ac ki newoh-peʔn
3SG.NOM 1SG-OBJV FUT see-3SG>1SG
'He will see me.' (Robins 1958: 21)

[9] Thanks to Juliette Blevins for confirming this fact to me.

In (17a) the subject is 2nd person and, correspondingly, the object is not overtly marked. In (17b), on the other hand, the subject is 3rd person. In this and only this case the object bears the case marker *-ac*. The crucial difference to the Umatilla Sahaptin data in the previous section is that the case marker appears on the object instead of the subject.

Because of the verbal agreement in (17) it must be the case that the verb agrees with both arguments for ϕ-features. In this respect Yurok behaves exactly like Umatilla Sahaptin. As in Sahaptin, I conclude from this observation that the person feature of the subject is represented within the verbal domain and can hence trigger case feature impoverishment there. To achieve this, I assume that in Yurok, just as in Umatilla Sahaptin, ϕ-agreement takes place *prior* to case assignment. The effect of this ordering is that there is a stage in the derivation where the verbal domain comprises both case and ϕ-features. Case impoverishment triggered by ϕ-features can then apply head-locally.

The basic derivation in Yurok is identical to the one in Umatilla Sahaptin: ϕ-agreement between verb and subject copies the subject's person (and number) feature onto T. Here, it may trigger object case feature impoverishment in the context of certain person features, just as in the case of 'local' differential argument encoding. The resulting case feature is then assigned to the object, where the case marker is inserted. The ranking is exactly the same as for Umatilla Sahaptin with the only difference that the inserted markedness constraint is *[–subj] rather than *[+subj]. Thus, in contrast to Sahaptin, it is the object rather than the subject that gets impoverished. Consequently, the marker alternation appears on the object. The ranking is given in (18). As in Umatilla Sahaptin, (18) leads to impoverishment in all configurations except the one with highly untypical subject and object (i.e. a 3rd person subject and a local person object).

(18) *Ranking for Yurok*

$$\begin{array}{l} \text{*Subj/NLoc \& *Obj/Loc \& MAX-CASE} \\ \quad \gg \text{*[–subj]} \\ \qquad \gg \left\{ \begin{array}{l} \text{*Subj/NLoc \& *Obj/NLoc \& MAX-CASE} \\ \text{*Subj/Loc \& *Obj/Loc \& MAX-CASE} \end{array} \right\} \\ \qquad\quad \gg \text{*Subj/Loc \& *Obj/NLoc \& MAX-CASE} \end{array}$$

The specification for the relevant cases and markers is provided in (19). That *-ac* only appears on singular objects can be straightforwardly implemented in the same way as for Umatilla above—the case marker is specific for a singular feature.

(19) a. *Case subfeatures*

NOMINATIVE: $\begin{bmatrix} -\text{obl} \\ +\text{subj} \end{bmatrix}$ OBJECTIVE: $\begin{bmatrix} -\text{obl} \\ -\text{subj} \end{bmatrix}$

b. *Markers*

/-ac/ ↔ $\begin{bmatrix} \begin{bmatrix} -\text{obl} \\ -\text{subj} \end{bmatrix} \\ [\text{NUM: SG}] \end{bmatrix}$ /-Ø/ ↔ [ ]

c. *Feature content*[10]

T: $\begin{bmatrix} \text{NOMINATIVE} \\ \text{OBJECTIVE} \\ u\phi_1 \\ u\phi_2 \end{bmatrix}$

To illustrate, I will outline the derivation for both cases in (17). Consider first (17a). After T has been merged both unvalued ϕ- and case features may trigger Agree. In Yurok, ϕ-agreement by assumption takes place first. As a result, the subject's 2nd person feature is represented on T, allowing optimization to apply, and thus yielding impoverishment of the objective case from $\left[\begin{smallmatrix} -\text{obl} \\ +\text{subj} \end{smallmatrix}\right]$ to [–obl]. At the next step, κ-Agree applies, furnishing the object with [–obl]. Since the case marker *-ac* does not fulfill the subset principle, the object is zero marked. This derivation is depicted in figure 6.4.

In contrast, recall (17b). Again, ϕ-agreement copies the subject's person feature onto T. But since in this case it is 3rd rather than 2nd person, the context of impoverishment is not met. This yields assignment of the full case feature $\left[\begin{smallmatrix} -\text{obl} \\ +\text{subj} \end{smallmatrix}\right]$ to the object, where the marker *-ac* is inserted. This is illustrated in figure 6.5.

In summary, I have proposed a local account for an apparently global case alternation in Yurok. Under this analysis, impoverishment applies strictly head-locally and the only operation involving more than one head is Agree which is independently needed.

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[10] Just as in Umatilla Sahaptin (recall footnote 7) the ϕ-features of subject and object need to be distinguishable on T. This is an uncontroversial claim for Yurok as well, given that marker insertion is sensitive to this distinction as well: '1sg>3sg' is realized differently from '3sg>1sg'. As seen in (17b), the marker for '3SG>1SG' is *-pe?n*. According to Robins (1958: 70), the configuration '1SG>3SG' is expressed by *-sek*'.

As the reader may have noticed, the subject case in Umatilla Sahaptin is termed 'ergative' here, while in Yurok it is called 'nominative'. This terminological distinction does not have any theoretical significance. I merely follow the nomenclature in the descriptive literature.

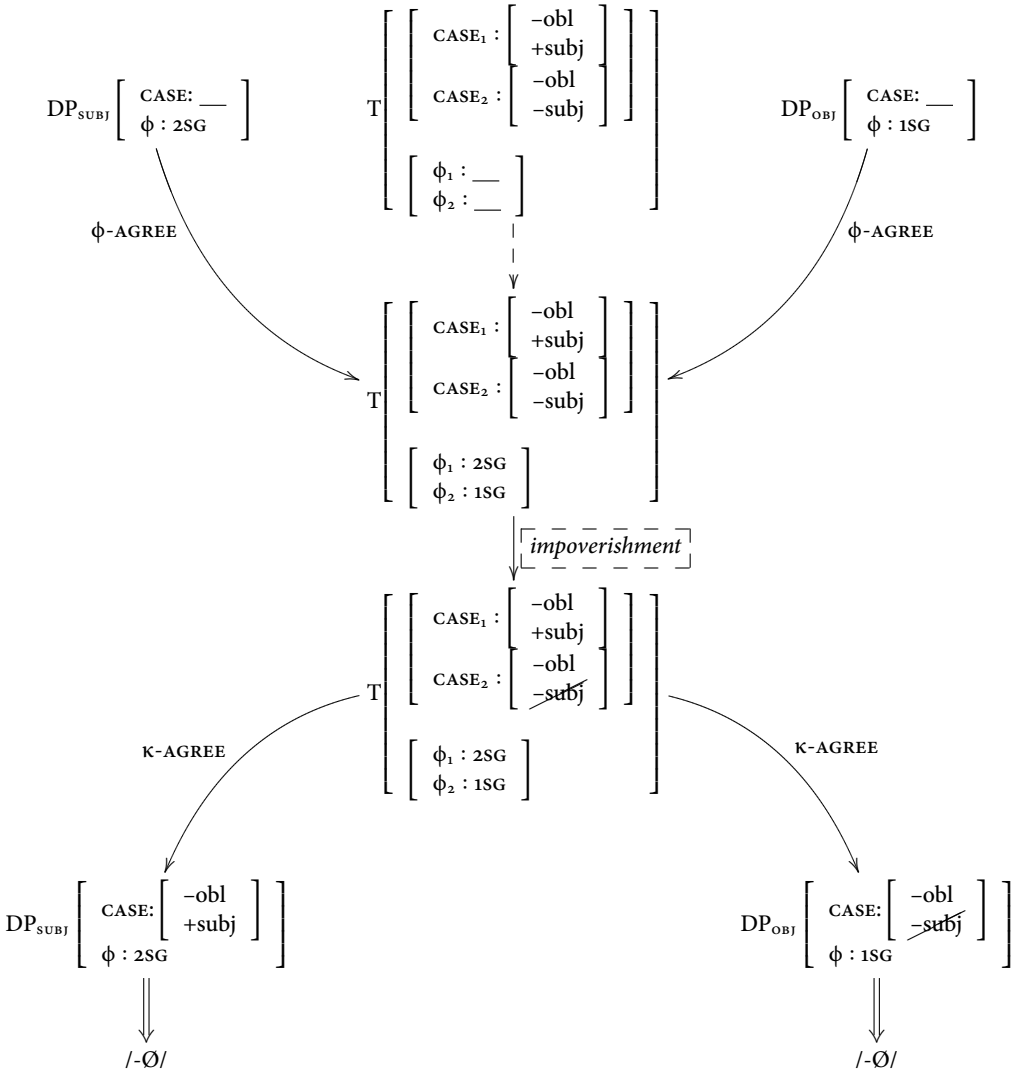

Figure 6.4
Sample derivation for (17a): *ke?-Ø nek-Ø ki newoh-pa?*. 'You will see me.'

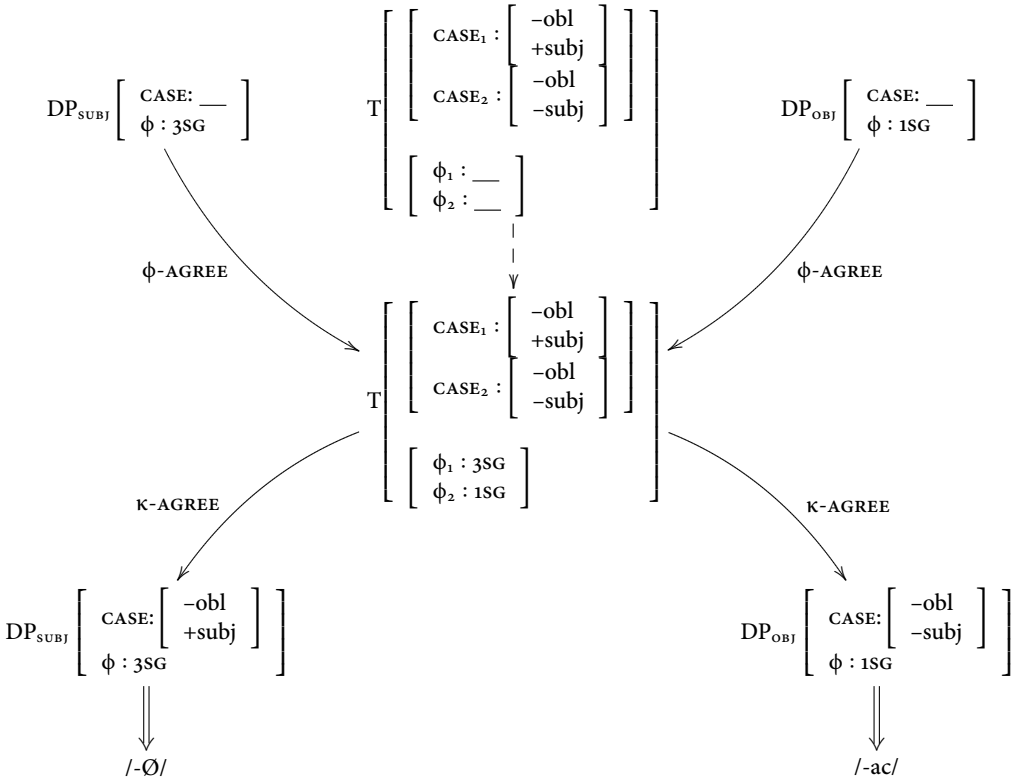

Figure 6.5
Sample derivation for (17b): *yo?-Ø nek-ac ki newoh-pe?n.* 'He will see me.'

6.3 Kolyma Yukaghir

The global case splits in Umatilla Sahaptin and Yurok discussed in the last two sections both instantiate a zero/non-zero alternation. Therefore, these patterns could also be accounted for by completely deleting the syntactic case feature instead of just deleting the respective subfeature [+/−subj], leaving [−obl] intact. Under the analyses of global case splits put forward here, the fact that impoverishment leads to insertion of a phonological zero marker is the consequence of idiosyncratic marker specifications (there does not exist a marker realizing only [−obl]). We might thus wonder whether there exist global case splits with alternations between two (or even more) overt markers, as the present account leads one to expect. In this section I will argue that Kolyma

Table 6.2 Distribution of object case markers in Kolyma Yukaghir

		OBJECT		
		1st/2nd	3rd	
			definite	non-definite
SUBJECT	1st/2nd	*-ul* (PR.ACC)	-Ø (NOM)	
	3rd	*-gele* (ACC)		*-le* (INSTR)

Yukaghir instantiates precisely such a system.[11] It thus provides additional empirical evidence for the claim that impoverishment is at stake here.

Kolyma Yukaghir is an Uralic language spoken in Siberia by approximately 50 speakers (Maslova 2003). The main thrust of this section will be to develop an account for object case marking in Kolyma Yukaghir based on impoverishment. In Kolyma Yukaghir, the object bears one of four case markers, only one of which is zero. The other markers are *-gele*, *-le*, and *-ul*. The zero marker appears if the subject is 1st or 2nd person and the object is 3rd. If the object is 1st or 2nd person as well, it receives 'pronominal accusative' marking (*-ul*). If the subject is 3rd person and the object is 3rd person non-definite, *-le* appears on the object. Lastly, if the object is 1st, 2nd or 3rd person definite and the subject is 3rd, *-gele* is attached. This distribution is summarized in table 6.2; relevant examples are provided in (20)–(25). As for verbal agreement, only the subject controls person and number on the verb.[12]

(20) *3>3.def: /-gele/*

a. met es'ie tet pulut-kele kudede-m
my father your husband-ACC kill-TR:3SG
'My father has killed your husband.' (Maslova 2003: 89)

b. titte čūl-gele min-ŋā
their meat-ACC take-3PL:TR
'They took their meat.' (ibid.: 93)

(21) *3>1: /-gele/*
tet kimnī met-kele kudede-m
your whip me-ACC kill-TR:3SG
'Your whip has killed me.' (ibid.: 93)

[11] I am indebted to Lennart Bierkandt for bringing Kolyma Yukaghir to my attention.
[12] Glosses are from Maslova (2003). 'o' designates a sub-morphemic unit.

(22) *2>1: /-ul/*
met-ul amde-l-get polde-mek
me-ACC die-PERF-ANR-ABL save-TR:2SG
'You have saved me from death.' (ibid.: 95)

(23) *1>2: /-ul/*
met tet-ul kudede-t
I you-ACC kill-FUT(TR:1SG)
'I will kill you.' (ibid.: 95)

(24) *3>3.non-def: /-le/*
n'umud'ī-le mid'-u-m
ax-INSTR take-O-TR:3SG
'He took an ax.' (ibid.: 95)

(25) *1>3.def: /-Ø/*
a. met mēmē iŋī
I bear be.afraid(TR:1SG)
'I am afraid of the bear.' (ibid.: 89)
b. met tudel juø
I he see(TR:1SG)
'I saw him.' (ibid.: 227)

The first thing to notice is that there is a globally conditioned case alternation between two overt markers: If both the subject and the object are 1st or 2nd person, the marker *-ul* appears on the object. If object properties are left unchanged and the subject is replaced by a 3rd person element, object marking takes the form of *-gele*. This alternation is instantiated in (22) and (21), respectively.

A striking fact that I take to be revealing about the nature of case splits is that despite the multitude of markers that enter into the alternation, there is a clear correspondence between morphological and hierarchical markedness. Transitive configurations that count as highly canonical in terms of Hale/Silverstein hierarchies (i.e. having a local person subject and a 3rd person object) are not marked morphologically. If either the subject or the object is non-canonical, the overt markers *-ul* or *-le* show up. Finally, if both the subject and the object are hierarchically marked, the object receives most morphological marking (*-gele*). This correlation, which, in a less striking form, also holds for all other global case splits, needs to be derived. As I will illustrate in the remainder of this section, deriving global case splits by scale-driven impoverishment achieves exactly this.

Recall that in the accounts for Yurok and Umatilla Sahaptin the ϕ-features of both subject and object were present on T, thus triggering case feature impoverishment. While tenable in principle, there seems to be little to warrant such an analysis in

Kolyma Yukaghir. The reason is that, in contrast to Yurok and Umatilla, there is no overt morphological evidence for verbal ϕ-agreement with the object. Furthermore, as evident from table 6.2 as well as the constrast between (20) and (24), definiteness of the object enters into the computation of case marking. If this computation exclusively took place in the verbal domain, the object's definiteness properties would have to represented here. As there is no independent evidence for this assumption, I suggest that the data are to be taken at face value: Only the ϕ-features of the subject are represented within the verbal domain. This makes necessary a two-step impoverishment procedure. Generally speaking, the derivation proceeds as follows: First, ϕ-agreement with the subject for person and number takes place. Secondly, the subject's ϕ-features on T influence via impoverishment the case to be assigned to the object. After subsequent case assignment, a second impoverishment operation affects the case feature on the object. In a nutshell, then, Kolyma Yukaghir combines a local and a global case split. The relevant ingredients of the analysis are given (26). As for the derivational steps, everything proceeds as in the derivation for Umatilla Sahaptin, (12), with the only difference being that step ② does not apply as T only contains one ϕ-probe (cf. (26d)).

(26) *System for Kolyma Yukaghir*

a. *Markers*

/-gele/ ↔ $\begin{bmatrix} +\text{gov} \\ -\text{obl} \end{bmatrix}$

/-ul/ ↔ [−subj]

/-le/ ↔ [+gov]

/-Ø/ ↔ [ ]

b. *Case decomposition*

NOMINATIVE: $\begin{bmatrix} +\text{subj} \\ -\text{gov} \\ -\text{obl} \end{bmatrix}$ ACCUSATIVE: $\begin{bmatrix} -\text{subj} \\ +\text{gov} \\ -\text{obl} \end{bmatrix}$

c. *Impoverishment rules*[13]

(i) [+gov] → ∅ / __ [1/2 ∧ Subj]

(ii) [−subj] → ∅ / __ [3 ∧ Obj]

(iii) [−obl] → ∅ / __ [3.Ndef ∧ Obj]

d. *Feature content*

T: $\begin{bmatrix} \text{NOMINATIVE} \\ \text{ACCUSATIVE} \\ u\phi \end{bmatrix}$

[13] The impoverishment rule in (26ci) can be straightforwardly recast as an OT-ranking, as in (i):

Let me illustrate the workings of this system on the basis of some of the examples above. First, consider (23), repeated as (27) below.

(27) met tet-ul kudede-t
I you-ACC kill-FUT(TR:1SG)
'I will kill you.'

The derivation starts with subject and object containing unvalued case probes. By assumption, T comprises two corresponding case features and one ϕ-probe, which finds the subject first. As ϕ-Agree applies first, the subject's ϕ-features percolate to T. Here, the structural description of the impoverishment operation (26ci) is fulfilled, thus deleting [+gov]. As the next step, case is assigned to subject and object, respectively. The object's case feature comprises $\left[\begin{smallmatrix}-\text{subj}\\-\text{obl}\end{smallmatrix}\right]$. Therefore, *-ul* is the most specific marker that fulfills the subset principle and is hence inserted. This derivation is depicted in figure 6.6.

As a second example, consider (25a)=(28).

(28) met mēmē iŋī
I bear be.afraid(TR:1SG)
'I am afraid of the bear.'

The derivation of (28) is similar to the one for (27) above. The only relevant difference is that, in addition, the context for impoverishment (26cii) is fulfilled on the object, leading to further case impoverishment in a second step. Consequently, only the

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(i) *Subj/3 & MAX-CASE ≫ *[+gov] ≫ $\left\{\begin{array}{l}\text{*Subj/2 \& MAX-CASE}\\\text{*Subj/1 \& MAX-CASE}\end{array}\right\}$

The rules in (26cii) and (26ciii) are more interesting. Note that both rules are not completely independent of each other: (26cii) applies to the object whenever it is 3rd person; (26ciii) affects it if it is 3rd person and non-definite. Consequently, (26ciii) is more specific than (26cii): Every application of the former presupposes an application of the latter. Thus, there is gradual impoverishment on the object: If the object is canonical (3rd person) the feature [–subj] is impoverished. If it is even more canonical—i.e. 3rd person and non-definite—, [–obl] is deleted as well. Hence, the more prototypical an object is the more features are impoverished. This state of affairs is only poorly captured by the arbitrary rules (26cii) and (26ciii) as the relation between both is purely accidental. A systematic way to account for gradual impoverishment is provided by harmonic alignment of scales. Here, the two markedness constraints *[–subj] and *[–obl] are inserted into the ranking of faithfulness constraints at different points. Consequently, only one constraint ranking is necessary to capture the effects of both rules in (26cii) and (26ciii) (see (ii)). Note that (ii) comprises both the person and the definiteness scale, the latter simplified to 'definite > non-definite' for ease of exposition. First and second person pronouns are inherently definite (Richards 2008a).

(ii) $\left\{\begin{array}{l}\text{*Obj/1 \& MAX-CASE}\\\text{*Obj/2 \& MAX-CASE}\end{array}\right\}$ ≫ *[–subj]
≫ *Obj/3.def & MAX-CASE ≫ *[–obl]
≫ *Obj/3.Ndef & MAX-CASE

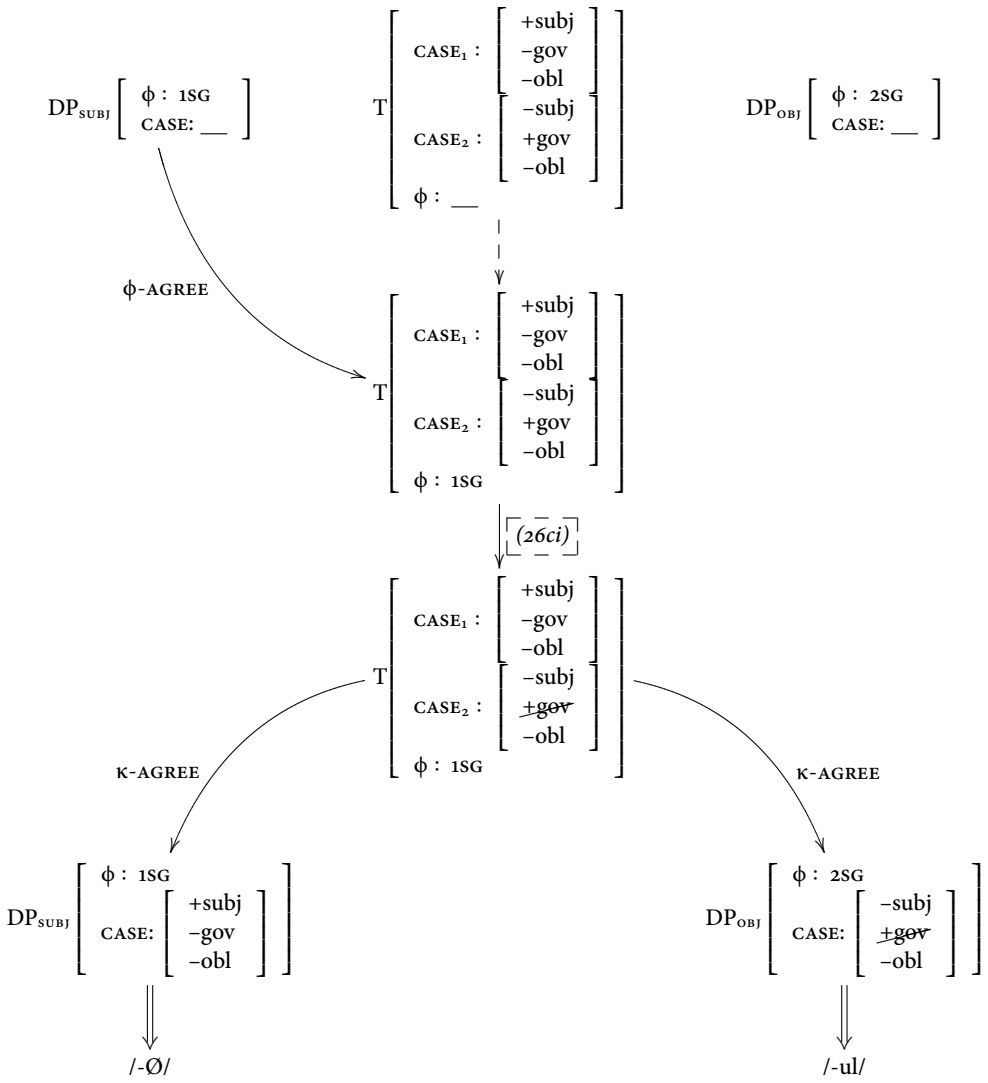

Figure 6.6
Sample derivation for (27): *Met tet-ul kudede-t.* 'I will kill you.'

elsewhere marker -Ø fulfills the subset principle. The relevant derivational steps are summarized in figure 6.7.

A third example to be discussed is (29)=(20a).

(29) met es'ie tet pulut-kele kudede-m
my father your husband-ACC kill-TR:3SG
'My father has killed your husband.'

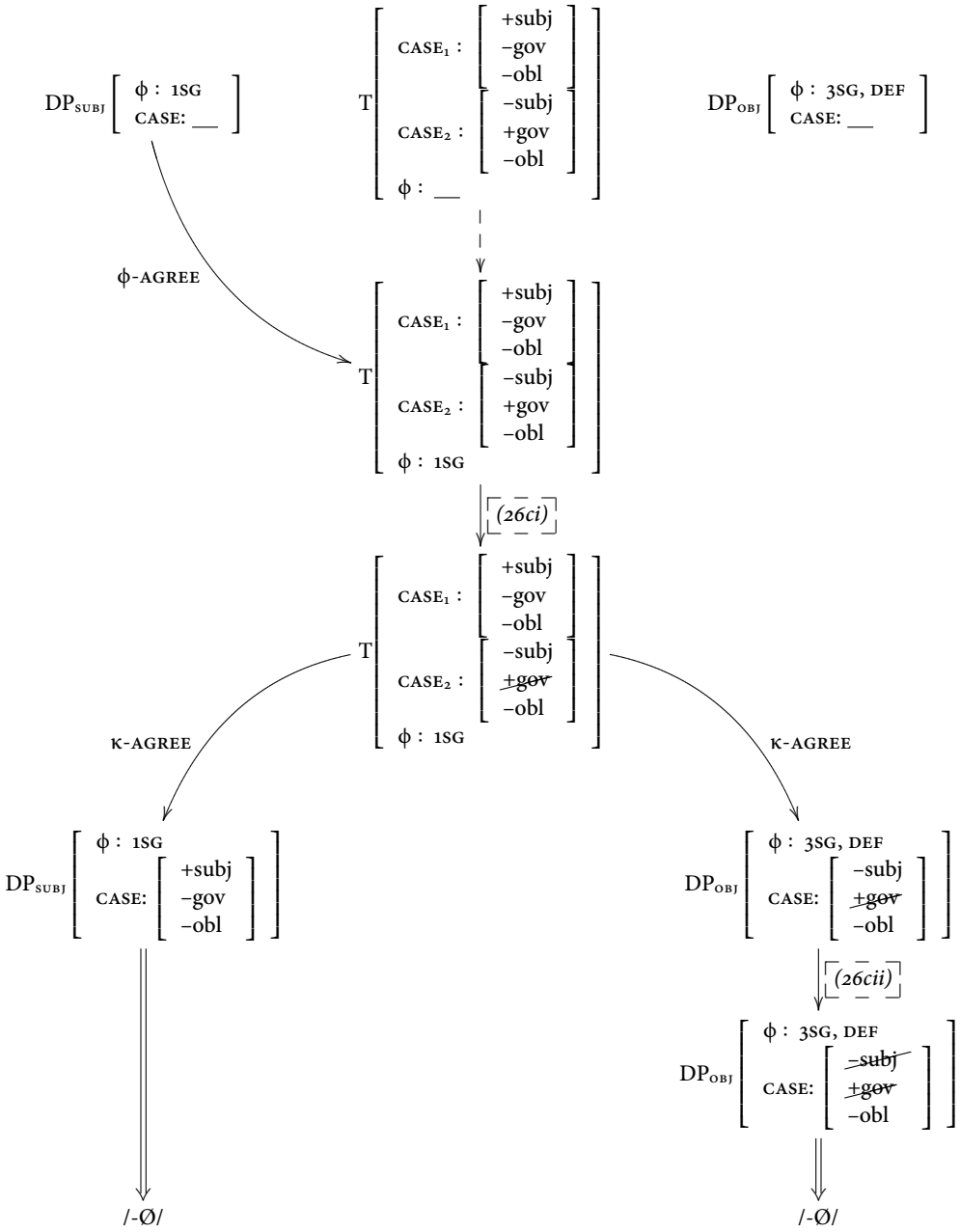

Figure 6.7
Sample derivation for (28): *Met mēmē iŋī.* 'I am afraid of the bear.'

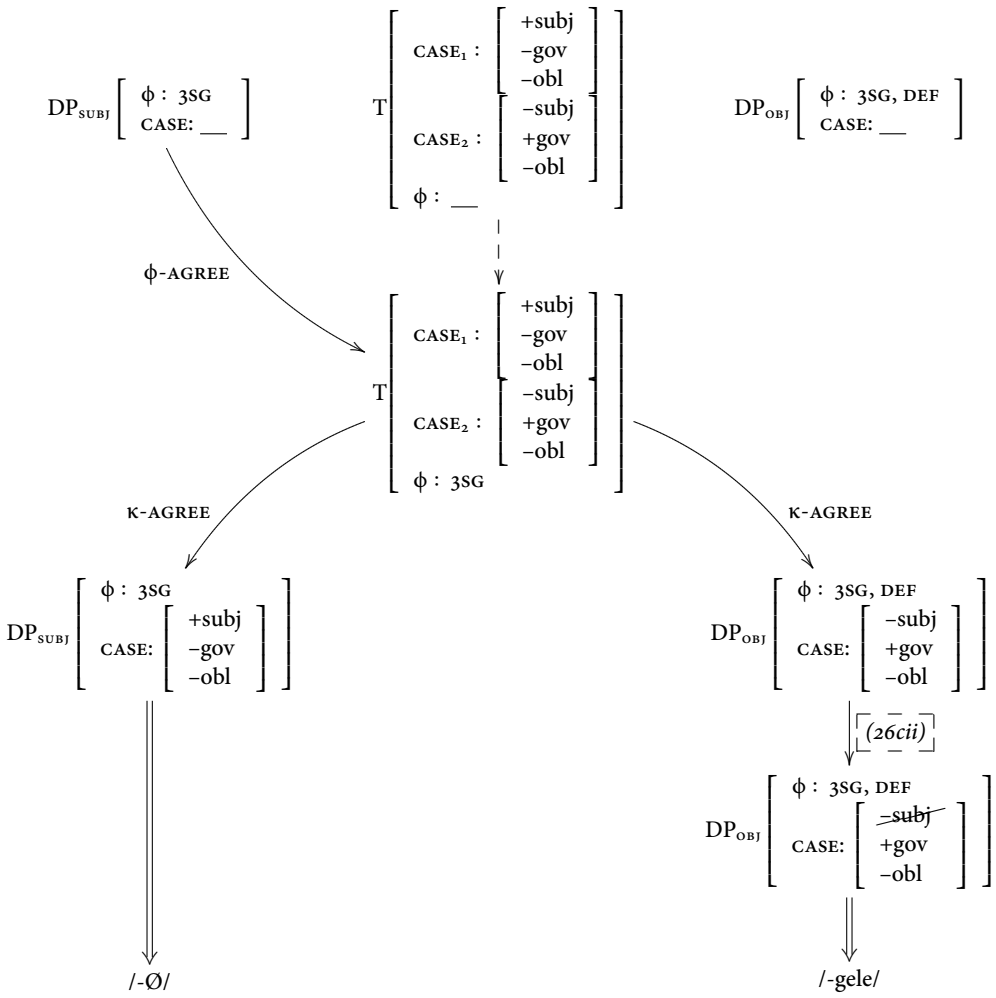

Figure 6.8
Sample derivation for (29): *Met es'ie tet pulut-kele kudede-m.* 'My father has killed your husband.'

In (29), no impoverishment takes place on T, as the subject's ϕ-features (3SG) do not fulfill the context of (26ci). Consequently, the whole case feature matrix is assigned to the object. Here, the context of (26cii) is given, leading to deletion of [−subj]. (26ciii) does not apply. The resulting case specification is $\left[\begin{smallmatrix}+\text{gov}\\-\text{obl}\end{smallmatrix}\right]$. *-gele* is the most specific marker that forms a subset for this specification. Hence, the object bears *-gele*. Figure 6.8 schematizes this derivation.

The last derivation to be exemplified here is the one for a *le*-marked object. (30) (=(24)) provides an example.

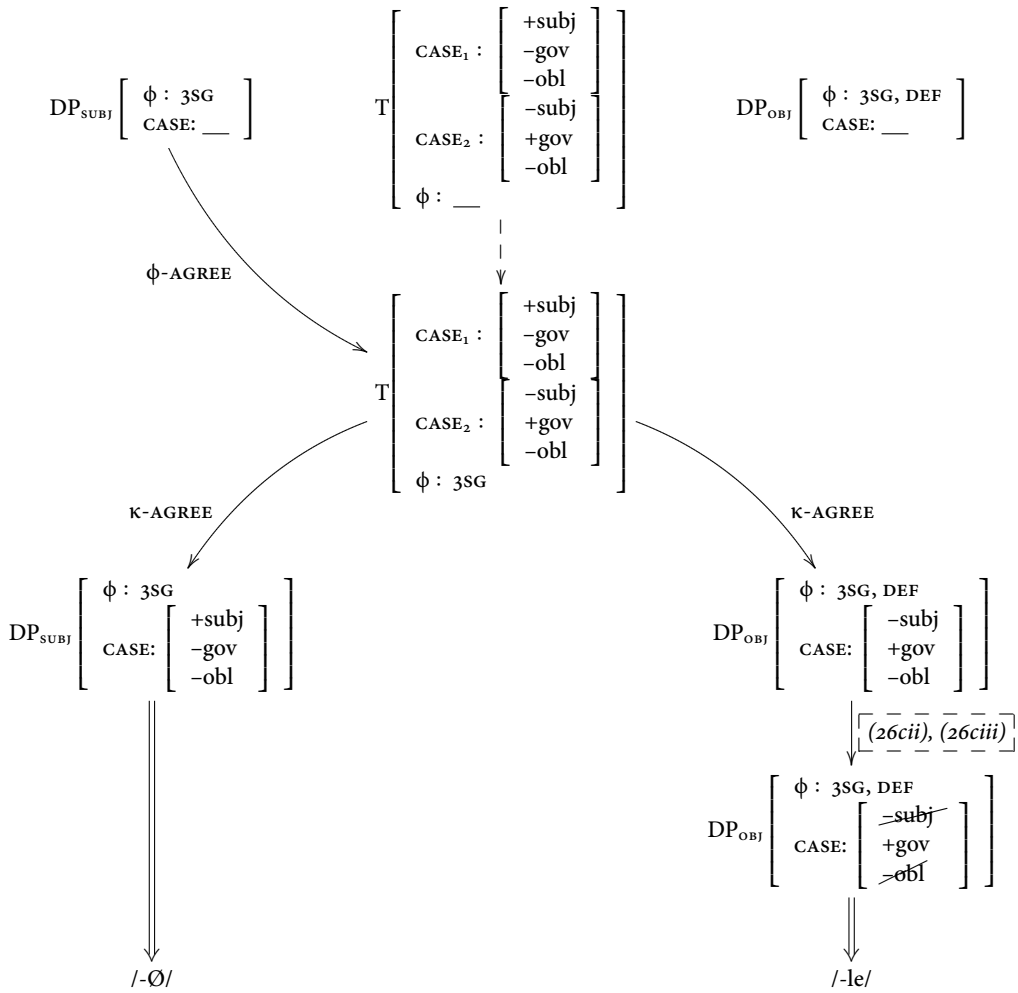

Figure 6.9
Sample derivation for (30): *N'umud'ī-le mid'-u-m.* 'He took an ax.'

(30) n'umud'ī-le mid'-u-m
ax-INSTR take-O-TR:3SG
'He took an ax.'

The derivation of (30) is similar to the one for (29). The only relevant difference is that the object is non-definite. Thus, both impoverishment rules (26cii) and (26ciii) apply, deleting [–subj] and [–obl]. Consequently, only [+gov] remains available for insertion, yielding attachment of *-le*. See figure 6.9.

To summarize this section, I have proposed an account for object case marking in Kolyma Yukaghir that rests on early impoverishment. Empirically, Kolyma Yukaghir

was used to demonstrate that global case splits need not be restricted to presence vs. absence of a case marker. Rather, they may involve several non-zero markers. Nevertheless, their distribution is far from arbitrary. The striking cross-linguistic pattern of differential object marking is found in this seemingly 'exotic' system as well: Morphological markedness correlates with hierarchical markedness. Theoretically, I have argued that the present system for global case splits is powerful enough to capture the Kolyma Yukaghir patterns while still maintaining the position that impoverishment only applies in canonical configurations and yields insertion of a smaller marker.

6.4 The Ordering of Operations

6.4.1 The Order of Agree

In Hindi, Marathi/Punjabi, Icelandic, Basque and Itelmen a DP's ability to trigger verbal agreement was tied to its case specification (recall the notion of ϕ-*opaqueness*). Consequently, κ-Agree took place before ϕ-Agree in the analyses of these languages. In contrast, the treatment of Yurok, Umatilla Sahaptin, and Kolyma Yukaghir made it necessary for ϕ-Agree to take place before κ-Agree, as the assigned case feature depends on verbal ϕ-agreement. The ordering between κ- and ϕ-Agree thus cannot be fixed and universal. Rather, languages must be subject to variation in this respect.

Recall from the discussion in section 2.3 that I presuppose a derivational approach to optimization, i.e. a system with an intertwined application of structure-building and structure optimization. So far, the main purpose for adopting this framework was to model formally the claim that impoverishment (conceived of as the result of optimization with a sufficiently high-ranked markedness constraints) applies syntax-internally, thus affecting other syntactic (Agree) operations. As it turns out, this conception immediately provides a solution to the puzzle that different languages involve a different order of elementary operations. In a nutshell, if Agree operations (as arguably all operations) are tiggered by OT constraints, ranking differences between languages may lead to variation with respect to which agree operation takes priority in a given syntactic environment.

Conceptually, I suggest, following the lines of Müller (2004a, 2009b), that given a stage in the derivation with both unvalued case and ϕ-features, there is no inherent ordering between κ- and ϕ-Agree because neither of them logically presuppose the other.[14] Instead, languages may vary regarding which type of features must be valued first. In an OT-style grammar, this is straightforwardly modelled by variations in

[14] The analyses in Müller (2004a, 2009b) are only concerned with the relative ordering between Agree and Merge operations, but the line of argumentation is identical.

constraint rankings. Assuming that feature valuation is triggered by markedness constraints against unvalued features, the zero assumption is that there exist both a markedness constraint against unvalued ϕ-features and another one against unvalued case. Under the assumption that every single syntactic step undergoes optimization (recall the notion of *extremely local optimization* from section 2.3), case and ϕ-features cannot be valued simultaneously, as this would involve two steps in the derivation. Depending on the ranking between both markedness constraints either case or ϕ-features take priority. Thus, the markedness constraints in (31) can be ranked with respect to each other either way, resulting in a different order of valuation operations (cf. (32)).

(31) a. *[ϕ: __]
'penalizes the presence of unvalued ϕ-features'

b. *[CASE: __]
'penalizes the presence of unvalued case features'

(32) a. *[CASE: __] ≫ *[ϕ: __]
Hindi, Marathi, Punjabi, Icelandic, Itelmen, Basque

b. *[ϕ: __] ≫ *[CASE: __]
Yurok, Umatilla Sahaptin, Kolyma Yukaghir

To illustrate, assume that in, e.g., Basque, *v* has been merged with VP. By assumption, *v* in Basque comprises both case features and ϕ-probes (recall the system in (7) on page 75). Thus the structure built at this point contains both unvalued case features (on the object) and unvalued ϕ-features (on *v*). This structure forms the input, on the basis of which several output representations $\langle O_1, O_2, \ldots, O_n \rangle$ are formed by applying a single application of exactly one syntactic operation (MOVE, MERGE, Agree, impoverishment). For present purposes I will ignore all possible operations except for Agree. By assumption the ranking in Basque is (32a). Three relevant candidates can be distinguished: One is formed by applying κ-Agree, thus valuing the unvalued case feature (O_1); a second one is formed by ϕ-Agree, thereby getting rid of the unvalued ϕ-feature (O_3); a third candidate O_3 involves some other operation, the relevant constraint for which by assumption is ranked lower than the Agree constraint, and hence irrelevant. The fourth logical possibility, a candidate invoking both ϕ- and κ-Agree, does not enter the computation as it cannot be formed by applying a single instance of a single syntactic operation to the input. It is hence not part of the candidate set. As can be verified by means of the tableau in (33), the candidate involving case assignment fares better than all its competitors. Consequently, then, it is chosen as the winner and constitutes the input for the next cycle of structure-building and optimization. This accounts for the observation that, if both case assignment and ϕ-Agree are possible in Basque, case assignment takes priority. If the ranking is reversed (as in (34)), the opposite result is

reached. Thus, the observed variation with respect to the order of Agree operations is straightforwardly implemented by extremely local optimization.

(33) *Sample optimization: κ-AGREE > ϕ-AGREE*

Input: $v\left[\begin{smallmatrix} u\phi \\ \text{CASE} \end{smallmatrix}\right]$ DP$\left[\begin{smallmatrix} \phi \\ u\text{CASE} \end{smallmatrix}\right]$	*[CASE: ___]	*[ϕ: ___]
☞ O$_1$: $v\left[\begin{smallmatrix} u\phi \\ \text{CASE} \end{smallmatrix}\right]$ DP$\left[\begin{smallmatrix} \phi \\ \text{CASE} \end{smallmatrix}\right]$		*
O$_2$: $v\left[\begin{smallmatrix} \phi \\ \text{CASE} \end{smallmatrix}\right]$ DP$\left[\begin{smallmatrix} \phi \\ u\text{CASE} \end{smallmatrix}\right]$	*!	
O$_3$: $v\left[\begin{smallmatrix} u\phi \\ \text{CASE} \end{smallmatrix}\right]$ DP$\left[\begin{smallmatrix} \phi \\ u\text{CASE} \end{smallmatrix}\right]$	*!	*

(34) *Sample optimization: ϕ-AGREE > κ-AGREE*

Input: $v\left[\begin{smallmatrix} u\phi \\ \text{CASE} \end{smallmatrix}\right]$ DP$\left[\begin{smallmatrix} \phi \\ u\text{CASE} \end{smallmatrix}\right]$	*[ϕ: ___]	*[CASE: ___]
O$_1$: $v\left[\begin{smallmatrix} u\phi \\ \text{CASE} \end{smallmatrix}\right]$ DP$\left[\begin{smallmatrix} \phi \\ \text{CASE} \end{smallmatrix}\right]$	*!	
☞ O$_2$: $v\left[\begin{smallmatrix} \phi \\ \text{CASE} \end{smallmatrix}\right]$ DP$\left[\begin{smallmatrix} \phi \\ u\text{CASE} \end{smallmatrix}\right]$		*
O$_3$: $v\left[\begin{smallmatrix} u\phi \\ \text{CASE} \end{smallmatrix}\right]$ DP$\left[\begin{smallmatrix} \phi \\ u\text{CASE} \end{smallmatrix}\right]$	*!	*

If this conception of Agree as an instance of optimization is adopted, its relation to impoverishment—conceived of as optimization as well—deserves some remarks. First notice that under the present perspective both Agree and impoverishment are the result of markedness constraints. One may now entertain the possibility that the relation between the two operations boils down to a constraint ranking relation. Recall that so far an explicit ordering between impoverishment and Agree was presupposed: If both operations are possible, impoverishment takes priority. This ordering might now be reduced to a constraint ranking: The relevant markedness constraints leading to impoverishment are ranked higher than the constraints against unvalued features. While I claim this ordering to hold for all the languages discussed in the present study, this need not necessarily be the case. In other languages, Agree might apply before impoverishment. In such languages impoverishment does not of course affect Agree. As seems obvious, impoverishment applying sufficiently late in the derivation might be simply indistinguishable from impoverishment applying early in morphology. The ranking perspective thus offers up a tenable candidate for accommodating 'well-behaved' patterns of argument encoding with the cases of eccentric agreement discussed

here. I will not pursue this matter any further, merely noting that the perspective appears to have some prospect.[15]

6.4.2 The Relation between Local and Global Case Splits: Globality Reduces to Earliness

The present theory makes a strong claim concerning the relation between local and global case splits: They instantiate the same phenomenon (scale-driven impoverishment), albeit active at a different stage of the derivation. I will argue that this is a desired result, as both types of splits have identical properties, thus warranting a unified approach.

Local case splits as exemplified by Hindi object marking (cf. section 3.1.1) refer to case marker alternations depending on features of Hale/Silverstein scales. What makes them 'local' is that the conditioning scale property and the marker alternation show up on the same argument. Thus, in Hindi, object case marking depends solely on object properties. The empirical hallmarks of these splits are that (i) morphological markedness and hierarchical markedness are correlated (i.e. the more canonical an argument is, the less it is marked morphologically), and (ii) the alternation may exist between two or more overt markers.[16] These two properties follow systematically if case splits result from scale-driven impoverishment.

As I have laid out in the present chapter, global case splits exhibit the same properties: (i) The marker alternation is not arbitrary but strongly correlates with markedness hierarchies; (ii) the alternation may in principle involve several overt markers. Global splits only differ from local splits in that the scale feature and the marker alternation do not show up on the same argument.

The present system captures this relationship between local and global case splits in the following way: Both types of splits involve the same operation—impoverishment—, hence their idential properties (i) and (ii) follow. However, they differ with respect

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[15] Of course, if both Agree and impoverishment operations are brought about by markedness constraints, some readjustments within the system are called for. The most pressing problem is how to implement the requirement that both types of operations apply within domains of different sizes. Recall that Agree takes place within a phase, while impoverishment is restricted to single heads. This distinction is crucially necessary for Agree to feed impoverishment. Several solutions might be pursued, one of them being that local conjunction takes syntactic heads as its domain. Under this view impoverishment applies to a domain of smaller size precisely because it involves local conjuncion, thus systematically differing from Agree, to which no such additional restriction applies.

[16] See Keine and Müller (2008, 2009) for extensive discussion and justification of this claim. Some languages that instantiate overt/overt alternations are Dyirbal (Dixon 1972, 1994, Carnie 2005, Haspelmath 2007), Djapu (Morphy 1983, Legate 2008), Trumai (Guirardello 1999), Cavineña (Guillaume 2008), Finnish (Kiparsky 1998, 2001, Wunderlich 2000), and Mannheim German (Behaghel 1911, Karch 1975, Müller 2003).

to the *order* of their operations. Consequently, they differ regarding the relationship between conditioning features and the locus of the alternation.

Local case splits involve the ordering 'κ-Agree > ϕ-Agree'. As a consequence, impoverishment may apply only after the case feature has been assigned to the relevant argument. After impoverishment has taken place the case feature is not percolated further. Hence, the marker alternation appears on the same head that impoverishment has applied to, giving rise to a local case split. Hindi object marking as analyzed in section 3.3.2 provides an example of this derivation.

Global case splits, by contrast, involve the ordering 'ϕ-Agree > κ-Agree'. The result of this order is that impoverishment may apply within the verbal domain. Subsequently, the impoverished case feature is percolated to another head, to which vocabulary insertion applies, systematically affected by whether impoverishment has taken place or not. It follows that the effects of impoverishment show up on a different head. It is this percolation that gives this type of split its global character.

A desirable consequence of the analysis laid out in this chapter is that it does not invoke global computation. Thus, 'local' and 'global' case splits are treated as equally local, the crucial difference between both being that apparently 'global' splits involve *early* local impoverishment. Put differently, the present theory reduces seemingly global computation to the early application of a local operation.

To summarize, I have argued that the impoverishment approach to case splits presented here is capable of capturing the striking similarities between local and global case splits because they are a result of the same operation. The differences between the two boil down to a difference in operation order, ultimately a difference between case assignment and ϕ-agreement.

6.4.3 Global Case Splits and Verbal Agreement

As it turns out, although attributing local and global case splits to the same operation (impoverishment), the present approach makes the prediction that both types of splits differ with regard to ϕ-agreement. To take a concrete example, in Hindi a subject marked with *-ne* never triggers verbal agreement. Zero marked subjects, on the other hand, always do. The same holds for objects: zero-marked objects may in principle trigger agreement, *ko*-marked ones never do. Logically speaking, nothing precludes such a system in a language with global case assignment. Such a language would be like, e.g., Umatilla Sahaptin with the crucial difference that zero marked subjects would trigger verbal agreement, whereas subjects marked with *-nim* would not. The present proposal makes the interesting prediction that such a system *cannot* exist. This is because in order for a system like Hindi to arise case has to be assigned to a DP first, which may then render it invisible for ϕ-probing, leading to the distinct agreement behavior. As argued above, the order in Umatilla Sahaptin is reversed: First, verbal

ϕ-probing takes place and only then is case assigned. It follows that at the point in the derivation when ϕ-features are valued in Umatilla Sahaptin, impoverishment has not yet applied. Hence, the two scenarios are indistinguishable, as the relevant distinction has not yet been introduced. Consequently, a ϕ-probe cannot discriminate between objects that will end up containing an impoverished case feature and those that will not be affected by impoverishment, resulting in identical behavior as far as agreement is concerned.

This prediction is borne out for Umatilla Sahaptin (compare the contrast in (1b) and (1c), repeated as (35a) and (35b), respectively). Subject agreement is in both cases instantiated by the prefix *i-*, regardless of whether the subject is marked with *-nɨm* or not.

(35) a. i-q'ínu-ša=aš ɨwínš-nɨm
3NOM-see-IMPV=1SG man-INV.ERG
'The man sees me.'

b. ɨwínš i-tux̣nána yáamaš-na
man 3NOM-shot mule.deer-OBJV
'The man shot a mule deer.'

Note that this prediction cannot be tested for Yurok due to independent reasons, as Yurok has portmanteau exponence for both arguments.

The prediction is also borne out for Kolyma Yukaghir. Here all objects, regardless of their morphological marking, do not trigger verbal agreement.

A third language that also exhibits a global case split, Tauya, also conforms to the above prediction (MacDonald 1990).

(36) a. ya-ni fanu Ø-yau-e-ʔa
1SG-ERG man 3SG-see-1/2-IND
'I saw the man.'

b. ya-Ø pai yau-e-ʔa
1SG-ABS pig see-1/2-IND
'I saw the pig.' (MacDonald 1990: 316)

In Tauya, case marking of the subject depends on humanness of the object, in line with the prediction of Hale/Silverstein hierarchies: in (36a) the object is human, yielding overt marking of the subject *ya-ni* '1SG-ERG'. (36b), in contrast, has a non-human object, triggering zero marking of the subject *ya* '1SG'. As predicted, verbal agreement does not treat both types of subjects differently—in both cases the marker is *-e*.[17]

[17] To extend the analysis given for Yurok and Umatilla Sahaptin to Tauya, animacy of the object must be represented within the verbal domain as it can only then trigger impoverishment. Since the morphological form of the verb does not vary depending on the object's animacy, I will assume that the relevant agreement relation holds abstractly (also cf. Georgi 2009 for the same conclusion).

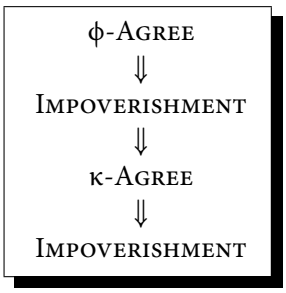

Figure 6.10
The order of operations in Yurok, Umatilla Sahaptin, and Kolyma Yukaghir

6.5 Summary

In this section I have proposed an analysis of seemingly global case splits that makes use of *local* impoverishment *before* Agree. The basic logic of the argumentation is the following: If impoverishment can take place prior to Agree the information that impoverishment has taken place (i.e. the impoverished feature matrix) can be percolated to another head. Here marker insertion is sensitive to the output of impoverishment, yielding the impression of a global rule (taking one head as context and another one as the locus). This accounts for the apparently global effects of impoverishment in Yurok, Umatilla Sahaptin, and Kolyma Yukaghir in a strictly local way. Global case splits can thus be derived if Agree and impoverishment interact in the fashion shown in figure 6.10. The present account thus offers a unified treatment of both local and global case splits: Both are the result of case feature impoverishment invoked by ϕ-features. The only difference is that in the former case impoverishment applies to a DP, whereas in the latter it affects the verb. This correlates well with the intuition that both phenomena are indeed two appearances of one general marking strategy—differential argument encoding. Furthermore, it is corroborated by the empirical observation that they exhibit identical properties. I take it to be a welcome result that the intuitive similarity is reflected in a uniform theoretical treatment.

7 Ξ-Impoverishment

In the preceding analyses, only valued features have undergone impoverishment. An interesting extension of the present approach is to explore to possibility that unvalued features as well might undergo deletion. In this section I will present empirical evidence that is plausibly analysed in terms of early impoverishment of an unvalued case feature. For reasons made clear below, I will refer to such impoverishment as *Ξ-impoverishment*. This is merely a notational convention; the operation in itself is just conventional impoverishment of a DP's case, person and number features. The empirical evidence in this section comes from Nez Perce, Niuean, and Selayarese, which I will argue have impoverishment operations that delete case and ϕ-features of certain objects before both ϕ- and κ-Agree. This renders the object irrelevant for all subsequent applications of Agree since the object contains neither probe nor goal features. As a consequence, the morphological marking on the subject and the verb are as in intransitive clauses.

7.1 Nez Perce 'Pseudo-Antipassive'

Nez Perce (also known as 'Nuumiipuutímt'; Penutian) is a three-way aligning language spoken in Idaho, Washington, and Oregon (USA). It is closely related to Umatilla Sahaptin (discussed in section 6.1) but does not have a global case split. Nez Perce has been described in Aoki (1970, 1979, 1994), Aoki and Walker (1989), Rude (1985, 1986a,b, 1988, 1991, 1992, 1997a,b, 1999), and Crook (1999). Nez Perce exhibits another kind of apparently global case assignment that has received some attention in the generative literature: If the object has certain properties, both subject and object are zero marked (as opposed to bearing an overt marker otherwise) and the verb switches from transitive to intransitive agreement (Woolford 1997, Deal 2005, 2007, 2010, Deal and O'Connor 2004, Carnie and Cash Cash 2006; also see Baker 2008b: 229–236). This has been analysed as an antipassive by Rude (1985), but it has been argued that it lacks crucial properties of an antipassive construction. Hence, this phenomenon is often referred to as 'pseudo-antipassive' in the generative literature, a term that I will adopt here.

I will proceed by first laying out the basic empirical generalizations and then propose a treatment within the present framework.

7.1.1 Empirical Evidence

Default morphology This section will briefly outline the case and agreement in Nez Perce outside of the pseudo-antipassive. In intransitive clauses the S argument is morphologically unmarked but the verb agrees with it if 3rd person by bearing the prefix *hi-*. 1st and 2nd person S arguments do not trigger overt person agreement on the verb. Number agreement is independent of person agreement in two ways: first, there can be overt number agreement without overt person agreement, and, second, the number exponent is morphologically independent of the person agreement morpheme. Plural S triggers the plural marker *-pe* or *-ix* on the verb (depending on aspect), singular is not expressed overtly. This is exemplified in (1).

(1) a. Ø-tuqíse
'I/you smoke.'
b. hi-tuqíse
'S/he smokes.' (Cash Cash 2004: 28)
c. hi-pe-kúuye
'They went.' (Rude 1985: 37)
d. sík'em hi-wleke'yx-tee'nix háamti'c
horse 3SUBJ-run-HAB.PL fast
'Horses run fast.'
e. hi-pa-k'oomay-na mamáy'ac
3SUBJ-S.PL-be.sick-PERF children
'The children were sick.' (Deal 2010: 74)

In transitive clauses, both the A and the O argument are overtly marked. A bears the marker *-nim*, O is marked with *-ne*.[1] Verbal person agreement differs from intransitive clauses as well: If the subject is 1st or 2nd person and the object as well, the verb does not overtly agree for person. If the subject is 1st or 2nd person and the object is 3rd person, the prefix *'e-* appears on the verb. If both the subject and the object are 3rd person singular, the marker *pee-* is attached to the verb. Otherwise (if either the subject or the object is not 3SG) the marker *hi-* appears. Note that two of the markers in transitive clauses (*hi-* and Ø-) appear in the intransitive as well. Verbal person agreement in transitive and intransitive clauses can be summarized as in table 7.1.

Number marking is independent of person marking just as in the case of intransitive clauses. If the subject is plural the marker *pe* or *ix* are attached (just as in intransitives). Plurality of the object is indicated by *nées-*. The system of transitive verbal agreement is exemplified by (2).

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[1] There exist several allophones. The ergative subject case can also appear as *-nm* or *-m*, and has still other forms on kinship terms. The object marker can be realized as *-ne* or *-na* and has various other forms on kinship terms, numerals, pronouns, and demonstratives (Deal and O'Connor 2004).

Table 7.1 Verbal person agreement in Nez Perce

	SUBJECT	OBJECT
/Ø-/	not 3rd	no object, or object not 3rd
/'e-/	not 3rd	3rd
/hi-/	3rd	no object, or object not 3rdSG
/pee-/	3rdSG	3rdSG

(2) a. ʔe-qícqce
'I/you take care of him/her.'
b. pée-qicqce
'S/he takes care of him/her.' (Cash Cash 2004: 28)
c. hi-náas-himay-liwak-sa
3SG-PL$_{OBJ}$-suspect-wrongly-IMPERF
'He is falsely accusing them.' (Deal and O'Connor 2004: 10)
d. ʔe-pe-nées-hex-ne
1/2>3-PL$_{SUBJ}$-PL$_{OBJ}$-see-PAST
'We see them.' (Rude 1985: 39)
e. pit'íin-im páa-'yax̂-na picpíc-ne
girl-ERG 3/3-find-PERF cat-OBJV
'The girl found the cat.' (Deal 2010: 75)
f. ciq'áamqal-m hi-ke'níp-e 'íin-e
dog-ERG 3SUBJ-bite-PERF 1SG-OBJV
'The dog bit me.' (ibid.: 78)

As for case marking, first and second person A arguments are not overtly marked (Rude 1985: 85; recall that 3rd person subjects bear *-nim*), cf. (3).

(3) a. ('ín) Ø-'ewí-ye ('ime-né)
I 1/2NOM-shot-ASP you-OBJV
'I shot you.'
b. ('ín) Ø-néec-'wi-ye ('imuu-ne)
I 1/2.NOM-PL$_{OBJ}$-shoot-ASP you.all-OBJV
'I shot you all.' (Rude 1986b: 126f.)

All possible combinations of person and number agreement markers of both subject and object are given in table 7.2 for completeness.

THE 'PSEUDO-ANTIPASSIVE' Apart from the marking system outlined above, transitive clauses may also appear in a different form: Subject and object are morphologically unmarked and verbal agreement is as in intransitive clauses, controlled

Table 7.2 Overview of Nez Perce person and number agreement (Deal 2010: 80)

		OBJECT				
		no obj	1/2SG	1/2PL	3SG	3PL
SUBJECT	1/2SG	Ø	Ø	*nees*	*'e*	*'enees*
	1/2PL	*pe*	*pe*	*penees*	*'epe*	*'epenees*
	3SG	*hi*	*hi*	*hinees*	*pee*	*hinees*
	3PL	*hipe*	*hipe*	*hipenees*	*hipe*	*hipenees*

solely by the subject. This has been considered an antipassive (e.g. Rude 1985), but as Woolford (1997: 186, fn. 8) points out "there is no antipassive morphology on the verb, nor any oblique Case morphology on the object, nor any other evidence that the nominative-accusative construction [i.e. subjects and objects are zero marked; S. K.] is an antipassive". The same conclusion is reached by Carnie and Cash Cash (2006). Following Woolford, I will refer to this construction as 'pseudo-antipassive' (PAP).

Compare a default transitive, (4a), with its PAP counterpart (4b).

(4) a. Háama-nm pée-'wi-ye wewúkiye-ne
man-ERG 3>3-shoot-ASP elk-OBJV
'The man shot an elk.'

b. Háama-Ø hi-'w'i-ye wewúkiye-Ø
man-NOM 3-shoot-ASP elk-NOM
'The man shot an elk.' (Rude 1988: 553)

In (4a), the subject is marked with *-nm*, the object has *-ne* attached to it, and the verb bears the agreement marker *pée-*. All three markers are specific to transitive clauses and do not appear in intransitives. (4b), on the other hand, only contains markers that also appear in intransitive clauses: Subject and object are zero marked and the verb only agrees with the third person subject (cf. the 3rd person marker of intransitives *hi-*). The same holds if the subject is 1st or 2nd person:

(5) a. 'íin 'e-nées-hexn-e walás-na
I 1>3-PL$_{OBJ}$-see-ASP knife-OBJV
'I saw the knifes.' (Woolford 1997: 211)

b. Kawá taxe qáamsit-Ø Ø-wiyáamk-o' kaa Ø-túut-nu'
then soon qáamsit-ACC 1-peel-ASP and 1-grind-ASP
'Then soon I will peel and grind the qáamsit.' (Woolford 1997: 212)

In (5a) the verb agrees with both subject and object (via the marker *'e-*). In the pseudo-antipassive in (5b), the object does not contribute to verbal agreement, so that the

intransitive agreement marker Ø- appears on the verb, triggered by the 1st person subject.

Note that the object need not be a single head, which makes an analysis in terms of noun incorporation of the object unlikely, as exemplified in (6). Note incidentally that Nez Perce has a non-productive process of noun incorporation. In contrast to the PAP, the incorporated head appears between verbal material. Furthermore, verbal agreement makes use of the reflexive markers, in stark contrast to the intransitive markers appearing in the PAP. See (7) for an example of head incorporation.

(6) kawó' hipawíi'nahpayka tíi'mes kaa héecu
then 3NOM-PL.NOM-DIS-carry-arrive-PERF paper and wood
'They then each brought paper and wood.' (Rude 1985: 160)

(7) 'ipna+tams·as+iyayi-k-sa
3SG.REFL-wild.roseberries-move.around.in.order.to-V-PST
'picking berries' (Carnie and Cash Cash 2006: 243 fn. 9)

As has been noted by every researcher on Nez Perce that I am aware of, default transitive clauses and PAP constructions differ in their semantics. Rude (1985) demonstrates that in PAP clauses the object is generally of lower *topicality*. A similar proposal based on *specificity* is made by Woolford (1997). Crook (1999) identifies *indefiniteness* of the object as the crucial factor. Carnie and Cash Cash (2006) also note that the PAP requires a non-topical theme and contrast this with default transitives, which involve topical presuppositional objects (for further discussion, also see Deal and O'Connor 2004). Finally, Deal (2010) treats PAP objects as non-referential. What is generally agreed upon is that it is solely the properties of the object that trigger the appearance of the pseudo-antipassive, thus constituting another instance of a 'global' split since properties of one head seem to affect marker insertion into a different head. Since objects align with the lower end of markedness scales, they are of low specificity/topicality/definiteness in the unmarked case. Thus, the pseudo-antipassive construction can be plausibly considered an instance of differential argument encoding: Details apart, the pseudo-antipassive appears *if the object is canonical* in terms of Hale/Silverstein hierarchies. Consider the examples in (8)–(11).

(8) a. 'ipí-nm pée-qn'íi-see qeqíit-ne
she-ERG 3>3-dig-INC edible.root-OBJV
'She is digging the qeqiit.'
b. 'ipí hii-qn'íi-see qeqíit
she 3-dig-INC edible.root
'She is digging qeqiit.' (Crook 1999: 238)

(9) *Context:* One house in Lewiston is red, and yesterday, John found that house.

a. Cáan-nim páa-'yaax̂-na 'iníi-ne
John-ERG 3>3-find-PERF house-OBJV
'John found the house.'

b. Caan hi-'yáax̂-na 'iníit
John 3SUBJ-find-PERF house
'John found a house.'
Comment: "It's not referring to the red house or anything, it's just he just found a house that he's been looking for." (Deal 2010: 85)

(10) *Context:* We're organizing a ballgame and picking players for our teams.

a. nuun 'e-wewluq-siix Harold-ne pox̂pok'líit-ki
1PL 3OBJ-want-IMPERF.PL Harold-OBJ ballgame-INSTR
'We want Harold for the ballgame.'

b. #nuun wewluq-siix Harold pox̂pok'líit-ki
1PL want-IMPERF.PL Harold ballgame-INSTR
Intended: 'We want Harold for the ballgame.' (Deal 2010: 86)

(11) kísmis-pe sapátk'ayn wewluq-siix Meli kaa Coseph
christmas-LOC show want-IMPERF.PL Mary and Joseph
'For the Christmas show we want a Mary and a Joseph.' (Deal 2010: 86)

The first sentence of each pair in (8) to (10) is a default transitive. In both cases the object is topical and specific. The second sentence in each pair provides the respective PAP counterpart. Correspondingly, the object is interpreted as non-topical and non-specific in (9b); (10b) is deviant as the proper name *Harold* is obligatorily interpreted as specific. If, by contrast, proper names in object position are interpreted as non-referring the PAP becomes grammatical, cf. (11).

The observed semantic difference between default transitives and pseudo-antipassives suggests an approach in terms of harmonic alignment of scales and impoverishment that is triggered by constraint interaction. If impoverishment furthermore can apply before Agree, it may affect feature percolation from one head to another and thereby give rise to apparently global constructions. Therefore, I will argue in this section that early impoverishment provides a natural means to account for the properties of the PAP construction in Nez Perce.[2]

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[2] One remark is in order here. Caselessness can also be used to encode that the subject possesses the object. Following Aissen (1999a) and, for Nez Perce, Deal (2010), I will refer to this construction as *extended reflexives*. Consider the data in (i):

7.1.2 Analysis

Since the markers attached to the verb in default transitives alternate depending on person and number of both subject and object, it is evident that these features are represented within the verbal domain. I take the fact that the intransitive person agreement prefixes Ø- and *hi-* also show up in transitive clauses to follow from their morphosyntactic specification. The same holds for the number restriction of *pée-*, which is only compatible with combinations of 3rd person *singular* subjects and objects, as has been noted above: *pée-*, due to its specification, discharges the subject's and object's singular feature on the verb (recall the similar treatment of the number restriction of the ergative marker *-nim* in the closely related language Umatilla-Sahaptin). Based on verbal agreement in intransitive and default transitive clauses as summarized in table 7.1. I propose the inventory of person agreement exponents in (12).

(i) a. pícpic-ne 'aa-móol-ca-qa
cat-OBJV 1/2>3-pet-ASP-PAST
'I was petting a/the cat.'

b. pícpic hamóol-ca-qa
cat pet-ASP-PAST
'I was petting my cat.' (Aoki 1994: 94)

c. 'óykala haháwal píke hi-hetewi-tee'nix
all boys mother 3SUBJ-love-HAB.PL
'All boys love their mother.' (Deal 2010: 94)

No reflexive meaning is available for default transitives as in (ia) (Rude 1985: 205). Caselessness leads to an extended reflexive interpretation, as in (ib). Thus caseless clauses such as (ib) are mostly systematically ambiguous between the PAP and the extended reflexive interpretation. (ic) verifies that the phenomenon indeed involves semantic binding. Notably, the reflexive usage of caseless clauses does not conform to the restrictions on the object observed above. First, as seen in (ii), it can be specific.

(ii) píst hi-sée-pn'i-ye
father 3-CAUS-pour.out-ASP
'She asked her father.' (Aoki and Walker 1989: 419)

Second, if certain elements, such as indirect objects and applicative objects, are caseless, only an extended reflexive interpretation is available. The PAP, by contrast, is restricted to direct objects (see also section 7.1.3). Furthermore, extended reflexives and PAP caseless clauses differ with regard to semantic scope. Lastly, it turns out that certain verbs, like *heki* 'see', are incompatible with the PAP structure. As for these verbs, zero marking of the object may only be interpreted as an extended reflexive, i.e. as possessor binding. For further discussion of the differences between both structures see Deal and O'Connor (2004) and especially Deal (2010). In light of these differences I take extended reflexives to be semantically and syntactically sufficiently distinct from PAP structures to give them separate treatments (for the same conclusion see Crook 1999: 237, who analyses the reflexive as possessor raising). In this study I will focus solely on the PAP structure. An account for extended reflexives that seems fully compatible with the system proposed here can be found in Deal (2010), who argues that reflexive structures like (ib,c) are regular transitives. However, the verb agrees with the object's possessor rather than the object itself. Caselessness results from an *anaphor agreement effect* (Rizzi 1990, Woolford 1999).

(12) *Nez Perce person agreement prefixes*[3]

a.	/pee-/	↔	[[3.SG] > [3.SG]]
b.	/'e-/	↔	[[1/2] > [3]]
c.	/hi-/	↔	[[3] > X]
d.	/Ø-/	↔	[ ]

The marker specification in (12) is arrived at solely by considering intransitive and default transitive clauses. The analysis of the pseudo-antipassive to be proposed below together with (12) will automatically derive the effect that only the intransitive markers *hi-* and Ø- show up in this construction. No re-consideration of the agreement markers will be necessary.

In order to account for the three-way case system I assume here that there exist two separate *v*'s in Nez Perce—one that has two case features that must be discharged and two ϕ-probes, and another one with only one case feature and one ϕ-probe. Since unvalued features lead a derivation to crash, the former *v* (called v_{trans} here) only converges in transitive clauses, while the latter (v_{intr}) yields convergence only in intransitive clauses.[4] The properties of both *v*'s are depicted in (13).

(13) *Varieties of v in Nez Perce*

a. $v_{trans}\begin{bmatrix} \begin{bmatrix} \text{CASE}_1 : \text{ERG} \\ \text{CASE}_2 : \text{OBJV} \end{bmatrix} \\ \\ \begin{bmatrix} \phi_1 : \_\_ \\ \phi_2 : \_\_ \end{bmatrix} \end{bmatrix}$ b. $v_{intr}\begin{bmatrix} [\text{CASE} : \text{NOM}] \\ \\ [\phi : \_\_] \end{bmatrix}$

Recall the properties of the PAP construction: Subject and object switch to zero case marking and the verb to intransitive agreement with the subject. As far as case and

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[3] Some remarks concerning (12): As for the specification of *'e-*, I assume that first and second person form a natural class under exclusion of third person. This might be expressed in different ways depending on the system of decomposition employed. A straightforward way is to involve the feature [+participant] (as assumed by, e.g., Harley and Ritter 2002). Secondly, X is used here as a variable over feature values that might also be empty. Consequently, *hi-* is compatible with a configuration involving a 3rd person subject and any or no object. An equivalent notation would be [SUBJ: 3]. Note finally that all the markers in (12) conform to iconicity.

[4] See Carnie and Cash Cash (2006) for the same assumption that *v* assigns case to both arguments. One might of course envision a more elaborate system for three-way case systems. Given that the case assigned in intransitives is zero marked, an analysis in terms of impoverishment may also be tenable. I will remain agnostic with respect to these alternatives, assuming that they are ultimately compatible with the system proposed here. The system employing a transitive and an intransitive *v* is thus only a choice of convenience. It is furthermore noteworthy that nothing hinges on the assumption that *v* is responsible for case assignment and ϕ-agreement. T or a combination of heads may just do as well. For the present system to work correctly, it is only necessary that one array of heads—leading to nominative assignment and intransitive ϕ-agreement—only converges in intransitive constructions and a second array with two cases to assign and two ϕ-probes to be valued.

agreement is concerned, the pseudo-antipassive thus looks as if the object simply was not there. Syntactically, the object seems neither to be incorporated nor to be merged as an adjunct. The apparent 'non-existence' of the object thus only affects the case and agreement system. This can be expressed within the framework proposed here by impoverishment of *all* features that are relevant for κ- and ϕ-Agree *before* agreement takes place. In Nez Perce, the features at hand are person, number and case. The account for the pseudo-antipassive construction is thus the following: If the object DP is canonical, its person, number and case features are impoverished before any agreement with them has taken place. For convenience, I will refer to these features as *Ξ-features*.

(14) $\Xi\text{-features} \stackrel{\text{def}}{=} \left\{ \begin{array}{l} \textsc{person} \\ \textsc{number} \\ \textsc{case} \end{array} \right\}$

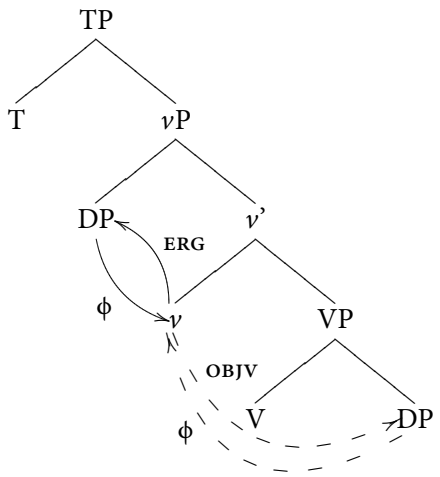
Ξ-impoverishment has the effect of rendering a DP invisible for Agree operations, since it contains neither probes nor goals after impoverishment has applied. Thus, if Ξ-impoverishment applies to the object before all Agree operations, case and ϕ-agreement will result in the same patterns as in intransitive clauses. Specifically, as the object can neither receive a case feature nor value a ϕ-probe, only v_{intr} leads to a converging derivation. v_{intr} assigns nominative case to the subject, which—as evident from intransitive clauses—is realized by a zero marker. The object crucially does not receive a case feature. Since, however, its unvalued case probe has been deleted, this does *not* result in a crash of the derivation. As a consequence, no case marker is attached to the object morphologically. Instead, it is the bare stem that is pronounced. The present account thus introduces a distinction between zero marked objects and subjects in the pseudo-antipassive construction: subjects bear an abstract case feature, which is realized by a zero marker without phonological content. Objects, on the other hand, get *no* case assigned and therefore bear *no* case marker. On the surface, both subject and object end up being realized as bare stems. As seen from (13b), v_{intr} furthermore contains only one ϕ-probe. The object's ϕ-features being deleted, only the subject is capable of acting as a goal. Consequently, the verb shows intransitive agreement with only the subject. As for agreement, the object is irrelevant after Ξ-impoverishment, so that the relevant configuration is the same as in intransitive clauses. Note that I assume here that the system is not crash-proof in the sense of Frampton and Gutmann (2002): Nothing prohibits selection of v_{trans} plus application of Ξ-impoverishment. Such a combination crashes at the interface due to unvalued features, as v_{trans} contains two ϕ-probes but there exists only one goal feature.[5]

Of course, this reasoning only holds if Ξ-impoverishment applies *before* Agree. Otherwise, the object would constitute a regular goal whose valued features would later

[5] See Heck and Richards (2007) for a similar treatment of agreement in Southern Tiwa.

be deleted by Ξ-impoverishment. To exclude such a derivation, Ξ-impoverishment has to apply first. Under the main claim of this book—impoverishment and Agree take place within the same grammatical component—no additional assumption is necessary to ensure this ordering. Impoverishment applies as soon as its context is met, be it before or after agreement. Since application of Ξ-impoverishment does not depend on feature percolation by Agree, it takes place prior to any Agree operation. This follows naturally and without stipulation from the present system. The relevant Agree relations between *v* and the verbal arguments in transitive clauses are depicted in (15). Agree with the object of course only takes place if no impoverishment has applied (see the dashed lines in (15)).

(15)



In addition to Ξ-impoverishment, there is a second impoverishment operation active in Nez Perce. As seen in (3), local (1st or 2nd person) subjects are zero marked rather than bearing *-nim*. This phenomenon is empirically unrelated to the pseudo-antipassive and thus will be treated in an unrelated way theoretically. Recall the case of Marathi and Punjabi: Here as well, local subjects did not bear an otherwise obligatory case marker (see section 3.2.3). The analysis that was proposed there will be correspondingly extended to Nez Perce: scale-driven impoverishment of the subject case feature, cf. (16cii). Note that this impoverishment needs both case and ϕ-features to be present on one single head and can hence only apply *after* case has been assigned. Thus, it constitutes an instance of late impoverishment.[6]

The system is laid out in more detail in (16).

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[6] Nothing forces a choice as to the ordering between ϕ- and κ-Agree in Nez Perce. All that is necessary is that Ξ-impoverishment applies before any Agree operation. As a consequence, (16cii) may in principle apply on either the subject DP (if the order is κ-Agree > ϕ-Agree) or on the verb (if ϕ-Agree > κ-Agree) before assignment.

(16) a. *Case subfeatures*

ERGATIVE: $\begin{bmatrix} -\text{obl} \\ +\text{subj} \end{bmatrix}$ OBJECTIVE: $\begin{bmatrix} -\text{obl} \\ -\text{subj} \end{bmatrix}$ NOMINATIVE: [−obl]

b. *Markers*

/-nim/ ↔ $\begin{bmatrix} -\text{obl} \\ +\text{subj} \end{bmatrix}$ /-ne/ ↔ $\begin{bmatrix} -\text{obl} \\ -\text{subj} \end{bmatrix}$ /-Ø/ ↔ [ ]

c. *Impoverishment rules*[7]

(i) Ξ → ∅ / ___ [object ∧ −specific]

(ii) [+subj]→ ∅ / ___ [[PERSON: LOCAL] ∧ subject]

Let us turn to some examples to illustrate the working of the proposed system. First, consider (3a), repeated here as (17).

(17) ('ín) Ø-'ewí-ye ('ime-né)
I 1/2NOM-shot-ASP you-OBJV
'I shot you.'

Ξ-impoverishment may not apply here, given that the object as a personal pronoun is inherently specific. After merging V and the object *'ime* 'you', both v_{trans} and v_{intr} may be selected. Only v_{trans} leads to convergence. If, instead, v_{intr} is selected from the lexicon the derivation crashes because v_{intr} only provides a single case feature. Consequently, the subject's or the object's case feature cannot be valued, yielding uninterpretability at the interfaces. After merging v_{trans} it agrees with the object for case and ϕ-features in an order that cannot be determined on the basis of the considered data and is irrelevant for our purposes. Subsequently, the subject is merged in Spec,*v*P, agreeing with *v* as well and receiving the ergative. Both arguments having copied their ϕ-features onto *v*, *v* comprises the the configuration [1SG > 2SG]. Out of the markers in (12), only Ø- fulfills the subset principle and is hence attached. Since the subject is 1st person, its [+subj] case feature is impoverished by (16cii), leading to the case feature $\begin{bmatrix} -\text{obl} \\ \cancel{+\text{subj}} \end{bmatrix}$.

---

[7] Since Ξ-impoverishment crucially applies to a DP *before* case is assigned to it, it cannot be sensitive to case features. Given the fact that it furthermore may only affect objects and never subjects, this seems to constitute evidence against the possibility laid out on page 58 above, namely that grammatical function can be read off the case feature. Instead, some reference to the syntactic context of a DP appears to be necessary to accomodate the Ξ-impoverishment analysis as proposed here.

The constraint rankings derived by harmonic alignment of scales with the same effect as the impoverishment rules in (16c) are given in (i) and (ii), respectively.

(i) $\left\{ \begin{array}{l} \text{*Obj/Pronoun \& MAX-}\Xi \\ \text{*Obj/Proper noun \& MAX-}\Xi \\ \text{*Obj/Definite \& MAX-}\Xi \\ \text{*Obj/Specific \& MAX-}\Xi \end{array} \right\} \gg \text{*[}\Xi\text{]} \gg \text{*Obj/Non-specific \& MAX-}\Xi$

(ii) $\text{*Subj/3 \& MAX-CASE} \gg \text{*[+subj]} \gg \left\{ \begin{array}{l} \text{*Subj/2 \& MAX-CASE} \\ \text{*Subj/1 \& MAX-CASE} \end{array} \right\}$

Only the zero marker fulfills the subset principle and is thus inserted. The object's case is realized by the default objective marker *-ne*. See figure 7.1 for an overview of this derivation.

Next, consider the pair in (8)=(18).

(18) a. 'ipí-nm pée-qn'íi-see qeqíit-ne
she-ERG 3>3-dig-INC edible.root-OBJV
'She is digging the qeqiit.'
b. 'ipí hii-qn'íi-see qeqíit
she 3-dig-INC edible.root
'She is digging qeqiit.'

(18a) is a default transitive clause with case and agreement that only appear in transitive clauses. (18b) is its PAP counterpart. The derivation for (18a) is straightforward: Ξ-impoverishment may not apply to the (specific) object, and the derivation basically proceeds as the one for the previous example. The only difference is that the subject is 3rd person here, rendering application of (16cii) impossible. Consequently, the more specific case marker *-nm* is inserted. The ϕ-configuration on the verb is [3SG > 3SG], so *pée-* is inserted, being the most specific marker fulfilling the subset principle. This is depicted in figure 7.2.

Let us now turn to the crucial pseudo-antipassive example in (18b). Since the object is interpreted as non-specific, the context of Ξ-impoverishment is met right from the start of the derivation. Ξ-impoverishment deletes person, number and case of the object DP before any agreement has taken place. Selection of v_{trans} causes the derivation to crash since there exists only one goal with valued ϕ-features (the subject) but v_{trans} contains two ϕ-probes. Hence, only selection of v_{intr} yields a convergent derivation. The subject is then assigned the nominative case feature and the *v*'s ϕ-probe agrees with the subject. Nominative case can only be realized by the zero marker as it is by assumption underspecified for [±subj], in accordance with iconicity. The verb only contains the subject's 3SG feature, which is realized by *hi-*. Since the object bears no case feature (recall that its case probe has been deleted), no case marker is inserted. It is rather the bare stem that is pronounced. This derivation is illustrated in figure 7.3. Lack of case marker insertion is depicted by a blank box.

Notice as a last point that objects in the PAP construction ceases to control number agreement (Rude 1985: 160, Woolford 1997: 210). As seen in (2c) above, repeated here as (19a), objects in default transitives trigger plural agreement. Compare this to the PAP example in (19b). Here, the object is plural but nevertheless does not trigger plural agreement (the zero agreement prefix for 1st person intransitive agreement is not indicated in the gloss).

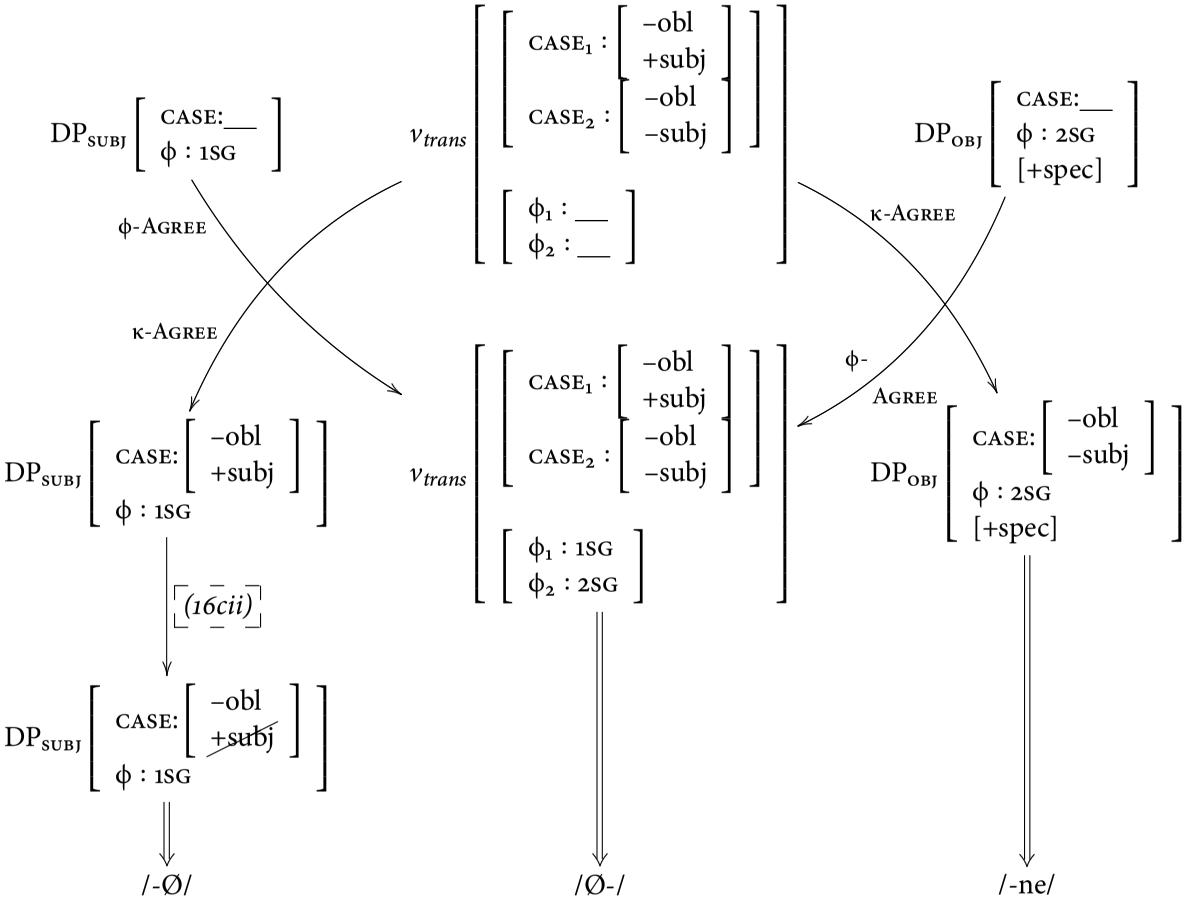


Figure 7.1
Sample derivation for (17): *('ín) Ø-'ewí-ye ('ime-né).* 'I shot you.'

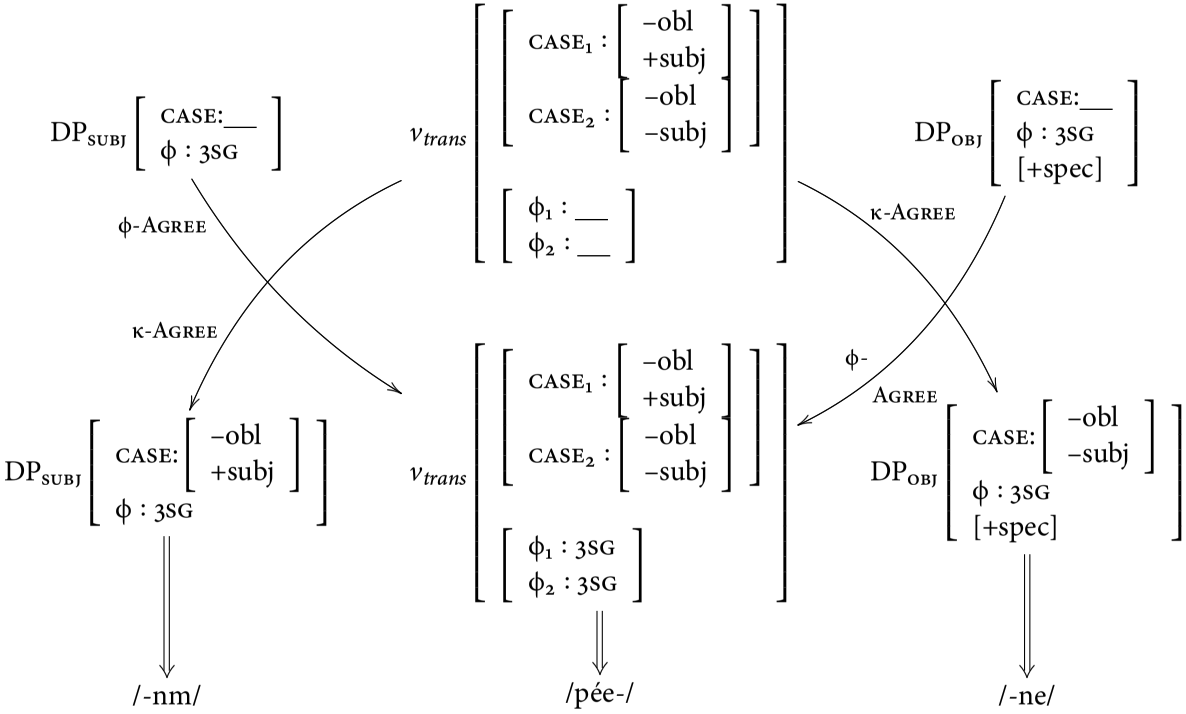


Figure 7.2
Sample derivation for (18a): *'ipí-nm pée-qn'ii-see qeqíit-ne.* 'She is digging the qeqiit.'

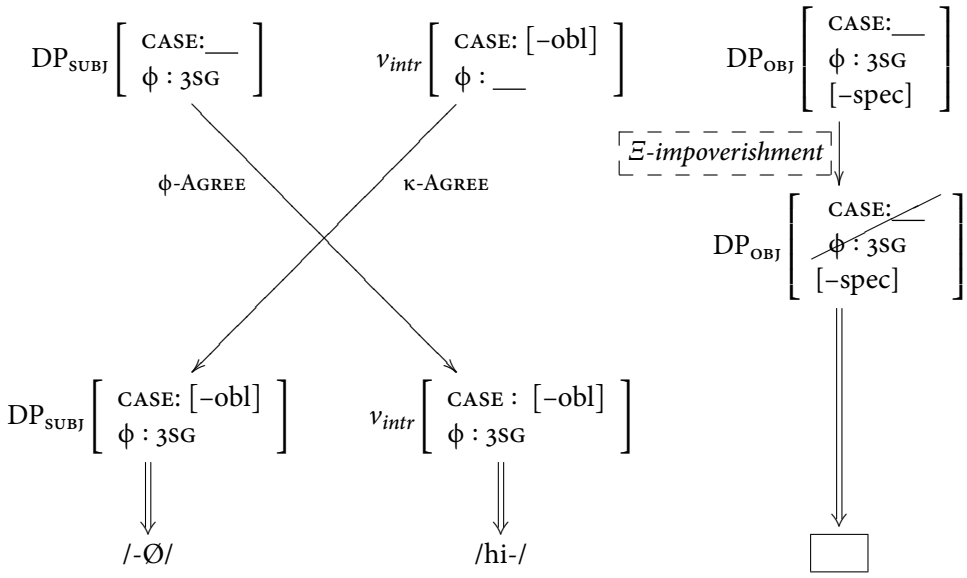


Figure 7.3
Sample derivation for (18b): *'ipí hii-qn'íi-see qeqíit.* 'She is digging qeqiit.'

(19) a. hi-náas-himay-liwak-sa
3SG-PL$_{OBJ}$-suspect-wrongly-IMPERF
'He is falsely accusing them.'
b. wéete-ex hip-o'qa tìm'áanit?
Q-1 eat-CND apples
'May I eat the apples?' (Crook 1999: 214)

This observation falls into place within the present analysis as Ξ-impoverishment by assumption deletes the number feature. Consequently, there exists no plural feature on the object that could trigger plural agreement, correctly deriving (19b).

7.1.3 Ditransitives

The Ξ-impoverishment account proposed in the preceding section was based on data from intransitive and transitive clauses. This raises the question of whether the proposal extends to ditransitive structures. In this section I will argue that it does.

At the outset, notice that there is some disagreement in the literature as to what case and agreement patterns may appear in ditransitives. Woolford (1997), referring to Noel Rude (p. c.), states that there exist the four case patterns in table 7.3. Deal (2010) notes that pattern (iv) in table 7.3 does indeed exist but only under the extended reflexive

interpretation. Thus, if the goal argument is zero marked it must be interpreted as being possessed by the subject. An antipassive interpretation is impossible. The relevant data for this claim is given in (20).

(20) a. 'ipéex̂ hi-nées-kiwyek-se qetqéet-ne 'áayat-om
bread 3SUBJ-PL$_{OBJ}$-feed-IMPERF duck-OBJ woman-ERG
'The woman is feeding bread to the ducks.'
b. *'ipéex̂ hi-híwyek-se qéetqet 'áayat
bread 3SUBJ-feed-IMPERF duck woman
Intended: 'The woman is feeding ducks bread.'
c. 'áayat hi-kíwyek-se pícpic cúu'yem
woman 3SUBJ-feed-IMPERF cat fish
'The woman is feeding fish to her own cat.' (Deal 2010: 90f.)

(20a) shows an example for case pattern (ii) in table 7.3: The subject bears the ergative, the indirect object the object case and the direct object remains unmarked. (20b) shows the same sentence with case pattern (iv). It is ungrammatical under a non-possessive interpretation. An interpretation as an extended reflexive, however, is grammatical, cf. (20c). As discussed in footnote 2 on page 166, I take the PAP and extended reflexives to be disjoint underlyingly, despite their identical surface forms in many cases. Consequently, I regard case pattern (iv) as ungrammatical, as the goal of the present theory is to account for the PAP construction. Thus, pattern (iv) is to be excluded.

As Amy Rose Deal (p. c.) has pointed out to me, patterns (i) and (iii) in table 7.3 are neither attested in previous descriptive work on the language nor in her fieldwork. In fact, both patterns are rejected by native speakers. Provided that this observation is correct, patterns (i) and (iii) should equally be excluded. Hence, we are left with pattern (ii) as the only grammatical case distribution in ditransitives. Notice that this case pattern arises independently of the specificity of either the direct or the indirect object. In ditransitives, the goal is always marked with *-ne* and always triggers verbal agreement (cf. object plural agreement in (20a)). The theme argument, on the other hand, is always zero marked and never controls verbal agreement, be it definite or

Table 7.3 Nez Perce ditransitive case patterns according to Woolford (1997)

	AGENT	GOAL	THEME
(i)	*-nim*	*-ne*	*-ne*
(ii)	*-nim*	*-ne*	*-Ø*
(iii)	*-Ø*	*-ne*	*-Ø*
(iv)	*-Ø*	*-Ø*	*-Ø*

indefinite. Thus, there is no PAP in ditransitives. To sum up, the only attested case pattern in ditransitives is the one in (21).

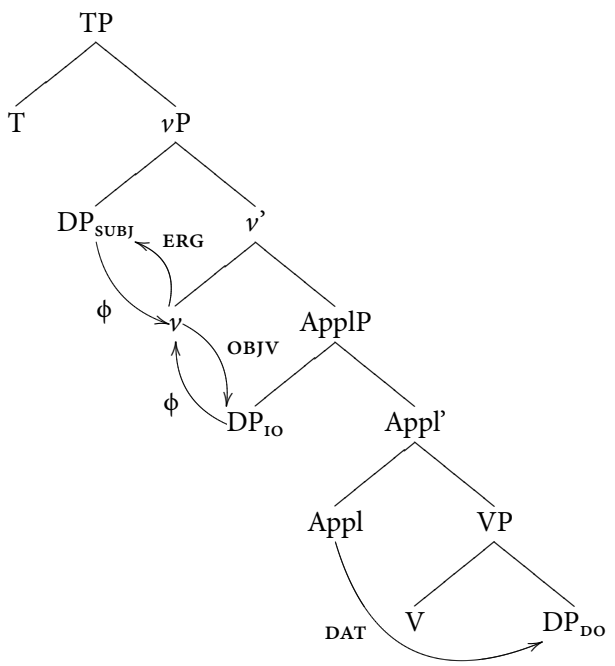
(21) *Nez Perce ditransitive case pattern* (Deal 2010, p. c.)

SUBJECT:	*-nim*
INDIRECT OBJECT:	*-ne*
DIRECT OBJECT:	*-Ø*

As it turns out, this distribution is completely compatible with the present analysis of the PAP. Recall that the crucial ingredient that gives rise to caselessness of the direct object in transitives is impoverishment. If impoverishment is brought about by harmonic alignment of scales, the lack of the PAP in ditransitives is expected in light of the fact that here the objective case is assigned to the indirect object. I have argued in section 4.2 on dative displacement that indirect objects pattern with subjects in aligning with the higher end of markedness hierarchies (due to the object scale 'indirect object > direct object'). They thus differ systematically from direct objects. Impoverishment does not apply to indirect objects for the same reason that it does not apply to subjects: They are not typically non-specific, hence no impoverishment takes place. Technically, they involve different faithfulness constraints, which are ranked higher than the markedness constraint *[Ξ], thereby prohibiting deletion. With this in mind, is does not come as a surprise that indirect objects do not show a PAP split. Hence, exceptionless case marking is completely expected under the present approach, lending further support to a scale-driven conception of impoverishment.

As for the direct object, the most straightforward analysis is to assume a special case that is only available in ditransitives. Let us call this case 'dative'. The dative is assigned to the direct object in ditransitives. It is not realized by an overt case marker and fails to trigger verbal agreement. One might wonder whether Ξ-impoverishment takes place on direct objects in ditransitives as well. The zero assumption would be that it does so. However, since the 'normal' case marker for the dative is zero and the direct object never controls verbal agreement in ditransitives, Ξ-impoverishment would not have surface effects. Thus, we might stick to the simplest assumption and grant Ξ-impoverishment access to direct objects in ditransitives as well. Its effects are however blurred due to independent properties of the dative. The relevant Agree relations for this derivation are given in (22).

(22)



7.1.4 Summary

I have proposed an analysis of the PAP construction in Nez Perce that rests on the idea that impoverishment may freely interact with Agree. Specifically, I have argued that impoverishment may apply before both ϕ- and κ-Agree, thereby rendering a DP non-existent as far as agreement is concerned. This anlaysis accounts for the fact that the PAP construction behaves as if the object did not exist with respect to morphological marking. The proposal was then shown to be easily extensible to cover ditransitives as well.

The analysis as developed for Nez Perce makes further predictions that cannot be tested for Nez Perce due to independent reasons. Firstly, deletion of the object's number feature provides an explanation for its inability to trigger plural agreement in pseudo-antipassives. However, the full prediction is much stronger: Number impoverishment leads one to expect that such objects cannot be marked for number themselves. Specifically, objects in pseudo-antipassives should never bear a plural marker. This, however, is trivially borne out, as Nez Perce marks only specific human objects and emphasized inanimates for plural, i.e. objects that are incompatible with Ξ-impoverishment. Non-specific objects are not plural-marked regardless of whether Ξ-impoverishment has taken place or not. (23) provides a relevant example. Here the object *wewúkiye-ne* 'elk-OBJV' triggers plural agreement on the verb and is marked for case, both facts

making it clear that no Ξ-impoverishment has applied to it. Nevertheless, it is not marked for plurality itself.

(23) Háama-nm hi-néec-'wi-ye wewúwikye-ne
man-ERG 3SUBJ-PL$_{OBJ}$-shoot-ASP elk-OBJ
'The man shot the elk (pl).' (Baker 2008b: 230)

There is thus an independent restriction on nominal number marking at stake here, which might account for the absence of number marking in cases of alleged Ξ-impoverishment—such as (19b)—as well. If Ξ-impoverished objects are not number-marked for unrelated reasons, the situation is fully compatible with the analysis proposed here but cannot be taken as a direct confirmation of the claim that Ξ-impoverishment deletes number features on a DP. Therefore, the prediction of the present account that these objects may never bear number marking cannot be tested.

A second crucial property of the analysis above is the distinction between DPs bearing a zero case marker (e.g., the subject in (18b)) on the one hand and DPs not being syntactically marked for case at all (the object in (18b)) on the other. This distinction is vacuous for Nez Perce as the elsewhere case marker is zero. There is thus no way of testing whether a DP bears this zero marker or no case marker at all. To evaluate the validity of the system just proposed, a language without zero case markers is called for. The prediction is here that Ξ-impoverished elements should bear no case marker at all and surface as bear stems.

The next section focuses on Niuean, arguably another language employing Ξ-impoverishment. Interestingly, Niuean provides the right testing ground for the above predictions. I will argue that both are borne out empirically.

7.2 Niuean 'Pseudo Noun Incorporation'

In this section I claim that Niuean, like Nez Perce, makes use of Ξ-impoverishment. Crucially, Niuean does not have a zero case marker and marks plural on all objects. The predictions of the present account that are vacuously fulfilled for Nez Perce for independent reasons can thus be tested in Niuean. Specifically, Ξ-impoverished objects firstly should never bear a number marker, and secondly should not have a case marker attached to them. Both predictions are borne out.

Table 7.4 Niuean structural case markers

	ERGATIVE	ABSOLUTIVE
Proper nouns / pronouns	*e*	*a*
Common nouns	*he*	*e*

7.2.1 Empirical Evidence

Niuean (Polynesian) has a construction with basically the same properties as the pseudo-antipassive in Nez Perce. The first researcher on the language, Seiter (1980), analysed it as noun incorporation, but, as argued by Massam (2001), it lacks relevant properties of noun incorporation. Specifically, it is not restricted to syntactic heads. Massam thus terms the construction 'pseudo noun incorporation' (PNI), and I will follow her terminology.

DEFAULT MARKING In Niuean the verb does not agree with its arguments in transitive clauses (recall section 3.2.2). As shown in table 7.4, the case marking system is ergative, involving a split between proper nouns/pronouns on the one hand and common nouns on the other. Crucially, Niuean does not have a zero case marker.[8] The case marking system is illustrated in (24).

(24) a. Ne tohitohi a Sione
PAST writing ABS Sione
'Sione was writing.'

b. Ko e tele e Sione a Sefa
PRES kick ERG Sione ABS Sefa
'Sione is kicking Sefa.'

---

[8] For the sake of completeness, an exhaustive list of Niuean case markers is provided in (i). Crucially, there does not exist a zero marker.

(i) *Niuean case markers* (Seiter 1980: 37)

	Common nouns	Proper nouns	Pronouns
ABSOLUTIVE	*e*	*a*	
ERGATIVE	*he*	*e*	
LOCATIVE	*he*	*i*	
GOAL	*ke he*	*ki*	
INSTRUMENTAL	*aki e*	*aki a*	
COMITATIVE	*mo e*	*mo*	
BENEFACTIVE	*ma e*	*ma*	*ma (ha)*
POSSESSIVE	*he*	*a/ha*	*ha*

c. Ne kai he pusi ia e moa
PAST eat ERG cat that ABS chicken
'That cat ate the chicken.' (Massam 2001: 155)

PNI STRUCTURES As in Nez Perce, transitive clauses can also appear in another form. In this PNI construction, (1) the object bears no case marker, (2) subjects are marked as in intransitive clauses (i.e. they bear the absolutive instead of the ergative), (3) the object is not marked for number, and (4) the object is interpreted as indefinite. Furthermore, PNI appears productively with an open class of verbs. These properties are strongly reminiscent of Nez Perce, suggesting a unified approach in tems of Ξ-impoverishment. See (25) and (26) for illustration.[9]

(25) a. Ne inu e Sione e kofe
PAST drink ERG Sione ABS coffee
'Sione drank the coffee.'
b. Ne inu kofe a Sione
PAST drink coffee ABS Sione
'Sione drank coffee.' (Massam 2000: 98)

(26) a. Kua tā he tama e tau fakatino
PERF draw ERG child ABS PL picture
'The child has been drawing pictures.'
b. Kua tā fakatino e tama
PERF draw picture ABS child
'The child has been drawing pictures/doing art-work.' (Seiter 1980: 70)

(25) illustrates the case marker alternations: (25a) is a regular transitive clause with case marking corresponding to table 7.4. In its PNI counterpart, (25b), on the other hand, the subject bears the absolutive rather than the ergative and the object bears no case marker at all. Lack of plural marking on the object of PNI constructions is illustrated in (26). In regular transitives plural objects are marked with the plural marker *tau*, cf. (26a). In PNI constructions the plural marker is missing, despite the fact that the object

[9] In addition to the properties listed here, the word order varies systematically as well: VSO in canonical transitive sentences, as opposed to VOS in PNI sentences. I will ignore this complication here. It might however be tied to movement of the object for reasons of case assignment under the assumption that this agreement feature is accompanied by an EPP feature (see Richards 2008a for suggestions along these lines). In PNI structures no case feature needs to be checked on the object, which consequently may remain within the VP (leaving it to the subject to satisfy the EPP feature). If in addition the verb-initial word order is derived by VP fronting (as argued by Massam 2001), [$_{VP}$ V O] is fronted in PNI configurations. In default transitives, on the other hand, only the remnant [$_{VP}$ V <O>] moves.

Note that this reasoning presupposes that the syntactic derivation is affected by impoverishment and is therefore only tenable if Agree and impoverishment apply within syntax. It is not immediately clear how a post-syntactic treatment could account for the word order restriction. Some resort to different linearization of the syntactic structure might be invoked.

may still be interpreted as plural ((26b)). Note in addition the semantic difference between default transitives and PNI constructions: The object is invariably interpreted as non-specific and non-referential in PNI structures (Massam 2001: 168).[10] Thus, again as in Nez Perce, semantic properties of the object trigger the use of PNI structures.

PNI is not possible with subjects, cf. (27).

(27) a. Fā totou he tao faiaoga e tau tohi
HAB read ERG PL teacher ABS PL book
'(The) teachers often read books.'

b. *Fā totou faiaoga e tau tohi
HAB read teacher ABS PL book
'Teachers often read books.' (Seiter 1980: 73f.)

As argued by Massam (2001), PNI cannot be an instance of object incorporation as the object can also be syntactically complex and even contain relative clauses. Phrasal objects in a PNI construction are exemplified in (28). The object *kofe kono* 'bitter coffee' contains a modifier and is thus not a single syntactic head. (28b) shows that PNI objects can even contain grammatical material such as subjunctive heads (the PNI object is set in italics in both examples).

(28) a. Ne inu *kofe kono* a Mele
PAST drink coffee bitter ABS Mele
'Mary drank bitter coffee.' (Massam 2001: 158)

b. Liga ko e mena ha ia a ti tupu ai e manatu ha lautolu…
likely PRED ABS thing that thus grow LOC ABS thought GEN they
ke kumi *mena ke* *nonofo ai* a lautolu
SBJNCTV seek thing SBJNCTV settle there ABS they
'It is likely that it was this that caused them to start thinking that they would seek a place to settle.' (Massam 2001: 160)

Absolutive marking of the subject as in PNI structures is not possible in default transitives but only in PNI constructions. Consider (29).

(29) a. Ne nākai kitia foki e mautolu e ha ika he aho nei
PAST not see also ERG we.PL.EXCL ABS NSPEC fish on day this
'We didn't even see a fish today.'

b. *Ne nākai kitia foki a mautolu e ha ika he aho nei
PAST not see also ABS we.PL.EXCL ABS NSPEC fish on day this
(Seiter 1980: 48)

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[10] Seiter (1980: 69, 75) notes a habitual or frequentative meaning of the whole clause, which, following Mithun (1984), can be tied to the non-specificity and non-referentiality of the object.

Both sentences in (29) are default transitives. They differ for case marking of the subject: It is marked ergative in (29a) but absolutive in (29b). Only ergative marking is grammatical. This means that the switch from ergative to absolutive marking in PNI structures is not independently possible in Niuean but instead only licensed by PNI configurations.

To summarize, transitive clauses in Niuean come in two forms: default and PNI. In PNI structures the object lacks a case marker (recall that Niuean does not have a zero case marker), subjects are marked as in intransitive clauses, number marking on the object is omitted, and the object is interpreted as non-definite. There is thus a striking similarity to the PAP construction in Nez Perce, which suggests a unified account.

7.2.2 Analysis

Given the striking similiarity between the Nez Perce pseudo-antipassive and PNI in Niuean, I will analyse PNI by means of Ξ-impoverishment. This derives all the properties listed above. Additionally, the predictions made on the end of section 7.1, untestable for Nez Perce forindependent reasons, are borne out in Niuean. Ξ-impoverishment applies in Niuean in the same fashion as in Nez Perce, deleting person, number and case features of the object prior to agreement:

(30) $\Xi \rightarrow \varnothing$ / [object $\wedge$ –specific]

(30) has the following effects: (i) The object does not bear case or number exponents in PNI structures, as these features have been impoverished. (ii) The object is barred from entering into agreement operations, yielding abolutive marking on the subject. (iii) The object is zero marked although there arguably exists no zero case exponent in Niuean.

Niuean thus demonstrates properties of Ξ-impoverishment that have been vacuously fulfilled in Nez Perce. Firstly, Ξ-impoverishment does not only bar number agreement on the verb but also number markers on the object itself. Secondly, there is evidence that Ξ-impoverishment indeeds deletes the syntactic case feature of a DP. In Niuean the object shows up without case marking. As there is no zero case marker in the language, the deficiency is most plausibly syntactic rather than morphological.

7.2.3 Instrumental Advancement

Instrumentals in Niuean show an interesting behavior in PNI structures (Seiter 1979, 1980: ch. 5). Consider (31).

(31) a. Kua tā he tama e tau fakatino aki e malala
PERF draw ERG child ABS PL picture with ABS charcoal
'The child has been drawing pictures with the charcoal.'
b. Kua tā fakatino e tama aki e malala
PERF draw picture ABS child with ABS charcoal
'The child has been drawing pictures with the charcoal.'
c. Kua tā fakatino he tama e malala
PERF draw picture ERG child ABS charcoal
'The child has been drawing pictures with the charcoal.' (Seiter 1980: 267)

(31a) is a non-PNI structure with an instrumental PP. The preposition *aki* 'with' obviously assigns absolutive case to its complement, as is evident by the case marker *e*.[11] (31b) shows the corresponding PNI structure. The instrumental DP is still embedded within a PP and assigned case by it. The crucial construction is given in (31c). Here, Ξ-impoverishment has applied to the object *fakatino* 'picture'. The instrumental *malala* 'charcoal' is *not* the complement of a preposition, though. Instead, it receives its absolutive case from the main verb, as can be seen from the fact that the subject *tama* 'child' appears in the ergative. Seiter (1979, 1980) analyses this construction as advancement of the instrumental to the grammatical function of the object. Importantly, this is only possible in PNI structures.

The present analysis straightforwardly accounts for these facts in the following way: As in Nez Perce, I assume that there exist transitive and intransitive *v*'s in Niuean. In (31a), transitive *v* assigns both of its case features to subject and object, respectively. In order for the instrumental DP to get case, it must be selected by a P head. (31b) illustrates the structure that results if the object has undergone Ξ-impoverishment and intransitive *v* is chosen. Since intransitive *v* has only one single case feature to assign, the instrumental still depends on a preposition. If, however, Ξ-impoverishment applies and transitive *v* is chosen, the instrumental gets its case feature valued by *v*. Selection of transitive *v* also results in ergative marking of the subject, as exemplified by (31c).[12]

Instrumentals in Niuean thus show the same pattern as ditransitives in Nez Perce: If no Ξ-impoverishment applies, v_{trans} assigns both its case features and a third DP (indirect object or instrumental, respectively) must be assigned case by a different source. In case Ξ-impoverishment takes place, two possibilites arise: First, the dative or instrumental DP may still be assigned case in the conventional way. Only v_{intr} leads

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[11] For other usages of *aki* apart from the prepositional one see Massam (1998).

[12] Although glossing *aki* as 'with', Seiter (1980) considers *aki e* to be the instrumental case marker of *malala* 'charcoal' (cf. the list of case markers in footnote 8). This does not seriously affect the argument made here, though. One might e.g. assume the existence of an empty preposition in (31a) that assigns instrumental case to the DP at hand. The case alternation would then be even more lucid, as the oblique instrumental would alternate with the structural absolutive, as evident by overt case marking.

Depending on how *aki* is treated the case on *malala* 'charcoal' in (31a) is either assigned by a null preposition (if *aki* is considered a case exponent) or by *aki* itself (if analyzed as a preposition).

to convergence in this case. Secondly, v_{trans} may assign its second case feature to the dative or instrumental DP. This leads to a configuration with the subject bearing the ergative and the dative/instrumental being realized as a standard direct object. Such a configuration is only possible if the relevant case feature is not assigned to the object and hence remains available.

This similarity between Nez Perce and Niuean provides further evidence that both phenomena are brought about by an identical operation. The third and last instantiation of this construction to be discussed here is found in Selayarese, to be discussed in the next section.

7.3 Selayarese

Selayarese is an Austronesian language spoken on the island of Selayar in Indonesia. As I will show it exhibits the same regularities as Nez Perce and Niuean when it comes to indefinite objects of transitive clauses: They are completely invisible for all argument encoding processes. The subject, by contrast, behaves as in an intransitive clause. Furthermore, these objects cannot control number marking. Nez Perce makes use of both case and verbal agreement, hence the effects are visible on both the verb and its arguments. Niuean, on the other hand, has a case system but no verbal agreement, hence the effects are only observable on the verb's arguments. Lastly, Selayarese does not exhibit morphological case marking but only verbal agreement. Consequently, changes only exist for verbal agreement. This behavior has been studied by Basri and Finer (1987), Finer (1997, 1999), Georgopoulos (1998), Basri (1999), and Béjar (1999), among others.

7.3.1 Empirical Evidence

Consider argument encoding in intransitive and 'normal' transitive clauses first. The verb agrees with its argument for ϕ-features. The relevant markers are given in table 7.5. As for the S argument in intransitives, it triggers suffix agreement (cf. ABS in table 7.5). The prefix position is filled by an intransitive marker (glossed INTR).[13] See (32) for examples. In transitive clauses, by contrast, the object controls ABS suffix agreement on the verb. Agreement with the subject appears as a verbal prefix. Thus the pattern of verb agreement is essentially ergative. Examples are given in (33).[14]

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[13] The intransitive marker has a variety of allomorphs. See Mithun and Basri (1986) for discussion and analysis.

[14] Transcription and glosses are unified to increase readability.

Table 7.5 Verbal agreement markers in Selayarese (Basri 1999: 237)

	1SG	1PL.EXCL	1PL.INCL/ 2HON	2FAM	3
ERGATIVE	*ku-*	*to-*	*ri-*	*mu-*	*la-*
ABSOLUTIVE	*-a*	*-kaŋ*	*-ki*	*-ko*	*-i*

(32) a. al-lari-a
INTR-run-1SG
'I ran.'

b. aʔ-lampa-i
INTR-leave-3
'S/he left.' (Basri 1999: 238)

c. ak-kelong-ko
INTR-sing-2FAM
'You sang.' (Finer 1997: 680)

(33) a. ku-alle-i doeʔ-iŋjo
1SG-take-3 money-DEF
'I took the money.' (Basri and Finer 1987: 142)

b. la-ʔalle-i doeʔ-iŋjo i Basoʔ
3-take-3 money-DEF PERS Basoʔ
'Basoʔ took the money.'[15]

c. la-keoʔ-a i Basoʔ
3-call-1SG PERS Basoʔ
'Basoʔ called me.'

d. ku-keoʔ-ko
1SG-call-2FAM
'I called you.' (Finer 1997: 679)

If the object of a transitive clause is indefinite, it ceases to control suffix agreement. As Basri (1999: 19) puts it, "[s]yntactically only a definite object is considered an object in this language." Suffix agreement is controlled by the subject, which in turn no longer triggers prefix agreement. The prefix position is instead occupied by the intransitive marker, as in intransitive clauses. Relevant minimal pairs are provided in (34).

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[15] *i* in, e.g., (33b) appears before human proper nouns. It is not a case marker as it appears on subjects and objects alike, cf. (i).

(i) ku-isseʔ-i kuko la-jaŋjang-i i Ali i Basoʔ
1SG-know-3 COMP 3-saw-3 PERS Ali PERS Basoʔ
'I know that Basoʔ saw Ali.' (Finer 1997: 687)

(34) a. (i) la-halli-i lika-ɲjo i Ali
3-buy-3 banana-DEF PERS Ali
'Ali bought the bananas.'
(ii) a-malli-i loka i Ali
INTR-buy-3 banana PERS Ali
'Ali bought bananas.'
b. (i) mu-alle-i loka-ɲjo
2FAM-take-3 banana-DEF
'You took the bananas.'
(ii) aŋ-alle-ko loka
INTR-take-2FAM banana
'You took some bananas.' (Basri 1999: 47)
c. (i) ku-halli-i palola-ɲjo
1SG-buy-3 eggplant-DEF
'I bought the eggplant(s).'
(ii) am-malli-a palola
INTR-buy-1SG eggplant
'I bought eggplant(s).' (Basri 1999: 19)

The pattern behind this alternation is thus identical to the one also observed in Nez Perce and Niuean. Indefinite objects are treated as non-existent by all processes of argument encoding. Therefore, only the subject plays a role in determining case and agreement, yielding intransitive argument encoding in transitive clauses. It is interesting to note that the intransitive marker may also appear with a transitivizer morpheme ('TRS' in (35b,c)). Consider (35).

(35) a. aʔ-lumpaʔ-i i Abu
INTR-jump-3 PERS Abu
'Abu jumped.' (Basri 1999: 325)
b. mu-lumpak-i-i to^{n}doʔ-iɲjo
2FAM-jump-TRS-3 fence-DEF
'You jumped across the fence.'
c. al-lumpak-i-ko to^{n}doʔ
INTR-jump-TRS-2FAM fence
'You jumped across a fence.' (Basri 1999: 322)

(35a) is an intransitive clause with the subject triggering suffix agreement and the prefix position being filled by the intransitive marker. Transitivizing the verb by attaching *-i* 'TRS' as in (35b) renders the agreement pattern transitive: The subject controls the prefix, the object triggers suffix agreement. The intransitive morpheme does not appear. Lastly, using an indefinite object switches to intransitive agreement again, as in (35c): The subject controls the suffix position, and the intransitive marker shows up again. The object *to^{n}doʔ* 'fence' plays no role in determining agreement.

As in Nez Perce and Niuean, number marking of the object also interacts with its indefiniteness. Recall that in Nez Perce objects in the PAP construction were not able to trigger plural marking on the verb. In Niuean, objects in the PNI construction cannot bear a plural marker. In Selayarese, finally, objects in the pseudo-intransitive construction do not trigger number agreement on the verb. Béjar (1999: 58f.), referring to Hasan Basri (p. c.), notes the generalization that only the absolutive argument may trigger plural marking on the verb (due to the lack of overt case marking, the term 'absolutive' refers to the agreement pattern, i.e. elements that control suffix agreement). In the case of intransitives, this is straightforward as there is only the absolutive argument. See (36) for illustration. Notice incidentally that a special plural morpheme appears on the verb if the agreement suffix does not unambigously encode number. (36) shows that in intransitives a special plural marker *-i* is attached to the verb if the suffixal ϕ-marker does not code number. Thus, in (36a,b) *-i* 'PL' appears as neither *-ko* '2FAM' nor *-ʔi* '3' express number. In (36c), on the other hand, no separate plural marker is involved as *-kaŋ* '1PL' codes number information. Generally, number is never marked on nouns themselves (Basri 1999: 10).

(36) a. as-sassa-i-ko
INTR-wash-PL-2FAM
'You (pl) did your laundry.'

b. ap-pallu-i-ʔi
INTR-cook-PL-3
'They cooked.' (Béjar 1999: 58)

c. ak-keloʔ-kaŋ
INTR-sing-1PL
'We sang.' (Finer 1999: 139)

In transitive clauses only an absolutive object may control number agreement on the verb. See (37).

(37) a. ku-kutaʔnang-i-ko
1SG-ask-PL-2FAM
'I asked you (pl).' (Béjar 1999: 58)

b. la-dappek-í-ʔi-ʔi jaraŋ-iɲjo pao-ɲjo
3-fall-TRS-PL-3 horse-DEF mango-DEF
'The mango fell on the horses.' (Finer 1999: 140)

There is, however, one exception to the generalization that only absolutive arguments may control number agreement. If the (absolutive) object of a transitive clause undergoes Ā-movement the ergative subject may control number agreement. This caveat, however, does not immediately bear on the present question of whether impoverished objects may control number (see footnote 18 for some general remarks on Ā-movement in Selayarese).

The crucial case from the present perspective are transitive clauses with an indefinite object. As evident from (38), they conform to the above generalization as well: It is the absolutive argument (thus, the subject) that controls number agreement.

(38) aɲ-jaɲjaŋ-kaŋ bembe ri paraŋ-iɲjo
INTR-see-1PL goat in field-DEF
'We saw a goat in the field.' (Finer 1999: 139)

This pattern is straightforwardly derived under an analysis in terms of Ξ-impoverishment. As the number feature has been deleted on the object, the relevant verbal probe continues its search into the subject. Crucially, this search extension is only possible if the object does not comprise the relevant features (a natural way to derive this probing pattern is by putting the relevant probe on *v*, as suggested for Basque in chapter 4). Of course, the data considered so far do not yet demonstrate that the indefinite object may not *in principle* control number agreement. I have, however, not been able to find such a case. Combined with the above observation that it is generally only the absolutive argument that may trigger number agreement, I conclude that the data encountered so far are fully in line with what one expects from the point of view of Ξ-impoverishment. Thus, pending further evidence, I will leave the full-blown predictions of the present approach aside here.

7.3.2 Analysis

The analysis for the above observations proceeds along the same lines as those for Nez Perce and Niuean. Under the present view, Selayarese is another example for Ξ-impoverishment. The only difference between Selayarese and the former two languages is that in Selayarese, Ξ-impoverishment is triggered if the object is indefinite, not if it is non-specific.[16] The crucial operation is given in (39).[17]

(39) $\Xi \rightarrow \varnothing$ / ___ [object ∧ –definite]

As in Nez Perce and Niuean, (39) does not depend on prior Agree and hence applies before any Agree operation takes place. It has the effect of rendering the object invisible

[16] Admittedly, the data in the previous section do not unambiguously show this as all indefinite objects were also non-specific. It may in principle be the distinction between specific and non-specific objects that is at stake here. The present analysis is based on the description in Basri (1999).

[17] The relevant contraint ranking with the same effect as (39) is as in (i). Notice that the markedness constraint *[Ξ] is inserted one slot higher than in Nez Perce and Niuean.

(i) $\left\{ \begin{array}{l} \text{*Obj/Pronoun \& MAX-}\Xi, \\ \text{*Obj/Proper noun \& MAX-}\Xi, \\ \text{*Obj/Definite \& MAX-}\Xi \end{array} \right\} \gg \text{*}[\Xi] \gg \left\{ \begin{array}{l} \text{*Obj/Specific \& MAX-}\Xi, \\ \text{*Obj/Non-specific \& MAX-}\Xi \end{array} \right\}$

for all case and ϕ-agreement operations. Consequently, only the subject constitutes a legitimate goal for such operations, resulting in intransitive argument encoding.

The concrete derivations of course depend on what assumption one makes concerning the structure of 'normal' transitives and intransitives. Especially the nature of the intransitive prefix is not entirely clear. A straightforward hypothesis that I will adopt for the sake of concreteness is that the intransitive morpheme is an elsewhere marker that is inserted into the prefix position if there is no more specific ergative agreement marker available, i.e. if there is no agreement information with a second argument. By assumption, the agreement with the first argument surfaces as a suffix. This makes it necessary that in transitive clauses the object is encountered first. Phrase-structural assumptions similar to those employed for Basque (see section 4.1.1) yield exactly this result. Thus, keeping as closely to the analysis of Nez Perce as possible, I assume there to exist two varieties of *v* in Selayarese. The ergative agreement pattern results from the assumption that the ϕ-probes are situated on *v*: Probing takes place into the object first (at the point when *v'* has been formed). Only then is the subject merged, eventually valuing the second ϕ-probe. If impoverishment has applied to the object, *v* may not agree with it, leading to agreement with the subject as the first Agree relation. Suffixes then realize first probes; prefixes realize second probes (if there is one). In intransitive clauses such as (32) agreement takes place with the S argument alone, resulting in an agreement suffix. The prefix position is then filled with the intransitive marker. In regular transitives (cf. (33)) agreement takes place with both the object and the subject. The object's ϕ-features are realized by a suffix, the subject features lead to a prefix. The relevant cases with an indefinite object (see (34)) involve Ξ-impoverishment (39). Hence the object does not constitute a goal for both case assignment and ϕ-agreement. Thus, only the subject enters into an Agree relation with *v*, subsequently realized by a suffix. The prefix position is again filled by the default intransitive marker as a last resort.

Under this analysis, the co-occurence of the transitivizer morpheme *-i* and the alleged intransitive marker as in (35c) falls into place if *-i* spells out a syntactic head that provides the verb with an additional argument, which, however, happens to be invisible for ϕ-agreement due to impoverishment.[18]

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[18] Upon closer scrutiny, matters turn out to be more complex. Verbal agreement in Selayarese is sensitive to whether a DP has undergone Ā-movement. For illustration, consider the data in (i) and (ii).

(i) a. la-taro-i doeʔ-iŋjo i Basoʔ ri lamari
3-put-3 money-DEF PERS Basoʔ in cupboard
'Basoʔ put the money in a cupboard.'

b. doeʔ-iŋjo la-taro(*-i) i Basoʔ ri lamari
money-DEF 3-put(-3) PERS Basoʔ in cupboard
'Basoʔ put *the money* in a cupboard.'

c. apa la-taro(*-i) i Basoʔ ri lamari
what 3-put(-3) PERS Basoʔ in cupboard
'What did Basoʔ put in a cupboard?' (Finer 1997: 688f.)

In addition, given the systematic absence of number marking on objects that have undergone Ξ-impoverishment it is also expected that Selayarese shows the same pattern. This provides further evidence that the three languages instantiate the same phenomenon. Under the present analysis, the number feature of the object is deleted by (39). The verbal number probe thus does not find any plural information on the object. This accounts for the observation that indefinite objects never control number marking on the verb.

To summarize, in this section I have extended the analysis of Nez Perce 'pseudo-antipassive' and Niuean 'pseudo noun incorporation' to Selayarese. Empirically, Selayarese was shown to exhibit the same properties as the Nez Perce and Niuean counterparts. This is captured by a unified approach.

(ii) a. n-aro-ko doeʔ ri lamari
INTR-put-2FAM money in cupboard
'You put money in a cupboard.'

b. doeʔ mu-taro ri lamari
money 2FAM-put in cupboard
'You put *money* in a cupboard.'

c. apa mu-taro ri lamari
what 2FAM-put in cupboard
'What did you put in a cupboard?'

d. mu-taro-i doeʔ-iŋjo ri lamari
2FAM-put-3 money-DEF in cupboard
'You put the money in a cupboard.'

(Basri and Finer 1987: 145)

(ia) and (iid) constitute canonical transitive clauses. (iia) is an example of Ξ-impoverishment. (ib) and (iib) show that a definite or specific object DP does not trigger suffix agreement if it has undergone topicalization. The same holds for *wh*-movement (cf. (ic) and (iic)). Notice, however, that in the cases of Ā-extraction the verb takes a considerably different agreement form. Neither does the intransitive prefix show up nor does the subject cease to control prefix agreement. Instead, all that changes is that the object agreement suffix is removed from the verb. The Ā-extraction data in (i) and (ii) might be plausibly analyzed as *anti-agreement* (see Ouhalla 1993, 2005, Schneider-Zioga 2007, Baker 2008a), a phenomenon attested for a variety of unrelated languages with the crucial property that verbal agreement is affected by DP movement. Under such a treatment, the extraction facts are completely unrelated to Ξ-impoverishment. The only relevant precondition that has to be met is that *wh*-elements and focussed DPs do not undergo Ξ-impoverishment, as seems plausible. *Wh*-elements simply fall under a special faithfulness constraint for *wh*-items. Note that, being non-referential, they do not fall under the definiteness hierarchy, onto which Ξ-impoverishment is based, in the first place. See the partial ranking in (iii).

(iii) *Obj/wh & MAX-CASE ≫ *[Ξ]

Due to a high-ranked faithfulness constraint, *wh*-elements do not undergo Ξ-impoverishment. That the object agreement suffix goes missing is due to independent principles of anti-agreement. The introduction of a high-ranked faithfulness constraint for *wh*-elements is independently motivated as in Nez Perce, *wh*-objects enter into normal transitive agreement (Amy Rose Deal, p. c.). Focussed elements, on the other hand, are interpreted as at least specific, hence impoverishment does not take place. (This suggests that it is specificity rather than definiteness that is relevant in Selayarese as well.) In sum, in Selayarese Ξ-impoverishment interacts with the independently observed phenomenon of anti-agreement, which however does not constitute an obstacle for the present analysis.

7.4 Antipassive as Impoverishment

The data in the preceding sections of this chapter had in common that a non-specific object is realized as an argument not marked for case and not triggering verbal agreement. In light of the obvious similarity between these data and canonical antipassives one might wonder whether the impoverishment-based analysis can be extended to include these cases as well. In this section I will briefly outline such an extension.[19] Although the account seems to carry over to other languages as well, I will restrict myself to Inuktitut and West Greenlandic (Fortescue 1984, Bittner 1987, 1994, Bok-Bennema 1991, Wharram 2003, Spreng 2006). The hallmarks of the antipassive in these languages (and more generally; see Baker 1988, Dixon 1994, and Bittner and Hale 1996) are that the verb shows absolutive agreement with the external argument, which in turn appears in the absolutive case. The logical object cannot be assigned structural case and bears the case marker *-mik* (called 'modalis', 'accusative' or 'instrumental' in the literature). Semantically, it receives a non-specific interpretation. Furthermore, in West Greenlandic, though not in Inuktitut, a special antipassive morpheme *si* appears on the verb. Some examples that illustrate these points are given in (40) and (41).

(40) *West Greenlandic*

a. (i) Hansi-p inuit tuqup-p-a-a
Hansi-ERG people.ABS kill-IND-TRANS-3SG.ERG.3SG.ABS
'Hansi killed the people.'

(ii) Hansi inun-nik tuqut-si-v-u-q
Hansi.ABS people-MOD kill-AP-IND-INTR-3SG.ABS
'Hansi killed people.'

b. (i) Jaaku-p arnaq tuqup-p-a-a
Jacob-ERG woman.ABS kill-IND-TRANS-3SG.ERG.3SG.ABS
'Jacob killed the woman / a particular woman.'

(ii) Jaaku arna-mik tuqut-si-v-u-q
Jacob.ABS woman-MOD kill-AP-IND-INTR-3SG.ABS
'Jacob killed a woman.' (Wharram 2003: 45)

(41) *Inuktitut*

a. (i) Kingmaalisaa-p ataut siq iqaluk
Kingmaalisaaq-ERG one.ABS fish.ABS
taku-j-a-nga
see-PART-TRANS-3SG.ERG.3SG.ABS
'Kingmaalisaaq saw a (particular) fish.'

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[19] Thanks to Gereon Müller, who suggested to extend the analysis to antipassives.

(ii) Kingmaalisaaq atautsi-mik iqalung-mik taku-j-u-q
Kingmaalisaaq one-MOD fish-MOD see-PART-INTR-3SG.ABS
'Kingmaalisaaq saw a fish.' (Wharram 2003: 45)

b. (i) Tuglasi taku-lauq-t-a-ra
Douglas.ABS see-PST-PART-TRANS-1SG.ERG.3SG.ABS
'I saw Douglas.'

(ii) Ipaksak Tuglasi-mik taku-lauq-t-u-nga
yesterday Douglas-MOD see-PST-PART-INTR-1SG.ABS
'Yesterday, I saw someone named Douglas.' (Wharram 2003: 31)

In each pair of (40) and (41) the first clause instantiates a transitive clause. The subject is marked with the ergative; the object receives the absolutive (unmarked morphologically). The verb agrees with both of its arguments and bears a transitive marker. Also notice that all objects are interpreted as specific. The second sentence of each pair is an example of the antipassive. Here the external argument is unmarked for case; the internal argument bears the marker *-mik*. Verbal agreement only holds with the external argument. In addition, the verb bears an intransitive marker and a special antipassive morpheme in West Greenlandic. As for the semantics, the objects are interpreted as weak indefinites. There is thus considerable similarity between the cases of Ξ-impoverishment observed in Nez Perce, Niuean and Selayarese on the one hand and the antipassive construction on the other hand, which suggests an account for the antipassive in terms of impoverishment.

The basic idea of Ξ-impoverishment is that an argument's case, number and person features are deleted before any Agree operations take place, thus rendering the argument invisible for the matters of argument encoding. To implement the antipassive constructions into this analysis, impoverishment may be assumed to have an even larger impact: It may delete so many features from an object that the object is not just invisible for case and agreement, but furthermore may not be realized by any phonological material whatsoever. This of course rests on the assumption that lexical morphemes (so-called *l-morphemes*; stems etc.) are identical to functional morphemes (*f-morphemes*) in that they too are furnished with phonological material only after the syntactic derivation is terminated, as has been independently proposed (Marantz 1996, 1997). All else being equal, this constitutes the null assumption in light of the fact that vocabulary insertion into functional morphemes applies post-syntactically. Another necessary assumption is that vocabulary insertion into l-morphemes depends on features, possibly the categorial feature. This as well appears natural as l-morphemes cannot be freely inserted into just any syntactic head. Instead, only some heads may be realized by l-morphemes. Whatever the constraining criterion might be, it may be deleted by impoverishment, thereby bleeding insertion of the stem. Consequently, this radical impoverishment bleeds insertion of any phonological material into the object.

An impoverishment approach to antipassives immediately accounts for the fact that it correlates with non-specificity if impoverishment is scale-driven, as assumed

throughout this study. As non-specific objects constitute the most typical type of object, impoverishment is restricted to these elements. This reasoning is identical to the cases of Ξ-impoverishment, which, as argued in the previous sections, only applies to highly canonical objects. The only relevant difference between the two impoverishment operations is that in the case of the antipassive an additional feature is deleted that forms a necessary condition for l-morpheme insertion. As antipassive impoverishment also deletes case and ϕ-features, it leads to an intransitive argument encoding pattern in the clause, completely parallel to the cases of Ξ-impoverishment: The object not containing any features for the relevant Agree operations, only a selection of intransitive verbal heads leads to convergence, i.e. a head that assigns absolutive case and agrees with only one argument.

As a matter of fact, the object may be realized in the antipassive cases if marked with *-mik*. I take this to involve adjunction of the lexically case-marked DP and subsequent binding of the phonologically zero object. This accounts for the observation that the DP bearing *-mik* is interpreted as the internal argument of the verb. In other words, the *mik*-marked elements in (40) and (41) are not the impoverished object itself but rather an additional element that binds it. Under this analysis, it does not come as a surprise that the *mik*-marked element may be freely omitted without affecting grammaticality judgements. An example from West Greenlandic is provided in (42).

(42) *West Greenlandic*

a. Kaali-p nanoq toqup-paa
Kaali-ERG bear.ABS kill-IND.3SG
'Kaali killed the polar bear.'

b. Kaali nannu-mik toqut-si-voq
Kaali.ABS bear-MOD kill-AP-IND.3SG
'Kaali killed a polar bear.'

c. Kaali toqut-si-voq
Kaali.ABS kill-AP-IND.3SG
'Kali is a killer/murderer.' (Schmidt 2003: 390)

(42a) is an example of a canonical transitive clause, with (42b,c) being the corresponding antipassive counterparts. In both cases the logical object has undergone impoverishment, so that vocabulary insertion is impossible. In (42b) an additional *mik*-phrase has been adjoined; (42c), on the other hand, instantiates a 'bare' antipassive.

The last point that does not yet fall out of the proposed analysis is the verbal antipassive marker *si*, which shows up in West Greenlandic but not in Inuktitut. To account for the presence of this marker I adopt the analysis of the Chukchi antipassive and spurious antipassive put forward in Bobaljik and Branigan (2006) and Bobaljik (2007). These authors argue that the alleged antipassive marker does not directly spell out any antipassive property of the verb but rather some consequence of the antipassive construction. Bobaljik and Branigan (2006) and Bobaljik (2007) argue that the antipas-

sive marker realizes *v* in the context of an object in Comp,VP. Assuming that objects in transitive clauses move to some higher position for reasons of case checking, the marker *-si* does not appear on the verb, either because movement does not even leave a trace (Müller 2009a) or because only the topmost member of a chain is relevant. To adopt this approach for present purposes I will assume that case-driven movement of the object does indeed take place in Greenlandic but only if no impoverishment has applied. This restriction follows without further assumptions: As impoverishment deletes the object's unvalued case feature, it bleeds case-driven movement. Consequently, the object will remain in Comp,VP at the end of the derivation. This is exactly the configuration triggering overt realization of *v* as *-si*. In intransitive clauses there either is no object to begin with or it moves away in the case of unaccusatives. In both cases, *si*-insertion is impossible.[20]

The examples in (41) and (42) show a rather tight connection between the antipassive and a non-specific interpretation of the logical object. However, this does not generally seem to hold. Johns (1999, 2001) notes that in Labrador Inuttut the logical object of an antipassive clause may be a proper noun. In Inuktitut, this is only possible under a special, non-referential interpretation (cf. (41bii)). No such restriction applies to Labrador Inuttut, as exemplified by (43a). In addition, (43b) illustrates that the logical object of antipassives may be interpreted as specific, again in constrast to the data above. According to Bittner (1987), specific underlying objects are grammatical for some speakers even in West Greenlandic, cf. (44).

(43) *Labrador Inuttut*

a. Margarita kuinatsa-i-juk Ritsati-mik
Margarita.ABS tickle-AP-3SG Richard-MOD
'Margarita is tickling Richard.' (Johns 2006: 295)

b. Holda puiji-mik taku-si-nngit-t-u-k
Holda.ABS seal-MOD see-AP-NEG-PART-INTR-3SG.ABS
(i) 'Holda has not seen a (single) seal.'
(ii) 'There is a seal that Holda has not seen.' (Wharram 2003: 107)

(44) *West Greenlandic*

a. Jesusi-mik taku-si-vuq
Jesus-MOD see-AP-IND.3SG.ABS
'He saw Jesus.'

b. miiraq-mik taassu-minnga isumagi-nnig-ssa-u-gut
child-MOD this-MOD look.after-AP-FUT-INTR.INDIC-1PL.ABS
'We will look after this child.' (Bittner 1987: 196)

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[20] Notice incidentally that case-driven movement was also made use of to account for the word order differences in Niuean; see footnote 9 on page 181.

In order to implement these facts into the present analysis, I assume, following Aissen (1999b), that it is prominence of the object that is at stake here. Thus, in both sentences in (44) the object is non-prominent, a notion that only loosely correlates with specificity. Formally, this move is easily implemented into the scale-based account pursued here by means of the *prominence scale* in (45).

(45) *Prominence scale*
X > x
(discourse-prominent argument > non-discourse-prominent argument)

Objects, aligning with the lower end of a markedness scale, are canonical if non-prominent. Hence, impoverishment might single out this class of objects, leading to antipassive with non-prominent arguments, regardless of their specificity properties. In sum, then, the antipassive construction in Labrador Inuttut differs from the one in Inuktitut and West Greenlandic in that it does not employ the specificity scale but rather makes use of the prominence scale in deriving the relevant faithfulness constraints that interact with a markedness constraint. Apart from this difference, however, the pattern is alike: Impoverishment affects typical objects (i.e. objects with properties low on the relevant scale), leading to the antipassive configuration along the lines suggested above.

In this section I have sketched a possible extension of the Ξ-impoverishment account to 'real' antipassives. The basic intuition behind this analysis is that impoverishment may be sufficiently radical to bleed insertion of any marker into the object, leaving it unrealized phonologically. Various properties of the antipassive have been accomodated into this analysis.

7.5 Summary

The three languages Nez Perce, Niuean and Selayarese show a striking retreat to intransitive argument encoding if the object of a transitive is non-specific or indefinite. I have argued that this common pattern results from a common operation—Ξ-impoverishment. Crucially, for the present account to work, it is essential that impoverishment may operate before AGREE takes place. To the extent that it is successful, then, it provides an argument for early impoverishment. Under the view defended here, impoverishment may in principle apply before any agreement operation. It may thereby bleed Agree relations and affect several syntactic heads of the clause because agreement is then sensitive to the output of impoverishment. In the case of Nez Perce I have argued that impoverishment may in addition also modify the subject's case feature after Agree has taken place (cf. the condition that 1st/2nd person subjects never bear *-nim*). This implies that no modular ordering between all Agree and all impoverishment operations is

IMPOVERISHMENT
⇓
ϕ-/κ-AGREE
⇓
IMPOVERISHMENT

Figure 7.4
The order of operations in Nez Perce, Niuean, and Selayarese

compatible with the present proposal. Rather, both may freely interact with each other. The order of operations employed in the analyses of Nez Perce, Niuean, and Selayarese is depicted in figure 7.4.

8 Concluding Remarks

The present study has established the claim that impoverishment and Agree operations interact systematically and explored the consequences of this proposal for a variety of non-related phenomena of eccentric argument encoding. The central result is that these systems cease to be 'exotic' or idiosyncratic if a systematic interaction between the two operations is assumed. As I have shown the empirical hallmarks of these constructions straightforwardly fall out of fundamental, independently proposed operations and—most importantly—their interaction.

Under standard conceptions of grammatical architecture such an interaction between Agree and impoverishment is explicitly ruled out as the two operations apply in distinct, extrinsically ordered grammatical components. In contrast to this view I have argued that the possibility of interaction between the two operations provides a unified account for various patterns of eccentric argument encoding that so far have resisted a uniform treatment. The present study featured analyses of differential argument encoding in Hindi, Marathi, and Punjabi and its interaction with verbal agreement; agreement displacement in Basque and Itelmen; nominative objects in Icelandic; global case splits in Umatilla Sahaptin, Yurok, and Kolyma Yukaghir; and global argument encoding shifts in Nez Perce, Niuean, and Selayarese, coupled with a tentative treatment of antipassives in general. Although seemingly unrelated theoretically and genetically, these phenomena were argued to be rather identical at a more abstract level of analysis: All of them involve impoverishment effects on Agree. As has been shown in the preceding chapters, these analyses make use of an intricate though highly systematic interaction between impoverishment and Agree operations. On the one hand, Agree may feed impoverishment; on the other hand; impoverishment may affect Agree in a variety of ways, including *feeding*, *bleeding*, and *spreading*:

- Impoverishment can delete case features that render a DP ϕ-opaque and thereby feed agreement.

- Impoverishment of ϕ-features may bar a DP from acting as a goal for a ϕ-probe. This way, impoverishment may bleed agreement.

- If an impoverished feature matrix undergoes Agree and is copied to a different head, marker insertion into the latter head is sensitive to whether impoverishment has applied or not. Hence, the impoverishment information may percolate to a different head by means of agreement, yielding the impression of global computation, as marker insertion into the second head appears to be sensitive to features of the first head. On the view pursued here, however, this impression of globality only arises because Agree copies the relevant information to another syntactic head.

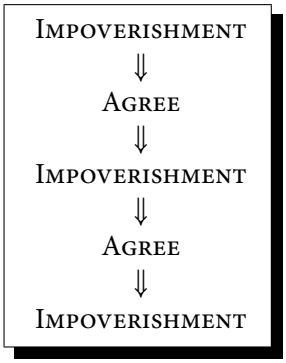

Figure 8.1
Orderings of impoverishment and Agree encountered in this study

The analyses developed in the course of this book thus involve a bidirectional influencing of Agree and impoverishment: Either of the two may have an effect on the other, as schematized in figure 8.1. The order of operations in figure 8.1 is incompatible with any approach that assumes impoverishment and Agree to solely apply within distinct modules and these modules to be ordered with respect to each other. Put more concretely, under the view pursued here, it cannot be the case that Agree is a purely syntactic operation and impoverishment only takes place post-syntactically.

The proposal that Agree and impoverishment take place within the same grammatical component naturally raises the question of how their application and interaction is conditioned. Throughout this study I have assumed that impoverishment takes priority over Agree in the sense that if both operations are possible at a certain stage of the derivation, impoverishment applies. Several ways of formally implementing this restriction are available. Recall from the discussion in section 6.4.1 that it need not universally the case that impoverishment takes priority over Agree. If, instead, languages are subject to variation in this respect (as seems expected from an OT point of view), this opens up the possibility that systems of eccentric argument encoding are 'eccentric' precisely because impoverishment applies early enough to affect Agree operations. In principle, other languages may give priority to Agree and thereby prevent impoverishment effects on Agree, giving rise to 'non-eccentric' patterns of argument encoding. While tenable in principle, establishing such a view makes necessary a broader considerations of the relevant systems. I will therefore leave this question to further research.

To the extent that the analyses in this study are successful it poses a strong argument for the interaction of impoverishment and Agree. Such an interaction is not compatible with a grammatical architecture that holds *all* Agree operations to take place before *all* impoverishment operations by virtue of applying in distinct grammatical components. Rather, the two operations take place in one and the same module.

Syntax versus morphology

The claim that Agree and impoverishment apply in the same grammatical module *a priori* implies nothing concerning the question of exactly *what* module both operations are part of. In principle, at least two alternatives are compatible with the picture defended here: Impoverishment and Agree may either both take place post-syntactically, or both may apply within syntax proper. I will not argue for either of these alternatives here. Notice that, in the course of the exposition, I have assumed both operations to apply within syntax proper, thereby interaction with the structure-building operations MERGE. However, this choice was made mainly for ease of exposition and concreteness. Specifically, I have not shown that the competing view—viz., both operations applying post-syntactically—is untenable.

Interestingly, there have been several independent proposals in favor of the former alternative, namely that agreement and case assignment take place post-syntactically. For case assignment, this has been argued for by Yip et al. (1987), Marantz (1991), Harley (1995), Embick (1997), Schütze (1997), McFadden (2004), Nomura (2005), and Sigurðsson (2008, in press). The idea that ϕ-agreement takes place as late as after syntax is explored by Marantz (1991), and, more recently, Bobaljik (2008). Furthermore, in recent minimalist conceptions of syntactic derivations the role played by Agree is increasingly diminished. Chomsky (2001) proposes that phrase structural composition (movement) is based on Edge/EPP features alone and not triggered by agreement operations. Based on considerations concerning feature interpretability, Chomsky asserts that Agree has to apply *at the same time as Spell-Out* and hence does not constitute a part of syntax proper. This move renders the output of Agree inaccessible to further syntactic operations.[1]

Evidently, since agreement patterns seem to be unstatable without reference to syntactic notions like *c-command* or *locality*, for such a view to work out one has to assume that post-syntactic operations are sensitive to syntactic structure. This, however, is a fairly standard assumption within Distributed Morphology.

By situating Agree and case assignment with the post-syntactic, morphological component, these theoretical proposals are in principle compatible with the main claim defended here. If agreement/case assignment and impoverishment both apply post-syntactically, there is no modular ordering between both types of operations, giving rise to a complex interaction.

However, the alternative move—leaving agreement within syntax and conceiving of impoverishment as a syntactic operation—is in principle feasible as well, as I have shown on the basis of the analyses in the preceding chapters. The arguments devel-

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[1] This consequence does not necessarily hold if one assumes a distinction between MATCH and VALUE. MATCH establishes an abstract syntactic relation and VALUE valuates (and deletes) uninterpretable features. MATCH might then be taken to apply syntax-internally and VALUE only at the point of Spell-Out. Thanks to Marc Richards (p.c.) for making me aware of this possible distinction.

oped in this study do not decide between these two possibilities. Nevertheless, both hypotheses are empirically distinguishable. If impoverishment and Agree apply within syntax, then syntactic operations might in principle be sensitive to the output of these operations. On the other hand, if both take place after the syntactic derivation is terminated, no syntactic operation can refer to that output. The next step of inquiry, then, is to investigate the interaction of the described phenomena with elements of the syntactic derivation, such as passivization or certain types of movement. Under the first alternative—Agree and impoverishment apply within syntax—these operations should differentiate between impoverished and non-impoverished structures. The second view, on the other hand, predicts syntactic operations to be blind to the contrast, as it is only introduced once the syntax has terminated.

Initial evidence in favor of positing Agree and impoverishment syntax-internally has been encountered in Niuean (recall footnote 9 on page 181), where word order differs depending on whether Ξ-impoverishment has taken place or not: VSO in canonical transitive sentences; VOS if Ξ-impoverishment has applied. For impoverishment to affect syntax-internal movement it has to apply during the syntactic derivation. If, on the other hand, impoverishment and Agree are taken to be post-syntactic operations, one seems to be forced to the conclusion that movement applies post-syntactically as well. All else being equal, it appears then that the very concept of post-syntactic operations is trivialized if they may interact with movement (thus, structure-building) operations.

Additional evidence for the view that the impoverishment information influences the syntactic derivation comes from Hindi. As Thomas Wiederhold (p. c.) has informed me objects marked with *-ko* and zero-marked ones differ with respect to extraction of material out of them. Given that extraction takes place syntax-internally, impoverishment (and, therefore, Agree) has to be a syntactic operation as well.

Obviously, however, a more extensive investigation into the syntactic properties of impoverished structures is necessary to establish this conclusion more firmly.

I conclude that impoverishment and Agree *both* take place either within syntax or after syntax. Both alternatives are empirically distinguishable and merit further inquiry.

The relevance of markedness scales

Throughout this study I have adopted and extended the view put forward in Keine and Müller (2008, 2009) that impoverishment is systematically conditioned and restricted by Hale/Silverstein hierarchies. This assumption, however, is by no means necessary or logically entailed by the main claim defended here. As a matter of fact, it is certainly logically possible that impoverishment applies in an arbitrary set of contexts that cannot be deduced from any independent principles. The impoverishment operations involved

in the analyses developed here, however, suggest that this is not the case. The pervasive pattern occurring again and again is that impoverishment affects canonical configurations in terms of Hale/Silverstein hierarchies, repeated in (1) for ease of reference. If this turns out more generally to be the case, markedness scales provide exactly the right way to characterize impoverishment. To see this, (2)–(9) summarize the impoverishment operations that form the basis of the accounts proposed in this study. Under (i) one finds the rule-based notation; (ii) gives the corresponding constraint-ranking with the same effect. In the present context, it is important to note that the constraint rankings are derived by harmonic alignment of markedness scales and thus crucially depend on hierarchies as grammatical entities.

(1) SCALES

a. *Grammatical Function (GF) scale*
Subject > Object

b. *Object scale*
Indirect object (IO) > Direct object (DO)

c. *Person scale*
$1^{st} > 2^{nd} > 3^{rd}$ person

d. *Prominence scale*
X > x
(discourse-prominent argument > non-discourse-prominent argument)

e. *Animacy scale*
Human > Animate > Inanimate

f. *Definiteness scale*
Personal pronoun > Proper noun > Definite > Indefinite Specific > Non-specific

g. *Tense scale*
Non-present > Present

h. *Aspect scale*
Imperfective > Perfective

(2) *Hindi*

a. (i) [+obj] → ∅ / __ [−HUMAN, −SPECIFIC]

(ii) *Obj/Hum/Spec & MAX-C,

$$\gg \left\{ \begin{array}{l} \text{*Obj/Hum/NSpec \& MAX-C,} \\ \text{*Obj/NHum/Spec \& MAX-C} \end{array} \right\}$$

$$\gg \text{*[+obj]}$$

$$\gg \text{*Obj/NHum/NSpec \& MAX-C}$$

b. (i) [+subj] → ∅ / __ [−PERF]

(ii) perfective & MAX-C
≫ *[+subj]
≫ imperfective & MAX-C

(3) *Marathi/Punjabi*

(i) [−obl] → ∅ / __ [PERSON: LOCAL]

(ii) *Subj/3 & MAX-C
≫ *[−obl]
≫ *Subj/2 & MAX-C ≫ *Subj/1 & MAX-C

(4) *Basque*

a. (i) [PERSON] → ∅ / __ [3 ∧ object]

(ii) *Obj/1 & MAX-π
≫ *Obj/2 & MAX-π
≫ *[π]
≫ *Obj/3 & MAX-π

b. (i) [+subj] → ∅ / __ [−PRESENT]

(ii) present & MAX-C
≫ *[+subj]
≫ non-present & MAX-C

c. (i) [+obl] → ∅ / __ [1(/2) ∧ indirect object]

(ii) *IO/3.non-top & MAX-C
≫ *IO/3.top & MAX-C
≫ (*[+obl])
≫ *IO/2 & MAX-C
≫ (*[+obl])
≫ *IO/1 & MAX-C

(5) *Icelandic*

(i) [−subj] → ∅ / __ [PERSON: 3 ∧ object]

(ii) *Obj/1 & MAX-C
≫ *Obj/2 & MAX-C
≫ *[−subj]
≫ *Obj/3 & MAX-C

a. [+gov] → ∅ / __ [DATIVE]

(6) *Umatilla Sahaptin/Yurok*

(i) [+subj]/[−subj] → ∅ / __ [[subject ∧ 1/2] ∨ [object ∧ 3]]

(ii) *Subj/NLoc & *Obj/Loc & MAX-C
≫ *[+subj]/*[−subj]
≫ { *Subj/NLoc & *Obj/NLoc & MAX-C
*Subj/Loc & *Obj/Loc & MAX-C }
≫ *Subj/Loc & *Obj/NLoc & MAX-C

(7) *Kolyma Yukaghir*

a. (i) [+gov] → ∅ / __ [1/2 ∧ Subj]

(ii) *Subj/3 & MAX-C
≫ *[+gov]
≫ *Subj/2 & MAX-C
*Subj/1 & MAX-C

b. (i) [−subj] → ∅ / __ [3 ∧ Obj]

(ii) [−obl] → ∅ / __ [3.Ndef ∧ Obj]

(iii) *Obj/1 & MAX-C
*Obj/2 & MAX-C
≫ *[−subj]
≫ *Obj/3.def & MAX-C
≫ *[−obl]
≫ *Obj/3.Ndef & MAX-C

(8) *Nez Perce/Niuean*

(i) $\Xi \rightarrow \varnothing$ / __ [object ∧ –specific]

(ii) *Obj/Pronoun & MAX-Ξ
≫ *Obj/Proper noun & MAX-Ξ
≫ *Obj/Definite & MAX-Ξ
≫ *Obj/Specific & MAX-Ξ
≫ *[Ξ]
≫ *Obj/Non-specific & MAX-Ξ

(9) *Selayarese*

(i) $\Xi \rightarrow \varnothing$ / __ [object ∧ –definite]

(ii) *Obj/Pronoun & MAX-Ξ
≫ *Obj/Proper noun & MAX-Ξ
≫ *Obj/Definite & MAX-Ξ
≫ *[Ξ]
≫ *Obj/Specific & MAX-Ξ
≫ *Obj/Non-specific & MAX-Ξ

It turns out that all impoverishment operations (with the notable exception of (5a); see below) apply in environments that are straightforwardly characterized as 'marked' in terms of Hale/Silverstein hierarchies. Thus, impoverishment takes place if subjects or indirect objects are associated with properties high on the scales and/or direct objects comprise properties low on these scales.

An arbitrary characterization that merely stipulates the context of impoverishment does not capture this striking underlying pattern. First, scale-driven impoverishment is considerably more restrictive than an operation that deletes arbitrary features in arbitrary contexts. As I have argued in this book, this restrictiveness is indeed confirmed empirically. Second, as I have argued on the basis of Umatilla Sahaptin and Yurok in chapter 6, a scale-based approach to impoverishment is more powerful than a rule-based conception in a desired way. In both Umatilla Sahaptin and Yurok impoverishment applies to a set of configurations that constitute a uniform section of markedness scales (i.e. configurations that are less marked than a certain cut-off point). However, these contexts do not plausibly form a natural class in terms of their feature specification. Consequently, a rule-based account has to make use of disjunction and negation to characterize this set. If, by contrast, markedness scales are adopted as grammatical entities, stating the context of impoverishment becomes straightforward. Finally, scale-driven impoverishment is superior to an arbitrary rule in accounting for cross-linguistic variation. This is best illustrated by dative displacement across Basque dialects and Itelmen (see section 4.2.3). The empirical observation is that some

systems involve no impoverishment at all, others impoverish first person indirect objects, while others first and second person ones, and in still others impoverishment affects first person, second person and topical third person indirect objects. This monotonically increasing distribution hardly looks like a coincidence. However, it arguably has to be treated as such if impoverishment is an arbitrary operation. If, on the other hand, markedness scales are at stake here, this distribution is entirely expected and well-defined: The markedness ranking of indirect objects is universal, with language -specific cut-off points inserted. This gives rise to the observed empirical distribution: Languages may only vary as to 'how far' impoverishment may go; they may not, however, choose a completely random set of contexts.

As for the impoverishment operation in (5a), no translation into a scale-induced OT ranking has been given as there is no apparent relation between the scales in (1).[2] This, however, need not be an obstacle. It seems hard to deny that the impoverishment operation in (5a) has a functional motivation. That it cannot be expressed with the scales at hand only establishes that they do not exhaustively characterize the set of possible impoverishment operations. (5a) constitutes an interaction between several case features. No scale in (1) makes any prediction for such an interaction. In other words, the scales at hand make clear predictions as to what constitutes a possible impoverishment operation but only for the features they are specified for. Additional (functionally motivated) machinery may account for additional instances of feature interaction, such as (5a). Thus, (5a) does not pose a counter-argument against the scale-driven conception of impoverishment envisaged in the present study.

As markedness scales provide the right tool to account for the apparent regularities of impoverishment I adopt the concept of scales as the triggering and constraining force behind impoverishment phenomena. In sum, then, impoverishment is far from being an arbitrary operation; rather it is highly systematic: It is functionally conditioned and restricted by markedness scales.[3]

The role of Optimality Theory

Optimality Theory has figured prominently in the analyses proposed in the course of this monograph. It is, however, by no means mandatory to think of impoverishment and Agree in optimality-theoretic terms. The main result of this study is that apparently eccentric patterns of argument encoding may be recast as highly systematic

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[2] Also see footnote 20 on page 64 for an indication that the same impoverishment operation is active in Hindi.

[3] Notice that this position does not necessarily entail that scales are theoretical primitives. Various authors have aimed at deriving the effects of scales as mere ephiphenomena, resulting from independently motivated syntactic principles and mechanisms. I leave it for future research to evaluate whether the present account for impoverishment as scale-driven is compatible with these theories.

impoverishment operations if impoverishment interacts with Agree. The question regarding the exact nature of both operations is an orthogonal one. Hence, it is worth pointing out that the main claim of the present study neither implies nor presupposes an OT-style approach to grammatical architecture.

The main reasons for pursuing an OT view are independent. Firstly, an OT approach to impoverishment in terms of harmonic alignment of markedness scales provides a highly restrictive conception of impoverishment. Secondly, the ranking of violable constraints gives rise to an ordering relation between operations which is otherwise underdetermined. Furthermore, it provides a straightforward way of implmenting cross-linguistic variations of these orderings.

As for the first point, the OT approach adopted here closely ties impoverishment to markedness. Its application is thus subject to the restriction in (10).

(10) If impoverishment applies to a certain type of argument, it applies to all less marked ones.

Thus, impoverishment deletes features only in canonical configurations. Therefore, scale-driven impoverishment is functionally motivated and constrained. It simplifies a given syntactic structure if it counts as highly canonical. At least from the view of the data considered here the empirical predictions are borne out. So-called eccentric argument encoding, being a reflex of highly systematic impoverishment, emerges as the consequence of the interaction of a few general and restricted principles, hence ceasing to be exotic. A central result of the present study is hence that impoverishment is functionally motivated and constrained by markedness hierarchies. Following Aissen (1999b, 2003), I take Optimality Theory to provide the right framework for implementing these scales into grammatical theory. The rule-based conception of impoverishment, on the other hand, if not restricted in any substantial sense, is completely tenable in principle but has few such properties to recommend it. Not being constrained in any substantial sense, its application is arbitrary. This first renders it non-restrictive empirically and secondly raises the question of why the grammatical architecture should employ such essentially random rules. In virtue of the conceptual and empirical superiority of scale-driven impoverishment, I adopted a view on impoverishment effects as resulting from markedness scales, formalized via optimality-theoretic constraint rankings.

Let me emphasize once more that despite these arguments OT is not essential in the sense that the analysis could not do without it. Particularly, a possible alternative would be to make use of mate-constraints for impoverishment *rules*, restricting their application to canonical contexts. The success of such an approach depends on whether such meta-constraints can be independently justified. Otherwise, they remain a mere restatement of the empirical generalization reached above. Contrast this with the OT analysis employed here. Harmonic alingment and local conjunction give rise to a ranking of constraints that crucially correlates with the hierarchical markedness of

argument types. By transitivity, if A ≫ B and B ≫ C, then A ≫ C. Thus, if a markedness constraint inducing impoverishment outranks constraint B, it also outranks C if B ≫ C holds. Most notably, scale-induced impoverishment may not apply in an arbitrary subset of logically possible contexts. By the reasoning above, impoverishment in environment B *entails* impoverishment in context C. These entailment relations are what lies at the heart of (10) and the phenomenon of differential argument encoding more generally.

The question between the two approaches thus boils down to whether the meta-constraints on impoverishment rules can be substantiated. If they cannot, the fact that impoverishment applies only to canonical configurations is a priori not more plausible than th inverse pattern or, for that matter, a completely arbitrary selection of environments. In a ntshell, a meta-constraint merely singles out a particular set of contexts by stipulation. It does not, however, shed light on the question *why* the members of this set conform to (10).

Conversely, of course, if follows that is such meta-constraints can be substantiated and implemented in a way that does not just restate the facts it may, in principle at least, replace the OT machinery made use of in this study. I will leave this question for future research. In light of the present context, these considerations show that the main claim of this book is orthogonal to the OT implementation itself.

The second reason for adopting an OT approach alluded to above is the implemenation of the ordering of operations and their cross-linguistic variation. Consider first the ordering between impoverishment and Agree as assumed in the analyses developed here. This order can be straightforwardly stated as a constraint ranking between several markedness constraints. The same reasoning applies to the relation between case assignment and ϕ-agreement. If one takes priority over the other, independently motivated rankings between constraints are a suitable way of capturing this fact. Furthermore, Optimality Theory explicitly assumes cross-linguistic variation to be reducible to differences in constraint rankings. I have argued in section 6.4.1 that in some languages ϕ-agreement takes place prior to case assignment while in others the order is reversed. Within an OT framework this state of affairs constitutes the null assumption. Consequently, the differences in the order of operations lend themselves to an analysis in terms of constraint rankings.

To summarize, while an OT-style approach to syntactic operations is by no means necessary under the view proposed here, it seems preferable for independent reasons, empirical as well as conceptual.

The role of impoverishment in the grammar

Since in the framework pursued here the role of impoverishment is considerably enhanced, this study may well be seen as providing further arguments that the applicability

of impoverishment is not restricted to paradigmatic syncretism. The classical argument for this claim is the 'spurious *se*' in Spanish and Catalan as analyzed in Bonet (1995) (cf. also Halle and Marantz 1994). In Spanish, the combination of a 3rd person dative (normally *le(s)*) and a 3rd person accusative (*lo*) clitic results in the string *se lo*, as opposed to **le lo*. *Se* can be considered the default clitic due to its variety of uses. However, it may not express 3rd person dative clitics apart from in the combination *se lo*. Bonet (1995) employs an impoverishment rule that deletes a feature of the dative clitic and thus yields a retreat to an unmarked exponent, namely *se*. Unless the entire clitic cluster is treated as *one* paradigm, the 'spurious *se*' is not an instance of paradigmatic syncretism. Notice incidentally that the *se lo* impoverishment appears not to influence the syntactic derivation. This is straightforwardly implemented into the present approach if the relevant impoverishment operation applies *after* Agree. As discussed in sections 3.3.1 and 6.4.1, this possibility independently arises from an Optimality-Theoretic approach to operation orderings and is hence expected if the claims put forward here are taken in their most general form.

The same conclusion holds for the arguments presented here. Take verbal (non-) agreement in Hindi and Basque as an example. The availability of an agreement relation is not a question of mere morphological syncretism but of the working of (post-)syntactic operations. Thus, impoverishment in these cases does not affect the morphological exponence of some established Agree relation but affects the availability of this relation itself. The 'global' case splits of Yurok and Umatilla Sahaptin are analyzed in the same vein. Here, impoverishment affects case exponence but unless subject *and* object properties are contained within any single paradigm cell, the effects of impoverishment go beyond the scope of paradigmatic syncretism. This is even more obvious for the cases of Ξ-impoverishment in Nez Perce and Niuean: As has been shown, impoverishment influences the marking of the subject, the object and (at least in Nez Perce) the verb.

The proposal developed in this study can thus be taken as a further argument that impoverishment constitutes an operation whose empirical applicability ultimately reaches beyond paradigmatic syncretism.

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