

West Germanic IPP-Constructions. An Optimality Theoretic Approach

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Ich erkläre hiermit, dass ich, abgesehen von den im Literaturverzeichnis aufgeführten Quellen und den Ratschlägen von den jeweils namentlich aufgeführten Personen, die Dissertation selbständig verfasst habe.

(Tanja Schmid)

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Contents

Acknowledgements	3
1 Introduction	9
1.1 The phenomenon: Infinitivus Pro Participio (IPP)	9
1.2 The West Germanic IPP-languages	12
1.3 Goals and organisation	13
2 The verb form	14
2.1 Introduction	14
2.2 Selection of the verb form: The standard case	14
2.3 Verb classes and IPP	15
2.4 IPP-verbs as past participles	16
2.4.1 Modals	17
2.4.2 Perception verbs	18
2.4.3 Benefactives	19
2.4.4 Duratives	20
2.4.5 Inchoatives	21
2.4.6 Control verbs	22
2.4.7 Raising verbs	23
2.5 The verb form in the IPP-construction	24
2.5.1 Causatives	24
2.5.2 Modals	25
2.5.3 Perception verbs	26
2.5.4 Benefactives	27
2.5.5 Duratives	28
2.5.6 Inchoatives	29
2.5.7 Control verbs	30
2.5.8 Raising verbs	31
2.6 Overview of IPP-verbs	32
2.7 Summary and questions resulting from the data	37
3 The verb order	39
3.1 Introduction	39
3.2 Causatives	40
3.2.1 The present perfect tense, V ₂ : past participle	40
3.2.2 The present perfect tense, V ₂ : IPP	41
3.2.3 The future tense, V ₂ : bare infinitive	42
3.3 Modals	45
3.3.1 The present perfect tense, V ₂ : past participle	45
3.3.2 The present perfect tense, V ₂ : IPP	45
3.3.3 The future tense, V ₂ : bare infinitive	47

3.4	Perception verbs	49
3.4.1	The present perfect tense, V ₂ : past participle	49
3.4.2	The present perfect tense, V ₂ : IPP	50
3.4.3	The future tense, V ₂ : bare infinitive	52
3.5	Benefactives	54
3.5.1	The present perfect tense, V ₂ : past participle	54
3.5.2	The present perfect tense, V ₂ : IPP	56
3.5.3	The future tense, V ₂ : bare infinitive	57
3.6	Duratives	59
3.6.1	The present perfect tense, V ₂ : past participle	59
3.6.2	The present perfect tense, V ₂ : IPP	61
3.6.3	The future tense, V ₂ : bare infinitive	62
3.7	Inchoatives	64
3.7.1	The present perfect tense, V ₂ : past participle	64
3.7.2	The present perfect tense, V ₂ : IPP	66
3.7.3	The future tense, V ₂ : bare infinitive	67
3.8	Control verbs	69
3.8.1	The present perfect tense, V ₂ : past participle	69
3.8.2	The present perfect tense, V ₂ : IPP	71
3.8.3	The future tense, V ₂ : bare infinitive	72
3.9	Summary from the perspective of the different languages	73
3.9.1	Bernese German	74
3.9.2	Standard German	75
3.9.3	Sankt Gallen German	76
3.9.4	Zürich German	77
3.9.5	Dutch	78
3.9.6	West Flemish	78
3.9.7	Afrikaans	79
3.10	Summary from the perspective of the different constructions	80
3.10.1	The present perfect tense, V ₂ : past participle	80
3.10.2	The present perfect tense, V ₂ : IPP	81
3.10.3	The future tense, V ₂ : bare infinitive	81
3.11	Summary	82
4	Previous accounts of the IPP-construction	83
4.1	The status of the IPP: infinitive or past participle?	84
4.2	Triggers and accounts of the IPP-construction	85
4.3	Correlations with respect to IPP	90
4.3.1	The perfect tense prefix <i>ge-</i> and IPP	90
4.3.2	Verb order and IPP	91
4.4	Summary	93

5	Introduction to Optimality Theory (OT)	95
5.1	General introduction	95
5.1.1	Universal Grammar in Optimality Theory	97
5.1.2	The Question of the Input	97
5.2	Last resort	97
5.2.1	<i>Do</i> -insertion in English (Grimshaw 1997)	98
5.3	Fixed Hierarchies	99
5.3.1	Harmonic alignment	99
6	A case study of German I: The verb form (obligatory IPP versus impossible IPP)	103
6.1	The data revisited	103
6.2	Morphological selection	108
6.3	Examples of violations of morphological selection	110
6.3.1	R-pronoun insertion in German, Müller (2000a)	110
6.3.2	‘Imperativus pro Infinitivo’ in West Frisian	111
6.3.3	PPI as a counterpart of IPP	112
6.4	Speculations on an ‘unwanted’ configuration: a trigger constraint for non-finite last resort cases	114
6.5	The form of the repair	121
6.5.1	Why <i>zu</i> -infinitives are different	121
6.5.2	Splitting up morphological selection	123
6.5.3	A markedness solution prohibiting certain verb forms	125
6.5.4	A connection between <i>ge</i> - and IPP?	127
6.5.5	Typological consequences of the account	132
6.6	The account of the verb form	136
6.6.1	Obligatory IPP	136
6.6.2	Impossible IPP	137
6.7	Summary	138
6.8	Appendix: A reconstruction of the IPP-trigger in terms of harmonic alignment	139
6.8.1	The scales	139
6.8.2	Constraint conjunction	142
6.8.3	The interaction with morphological selection	144
6.8.4	Obligatory IPP revisited	144
6.8.5	Impossible IPP revisited	145
6.8.6	A note on Swabian	146
6.8.7	Summary	148
7	A case study of German II: The verb order	149

8	Optional IPP in German	174
8.1	Introduction and overview	174
8.2	OT accounts of optionality	175
8.2.1	Identity of constraint profile	176
8.2.2	Constraint ties	176
8.2.3	Local ties	177
8.2.4	Global ties	178
8.2.5	Neutralization	180
8.3	Global ties and neutralization applied to IPP	181
8.3.1	The global tie approach	182
8.3.2	The neutralization approach	186
8.4	Advantages and disadvantages of the two approaches	191
8.4.1	The global tie approach	193
8.4.2	The neutralization approach	194
8.5	Summary	195
9	Parametrisation in OT: the other languages	196
9.1	The verb form	196
9.1.1	Optionality: Global ties in a more general form	198
9.1.2	Bernese German	200
9.1.3	Standard German	202
9.1.4	Sankt Gallen German	203
9.1.5	Zürich German	203
9.1.6	Dutch	204
9.1.7	West Flemish	205
9.1.8	Afrikaans	206
9.1.9	Summary	207
9.2	The verb order in 3-verb clusters	207
9.2.1	Perfect tense: V ₂ a bare infinitive (IPP)	210
9.2.2	Perfect tense: V ₂ as a past participle	213
9.2.3	Future tense: V ₂ a bare infinitive	216
9.2.4	The influence of stress patterns on verb order	219
9.2.5	A case study of Sankt Gallen German	220
9.2.6	The sketch of an OT-modell	223
9.2.7	Summary	224
9.3	Summary	224
10	Conclusion	225
	Summary in German	228
	References	238

1 Introduction

‘Infinitivus Pro Participio’ (IPP) constructions pose a longstanding problem for syntactic theory: An unexpected form (the bare infinitive) appears in certain constructions in which the past participle would be expected, i.e., a ‘wrong’ form is grammatical. The main object of this dissertation is to provide an adequate account of this construction from a comparative point of view.

The notions Infinitivus Pro Participio, i.e., infinitive instead of a past participle, and the German term *Ersatzinfinitiv* (‘substitute infinitive’) reflect the exceptional status of IPP. It has seldom been discussed, however, what this means theoretically: If IPP is a substitute for an expected past participle, are then those grammatical rules violated that normally account for the past participle? In contrast to previous literature on IPP, I will answer this question explicitly with ‘yes’, and show that if violable rules are assumed, a straightforward account of the IPP-construction can be given. My leading hypothesis will be that IPP-constructions are regarded as exceptional because they violate otherwise valid rules of the language. IPP appears as a ‘last resort’ or repair strategy only in cases in which the past participle would be ‘even worse’.

As such a view at the IPP-data requires a theory in which constraints are violable and hierarchically ordered, my analysis will be carried out in an Optimality Theory (OT) framework in which exactly this is assumed.

In this chapter I illustrate the properties of IPP-constructions in more detail. As I focus on the comparative aspect of IPP-constructions across seven West Germanic languages, I will briefly introduce the languages investigated in this study. Furthermore I will give an overview of the goals and organisation of the dissertation.

1.1 The phenomenon: Infinitivus Pro Participio (IPP)

IPP-constructions appear in a subset of the West Germanic languages. In the following I call these languages IPP-languages:¹ A bare infinitive (‘Infinitivus’) occurs instead of (‘Pro’) an expected past participle (‘Participio’) in certain contexts.

In the perfect tenses, the auxiliary (the equivalent of either ‘have’ or ‘be’) normally selects a past participle. In a 2-verb cluster it does not make any difference whether the language in question is an IPP-language like, e.g., Standard German (Ge) or a non-IPP language like, e.g., Frisian (Fr) (the Frisian data follow IJbema 1997:138). The examples in (1) and (2) illustrate that only the selected past participle of ‘read’ is grammatical in both language types:

¹This subset excludes the Anglo-Frisian languages English and Frisian, as well as Yiddish.

- (1) German
- a. Peter hat das Buch **gelesen**
Peter has the book read-PastP
 - b. *Peter hat das Buch **lesen**
Peter has the book read-Inf
- (2) Frisian
- a. Peter hat it boek **lezen**
Peter has the book read-PastP
 - b. *Peter hat it boek **leze**
Peter has the book read-Inf

When, however, the verb selected by the perfect auxiliary takes a verbal complement itself, then the bare infinitive appears instead of the expected past participle in IPP-languages.² An example from German with the modal *können* ‘can’ as an IPP-verb is given in (3). There are other verbs, however, that appear in IPP-constructions apart from modals. Their behaviour will be studied in detail in chapters 2 and 3.

- (3) German
- a. *Peter hat das Buch lesen **gekonnt**
Peter has the book read could-PastP
 - b. Peter hat das Buch lesen **können**
Peter has the book read can-Inf

In non-IPP languages, in constructions like these only the past participle of the modal is grammatical. The past participle is the expected form as it is selected by the perfect tense auxiliary. An example from Frisian is given in (4):

²I will follow the general practice in the literature and concentrate on IPP-constructions in the present perfect throughout the thesis. Note, however, that IPP appears whenever the respective context is given in an IPP-language. Apart from the present perfect tense this is also the case in the past perfect and in the future perfect as shown below for German:

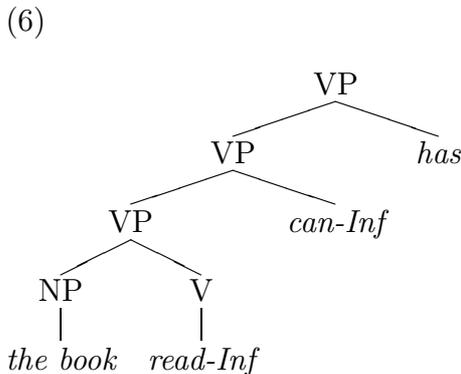
- (i) IPP in the past perfect:
- a. *Peter hatte das Buch lesen **gewollt**
 - b. Peter hatte das Buch lesen **wollen**
Peter had the book read wanted-PastP(a), want-Inf(b)
- (ii) IPP in the future perfect:
- a. *Peter wird das Zimmer aufräumen **gemusst** haben
 - b. Peter wird das Zimmer haben aufräumen **müssen**
Peter will the room (have) tidy-up must-PastP(a), must-Inf(b) (have)

- (4) Frisian
- a. Peter hat it boek leže **kind**
Peter has the book read could-PastP
 - b. *Peter hat it boek leže **kinne**
Peter has the book read can-Inf

So far, only the verb form in the IPP-construction has been described. In some IPP-languages, however, the IPP-construction shows verb order differences compared to other 3-verb clusters of the language. Standard German is one of these languages. Here, the normally strictly descending verb order 321 changes to the ‘mixed’ order 132. The auxiliary (V_1) that normally follows its selected verb (V_2) precedes its verbal complement in IPP-constructions. The special verb order of the IPP-construction can only be seen in embedded clauses (at least as long as we stick to 3-verb clusters). Otherwise, the verb second property of German interferes. An example is given in (5). The temporal auxiliary ‘have’ selects the modal ‘can’ which in turn selects the predicative verb ‘read’:

- (5) a. 321:* ... , dass Peter das Buch lesen können hat
... , that Peter the book read can-Inf has
- b. 132: ... , dass Peter das Buch hat lesen können
... , that Peter the book has read can-Inf

Note that by this ‘reordering’ operation, the relations between the verbs are not affected. No matter in which linear order the verbs appear, the semantic relations between them are still as in (6):



The verb order in IPP-constructions will be discussed in chapter 3. To sum up so far: The IPP-construction is an interesting phenomenon as it seems to lie outside the ‘normal’ rules of grammar. This ‘exceptional’ status has made it a longstanding problem for both traditional and generative analyses. IPP appears in several West Germanic languages, and although certain generalisations can be made and many similarities concerning IPP in these languages have been observed, there are also differences with respect to the verb classes and verb

orders in IPP-constructions. This variation makes IPP a good test case for a comparative analysis.

1.2 The West Germanic IPP-languages

As mentioned above, the IPP-construction is found in a subset of the West Germanic languages, excluding the Anglo-Frisian languages English and Frisian, as well as Yiddish.³

Among the languages that show the IPP-effect are German (including many dialects), Swiss German, which is an umbrella term for different German dialects spoken in Switzerland,⁴ Dutch (including many dialects), and Afrikaans (a historical descendant of Dutch spoken in South Africa). Although there is a large amount of literature especially on IPP in German and Dutch, a comparative approach that compares a larger amount of IPP-languages is still missing. The present study tries to fill this gap: I will discuss Standard German, Dutch, West Flemish (the dialect of Dutch spoken in the West of Belgium), Afrikaans, and three Swiss German dialects: these are Bernese German, Sankt Gallen German, and Zürich German. One reason to deal with Swiss German dialects rather than, say, Austrian dialects of German or dialects from the geographical area of Germany is that speakers of Swiss German are often less influenced by Standard German. This may be due to the fact that Standard German is used much less as ‘official language’ in Switzerland. As there are interesting differences between Bernese German and the other two Swiss German dialects, all three dialects have been included in the study. Naturally, the availability of native speakers has played a role as well in the choice of dialects.

The language abbreviations that will be used in the dissertation are listed in (7) for IPP-languages:

(7) IPP-languages

Af	Afrikaans
Be	Bernese German (Swiss German dialect)
Du	Dutch
Ge	(Standard) German
SG	Sankt Gallen German (Swiss German dialect)
WF	West Flemish (Dutch/Flemish dialect)
Zü	Zürich German (Swiss German dialect)

³See, e.g., Vikner 1995:5-7 for an overview of West Germanic in general.

⁴I make no difference between language and dialect and use both expressions interchangeably.

1.3 Goals and organisation

Two general goals are pursued in this study: First, I will establish a large comparative database which contains information concerning both verb form and verb order in IPP-constructions. Second, I will attempt to provide a theoretical account of these data. The goal here is to capture both cross-linguistic and language specific generalisations concerning IPP.

The thesis is therefore divided into an empirical first part (chapters 2 and 3) and a theoretical second part (chapters 4 to 9). In the empirical part, a thorough overview of IPP-data in the seven languages will be given. The verb classes that show IPP in at least one of the languages are systematically compared. In the theoretical part, an analysis of the IPP-phenomenon in terms of Optimality Theory is given. The leading hypothesis based on the data is that the occurrence of the IPP-form is a last resort strategy that only appears whenever all other possibilities offered by the grammar lead to even worse results, i.e., some grammatical rules may be violated when forced to. In Optimality Theory – in contrast to most other theories – it is a basic assumption that rules are violable.

Thus, the thesis is organised as follows: In chapter 2, the verb form in IPP-constructions is discussed under special consideration of the verb class of potential IPP-verbs. Chapter 3 concentrates on verb order. It is investigated whether IPP-constructions differ from other 3-verb constructions. Chapter 4 summarises and discusses previous accounts of IPP, and chapter 5 is a short introduction to Optimality Theory. In chapters 6 to 8, the analysis of IPP will be discussed for Standard German: In chapter 6 an OT-account of the verb form in obligatory IPP-constructions is given, and contrasted with constructions that do not allow IPP at all. In chapter 7, an account of verb order in German 3-verb constructions is given, and in chapter 8, two accounts of optionality are applied to the IPP-data and compared to each other. Chapter 9 extends the account of the IPP-construction in German to the other IPP-languages. Chapter 10 summarises the results and concludes.

2 The verb form

2.1 Introduction

In this section, I will give an overview of IPP-constructions in several West Germanic languages. As already mentioned in the introduction, IPP-constructions go against our expectations in two respects: First, instead of the ‘normally expected’ past participle they show the bare infinitive and second, the verb order differs from the ‘normally expected’ verb order of 3-verb clusters in the perfect tense, at least in some languages. I will take this into account by looking at the verb form in IPP-constructions here, and at the verb order in the following chapter. I will show that the verb classes involved have an intrinsic order (i.e., not random) that enables the linguist to make predictions about their behaviour in an IPP-context.

It was said above that IPP-constructions are unexpected with respect to the form of the IPP-verb: The bare infinitive replaces the ‘normally expected’ past participle. As the notion ‘normally expected’ for verb forms needs some explanation, I will go into the selection of verb forms at the beginning of the following section and then give examples of IPP-verbs in the seven languages under consideration.

2.2 Selection of the verb form: The standard case

Verbs select their complements not only with respect to their semantic properties but also with respect to the morphological form in which they occur.

In the following, I will look at verbs that can govern verbal complements. As in the case of nominal complements, they determine the morphological form of their verbal complements, the so-called verbal case or, following Bech 1983:12⁵, the *status* of the verb. Parallel to the government of nominal case, Bech introduced the term *status government* (Bech 1983:15f) for the determination of the form of a verbal complement by its selecting head. Depending on the lexical specification of its selecting verb, the embedded verb may occur either in the bare infinitive (Bech’s ‘first status’), in the *to*-infinitive (Bech’s ‘second status’) or in the past participle (Bech’s ‘third status’).

The perfect tense auxiliaries (the equivalents of *have*, *had*, *be*) always select a past participle, all other status types are ungrammatical. Before the ‘normally expected’ selectional properties of perfect tense auxiliaries are illustrated in section 2.4, I will introduce the (classes of) verbs which appear in the unexpected bare infinitive in IPP-constructions.

⁵I cite the 1983 reprint of Bech’s 1955 book throughout.

2.3 Verb classes and IPP

It is often mentioned in the literature that the IPP-form is connected to certain verb classes. There is a core class of modals that appear as IPP-verbs across all languages. Apart from modals, different verbs/verb classes are mentioned in the literature which can or have to appear as IPP in the individual languages. For German it is observed that, apart from modals, IPP obligatorily appears with causatives,⁶ and optionally with what may be summarised under the verb classes of perception verbs (*sehen* ‘see’, *hören* ‘hear’, ...) and benefactives (like, e.g., *helfen* ‘help’), see, e.g., Merkes 1895:145-169 (summarising older literature), Aldenhoff (1962), den Besten and Edmondson (1983), Askedal (1991), Meurers 2000:53-64. In this respect, Zürich German behaves quite similarly to Standard German according to my informant.

A larger class of IPP-verbs that also includes aspectual auxiliaries (such as duratives and inchoatives) can be found in Dutch, (see, e.g., Ponten 1973:75-79, Rutten 1991:66-70, IJbema 1997:139-143), Afrikaans (see, e.g., Robbers 1997:59f,66f), and the other Swiss German dialects according to my informants. Taking all this information together, we can extract the following verbs/ verb classes that show IPP in at least one language.⁷

(8) Summary: verb classes with IPP

verbclasses	examples
causatives	<i>let, make, do</i>
modals	<i>may, can, must, shall, need, ...</i>
perception verbs	<i>hear, see, feel, ...</i>
benefactives	<i>help (to), learn, teach</i>
duratives	<i>stay, remain, lie, sit, be ...</i>
inchoatives	<i>begin (to), continue (to), stop (to), ...</i>
control verbs ⁸	<i>try (to), dare (to), decide (to), promise (to), ...</i>
raising verbs	<i>seem, appear</i>

⁶I follow Askedal 1991:14 who distinguishes between ‘factive’ causatives (in the sense of ‘to cause’), and ‘permissive’ causatives (in the sense of ‘to permit’). Both kind of causatives are expressed by the verb *lassen* ‘let’ in German, and both show IPP obligatorily. The verb *lassen* may also be used in a ‘stative’ sense *etwas liegen/stehe lassen* ‘something lie/stand let’. In this use, *lassen* may appear both as bare infinitive and past participle, see, e.g., Meurers 2000:59-62 for discussion.

⁷These are the verbs/verb classes which I will call ‘IPP-verbs’ throughout this study.

⁸The notion ‘control verb’ is used as a cover term for restructuring verbs like ‘try, dare, promise’ which are often simply called ‘others’ in the literature on restructuring verbs, see, e.g., Wurmbrand (2001). Compared to the other verb class labels, this one (and also the label ‘raising verb’) is not semantic in nature. Nevertheless, the syntactic implications are not relevant here. The notion is used in order to have one general term for these kinds of verbs, i.e., as a simplification of representation. It may well be the case, however, that a finer grained

Although there is a tendency for IPP-verbs to embed a bare infinitive in some languages such as Standard German or Afrikaans (see, e.g., Donaldson 1993:226), this observation cannot be generalised. There are, e.g., examples from Dutch and West Flemish where at least some IPP-verbs embed a *to*-infinitive (Rutten 1991:69f) as has also been indicated in table (8). We can therefore conclude that IPP-verbs select an infinitival complement, i.e., a complement whose head is either a bare infinitive or a *to*-infinitive.

All verbs given in (8) are so-called restructuring verbs. These are verbs whose verbal complements are transparent for otherwise clause bounded phenomena. Restructuring phenomena do not only appear in West Germanic languages like German and Dutch (see, e.g., Haider (1993), Sabel (1996) not only on German but on restructuring in general, among many others) but also in Romance languages (see, e.g., Rizzi (1982), Burzio (1986) among many others, see also Rutten 1991:81-95 for a comparison of Dutch and Italian restructuring effects, and Wurmbrand 2001 for a general overview.)

In this study, I will solely concentrate on the IPP-effect and leave the larger field of restructuring aside. I only mention it here to show that the verb classes that appear with IPP can be seen in a larger context because they are roughly the same classes that show special restructuring properties in non-IPP languages.

In the West Germanic IPP-languages, all IPP-verbs are also restructuring verbs, but not all restructuring verbs are also IPP-verbs. In German, e.g., the IPP-verbs pattern with the class of ‘functional restructuring verbs’ (Wurmbrand 2001:137, 167) but not with ‘lexical restructuring verbs’ (Wurmbrand 2001:16). In Dutch, however, both kinds of restructuring verbs are IPP-verbs.

We will see how the verb classes given in (8) behave with respect to IPP in the seven languages under consideration. What is only given as a random list of IPP-verbs here, will turn out as an ordered list of IPP-verbs at the end of this chapter.

2.4 IPP-verbs as past participles

Apart from causatives, all verbs given in (8) may select nominal complements as well. When they do, however, they occur as past participles when selected by a perfect tense auxiliary as expected. This is shown in sections 2.4.1 to 2.4.7. As causatives do not appear without verbal complement, I will begin this overview with modal verbs. Whenever it is not marked otherwise, clauses and judgements were given by my informants.⁹

distinction is needed. I will leave this issue for further research.

⁹Note that I select one verb from each verb class to illustrate the properties in the following. The other verbs of the same class behave largely in an analogous fashion, however.

2.4.1 Modals

When a modal appears in the perfect tense and does not embed an infinitival complement, then it must show the past participle which is demanded by the perfect tense auxiliary. The bare infinitive (IPP) is ungrammatical in these examples.

(9) 2-verb clusters: the past participle with modals

Be	a. IPP		I	ha	das	immer	wöuue	
	b. PastP		No morphological distinct form for the past participle					
Ge	a. IPP	*	Ich	habe	das	immer	wollen	
	b. PastP		Ich	habe	das	immer	gewollt	
SG	a. IPP		I	ha	das	immer	wöle	
	b. PastP		No morphological distinct form for the past participle					
Zü	a. IPP		Ich	han	das	immer	wele	
	b. PastP		No morphologically distinct form for the past participle					
Du	a. IPP	*	Ik	heb	dit	altijd	willen	
	b. PastP		Ik	heb	dit	altijd	gewild	
WF	a. IPP	*	'k	'en	dat	oltied	willen	
	b. PastP		'k	'en	dat	oltied	gewild	
Af	a. IPP	*	Ek	het	dit	altyd	wil	
	b. PastP		Ek	het	dit	altyd	gewil	

(following Donaldson,1993:241)

I have that always want(a), wanted(b)

In the Swiss German variants (Bernese German, Sankt Gallen German, Zürich German), the bare infinitive and the past participle are phonetically not distinct. One possibility would be to assume that no past participle exists in these languages. I will favour the alternative view, however, that these forms are either bare infinitives or past participles depending on the context (see, e.g., Lötscher 1978:3,fn2, Weber 1987:169, 187 and Cooper 1994:187 on Zürich German; Schönenberger 1995:356, fn3 on Sankt Gallen German, and Vikner 2001:81 for a general overview). In the examples in (9), the forms appear in a non-IPP context in which only past participles occur. I will therefore take the forms to be past participles here.

2.4.2 Perception verbs

In 2-verb clusters in which the embedded verb (i.e., V_2)¹⁰ is a perception verb, we see again that only the selected past participle is grammatical and not the IPP-form. This is the case in all seven languages as shown in (10):

(10) 2-verb clusters: the past participle with perception verbs

Be	a. IPP	*	Er	het	se	ghöre
	b. PastP		Er	het	se	ghöört
Ge	a. IPP	*	Er	hat	sie	hören
	b. PastP		Er	hat	sie	gehört
SG	a. IPP	*	Er	hät	sie	ghöre
	b. PastP		Er	hät	sie	ghört
Zü	a. IPP	*	Er	hät	si	ghööre
	b. PastP		Er	hät	si	ghöört
Du	a. IPP	*	Hij	heeft	haar	horen
	b. PastP		Hij	heeft	haar	gehoord
WF	a. IPP	*	J'	'e'	'eur	'oaren
	b. PastP		J'	'e'	'eur	g'oard
Af	a. IPP	*	Hy	het	haar	hoor
	b. PastP		Hy	het	haar	gehoor
			He	has	her	hear(a), heard(b)

(following Ponelis, 1993:421)

¹⁰I follow the usual convention that the numbers assigned to verbs in a cluster mark their hierarchical (i.e., selectional) order. The hierarchically highest verb is assigned a '1', the next deeply embedded verb a '2', and so on.

2.4.3 Benefactives

In this section, I will give examples for the equivalent of the benefactive ‘help’ in all languages when it appears in the perfect tense and does not embed a verbal complement itself. In all examples it must appear as a past participle as demanded by the perfect tense auxiliary; the bare infinitive is ungrammatical.

(11) 2-verb clusters: the past participle with benefactives

Be	a. IPP	*	I	ha	re	häuffe
	b. PastP		I	ha	re	gghuufe
Ge	a. IPP	*	Ich	habe	ihr	helfen
	b. PastP		Ich	habe	ihr	geholfen
SG	a. IPP	*	I	ha	ere	helfe
	b. PastP		I	ha	ere	gholfe
Zü	a. IPP	*	Ich	han	ere	hälfe
	b. PastP		Ich	han	ere	ghulfe
Du	a. IPP	*	Ik	heb	haar	helpen
	b. PastP		Ik	heb	haar	geholpen
WF	a. IPP	*	'k	'en	'eur	'elpen
	b. PastP		'k	'en	'eur	g'olpen
Af	a. IPP	*	Ek	het	haar	help
	b. PastP		Ek	het	haar	gehelp
			I	have	her	help(a), helped(b)

2.4.4 Duratives

Duratives differ from the other verb classes discussed so far in that the perfect tense auxiliary is ‘be’ and not ‘have’ in all languages apart from Afrikaans where the perfect tense is always formed with *het* ‘have’. Apart from the use of the auxiliary, however, we get the same result as before: The durative verb is only grammatical as a past participle but not as a bare infinitive, i.e., the selectional properties of the auxiliary are observed. The examples in (12) mainly follow Vikner 2001, chapter 2.6.4.

(12) 2-verb clusters: the past participle with duratives

Be	a. IPP	*	T Lüt	si	bl[i]be
	b. PastP		T Lüt	si	bbl[I]be
Ge	a. IPP	*	Die Leute	sind	bleiben
	b. PastP		Die Leute	sind	geblieben
SG	a. IPP	*	T'Lüet	sind	bl[i:]be
	b. PastP		T'Lüet	sind	pl[I]be
Zü	a. IPP	*	D'Lüüt	sind	bliibe
	b. PastP		D'Lüüt	sind	bblibe
Du	a. IPP	*	De mensen	zijn	blijven
	b. PastP		De mensen	zijn	gebleven
WF	a. IPP	*	De mensen	zyn	bluven
	b. PastP		De mensen	zyn	gebleven
Af	a. IPP	*	De mense	het	bly
	b. PastP		De mense	het	gebly
			The people	have/are	remain(a), remained(b)

2.4.5 Inchoatives

The equivalent of ‘to stop’ is given as an example for inchoatives in (13). When it does not embed an infinitival complement it must appear as a past participle in the perfect tense, the bare infinitive is ungrammatical. This is shown for all seven languages:

(13) 2-verb clusters: the past participle with inchoatives

Be	a. IPP	*	Es	het	ufhöre
	b. PastP		Es	het	ufghört
Ge	a. IPP	*	Es	hat	aufhören
	b. PastP		Es	hat	aufgehört
SG	a. IPP	*	Es	hät	ufhöre
	b. PastP		Es	hät	ufghört
Zü	a. IPP	*	Es	hät	uufhöre
	b. PastP		Es	hät	uufghört
Du	a. IPP	*	Het	heeft	ophouden
	b. PastP		Het	heeft	opgehouden
WF	a. IPP	*	't	'e'	stoppen
	b. PastP		't	'e'	gestopt
Af	a. IPP	*	Dit	het	ophou
	b. PastP		Dit	het	opgehou
					Donaldson, 1993:225
			It	has	stop(a), stopped(b)

2.4.6 Control verbs

Verbs like ‘try, dare, promise’ which I call control verbs here also appear as past participles in 2-verb clusters in the perfect tense, the bare infinitive is ungrammatical. Examples are given for ‘try’ in (14).

(14) 2-verb clusters: the past participle with control verbs

Be	a. IPP	*	Er	het	es	nie	probiere
	b. PastP		Er	het	es	nie	probiert
Ge	a. IPP	*	Er	hat	es	nie	versuchen
	b. PastP		Er	hat	es	nie	versucht
SG	a. IPP	*	Er	hät	es	nie	versueche
	b. PastP		Er	hät	es	nie	versuecht
Zü	a. IPP	*	Er	hät	es	nie	versueche
	b. PastP		Er	hät	es	nie	versuecht
Du	a. IPP	*	Hij	heeft	het	nooit	proberen
	b. PastP		Hij	heeft	het	nooit	geprobeerd
WF	a. IPP	*	J'	'e'	't	nooit	proberen
	b. PastP		J'	'e'	't	nooit	geprobird
Af	a. IPP	*	Hy	het	dit	nooit	probeer nie
	b. PastP		Hy	het	dit	nooit	geprobeer nie
			He	has	it	never	try(a), tried(b)

2.4.7 Raising verbs

The last verb class I discuss is the class of raising verbs. Raising verbs do not occur at all in the perfect tense in many languages for independent reasons. In the languages in which they are not totally excluded, however, the past participle is clearly preferred. This is shown in (15):

(15) 2-verb clusters: the past participle with raising verbs

Be Does not occur in the perfect tense

Ge	a. IPP	*	Diese	Methode	hat	gut	scheinen
	b. PastP	??	Diese	Methode	hat	gut	geschienen

SG Does not occur in the perfect tense

Zü	a. IPP	*	Die	Metooode	hät	guet	schiiine
	b. PastP	??	Die	Metooode	hät	guet	gschune

Du	a. IPP	*	Deze	methode	is	goed	blijken
	b. PastP	?	Deze	methode	is	goed	gebleken

WF	a. IPP	*	Die	metode	'e'	goed	blijken
	b. PastP	*	Die	metode	'e'	goed	gebleken

Af	a. IPP	*	Hierdie	metode	het	goed	blyk
	b. PastP		Hierdie	metode	het	goed	geblyk
			The	method	has/is	good	seem(a), seemed(b)

To sum up so far: All examples above have shown the same pattern, independently of verb class or language: A potential IPP-verb that (i) is selected by a perfect tense auxiliary and (ii) does not select a verbal complement itself, always appears as a past participle. The bare infinitive is ungrammatical.

In the following it will be shown that several factors must combine to lead to IPP-constructions. Some of these factors (like, e.g., the IPP-context in which the IPP-verb embeds an infinitival complement) are the same across IPP-languages. Other factors, however (like which verb classes trigger IPP) differ from language to language.

2.5 The verb form in the IPP-construction

Let us now see what happens in the different languages when potential IPP-verbs appear in the perfect tense and select a verbal complement themselves. It will be shown that all languages exhibit the IPP-construction with at least one verb class. The languages, however, differ in which verb classes allow IPP, and whether IPP is obligatory or optional.

2.5.1 Causatives

The behaviour of causatives in a typical IPP-context is shown in (16):

(16) 3-verb clusters in the perfect tense, V₂ a causative

Be	a. IPP	Er	het	ne	d	Medizin	trinke	laa
	b. PastP *	Er	het	ne	d	Medizin	trinke	gglaa
Ge	a. IPP	Er	hat	ihn	die	Medizin	trinken	lassen
	b. PastP *	Er	hat	ihn	die	Medizin	trinken	gelassen
SG	a. IPP	Er	hät	en	t'	Medizin	trinke	loo
	b. PastP *	Er	hät	en	t'	Medizin	trinke	gloo
Zü	a. IPP	Er	hät	en	d	Medizin	trinke	laa
	b. PastP *	Er	hät	en	d	Medizin	trinke	gglaa
		He	has	him	the	medicine	drink	make(a), made(b)
Du	a. IPP	Hij	heeft	hem	het	medicijn	doen	drinken
	b. PastP *	Hij	heeft	hem	het	medicijn	gedaan	drinken
WF	a. IPP	J'	'et	'em	die	medicien	doen	drienken
	b. PastP *	J'	'et	'em	die	medicien	gedoan	drienken
Af ¹¹	a. IPP	Hy	het	hom	die	medisyne	maak	drink
	b. PastP	Hy	het	hom	die	medisyne	gemaak	drink
		He	has	him	the	medicine	make(a),	drink
							made(b)	

(Robbers, 1997:96)

All seven languages show IPP with causatives, i.e., the causative verb appears as a bare infinitive. In the Swiss German dialects, Standard German, Dutch and West Flemish, IPP is obligatory. In Afrikaans, IPP appears optionally.

¹¹In this construction, which I will take as the 'typical' causative construction, *maak* optionally shows IPP. There are other constructions with *maak*, however, which behave differently and do not show IPP. This may be due to their status as 'Anglicisms', see Robbers 1997:96-105 for discussion.

2.5.2 Modals

The examples in (17) are as similar as possible to the 2-verb clusters with modals above. The only difference is that the equivalent of the verb ‘to do’ is inserted as complement of the modal.

Modals behave similar to causatives with respect to IPP. Examples with the modal ‘want’ are given in (17). The other modals (as given in table (8)) would show the same patterns:

(17) 3-verb clusters in the perfect tense, V₂ a modal

Be	a. IPP	I	ha	das	immer	wöue	mache
	b. PastP	No morphologically distinct form for the past participle					
Ge	a. IPP	Ich	habe	das	immer	machen	wollen
	b. PastP	*	Ich	habe	das	immer	machen gewollt
Zü	a. IPP	Ich	han	das	immer	mache	wele
	b. PastP	No morphologically distinct form for the past participle					
SG	a. IPP	I	ha	das	immer	wöle	mache
	b. PastP	No morphologically distinct form for the past participle					
Du	a. IPP	Ik	heb	dit	altijd	willen	doen
	b. PastP	*	Ik	heb	dit	altijd	gewild doen
WF	a. IPP	'k	'en	dat	oltied	willen	doen
	b. PastP	*	'k	'en	dat	oltied	gewild doen
Af	a. IPP	?	Ek	het	dit	altyd	wil doen
	b. PastP	*	Ek	het	dit	altyd	gewil doen
	c. Imp		Ek	het	dit	altyd	wou doen
						(Donaldson,1993:241)	
			I	have	that	always (do)	want(a), (do)
							wanted(b)

Modals show IPP in all languages, the past participle is ungrammatical. As already mentioned above, the forms of bare infinitive and past participle are not morphologically distinct in the Swiss German dialects. I will assume that the forms are indeed bare infinitives in (17) as they appear in a typical IPP-context.

The deviation of the IPP-example (a) in Afrikaans is due to the fact that modals are rarely used in the perfect tense. The imperfect tense is preferred in general. When, however, a compound perfect tense is used, then the imperfect form of the modal is preferred to the bare infinitive. The alternative form with the imperfect *wou* used in the compound perfect tense is given as example (c) in (17).

This is what Ponelis (1979:270) calls ‘preteritive assimilation’, see also Donaldson 1993:241f. Compared to the IPP-construction in (a), the past participle of modals as in (b) is always ungrammatical in Afrikaans. Either the bare infinitive or the imperfect form appear in the compound perfect tense instead. I will assume that IPP is nevertheless optional with modals although it does not alternate with a past participle but with an imperfective form instead.

2.5.3 Perception verbs

When V_2 is a perception verb that selects a verbal complement itself, then we get the following patterns:

(18) 3-verb clusters in the perfect tense, V_2 a perception verb

Be	a. IPP	Er	het	se		gghöore	rüeffe
	b. PastP	Er	het	se		gghöört	rüeffe
Ge	a. IPP	Er	hat	sie	rufen	hören	
	b. PastP	Er	hat	sie	rufen	gehört	
SG	a. IPP	Er	hät	sie		ghöre	ruefe
	b. PastP	Er	hät	sie		ghört	ruefe
Zü	a. IPP	Er	hät	si		ghöore	rüeffe
	b. PastP	Er	hät	si		ghöört	rüeffe
Du	a. IPP	Hij	heeft	haar		horen	roepen
	b. PastP	* Hij	heeft	haar		gehoord	roepen
WF	a. IPP	J'	'et	'eur		'oaren	roepen
	b. PastP	* J'	'et	'eur		g'oard	roepen
Af	a. IPP	Hy	het	haar		hoor	roep
	b. PastP	Hy	het	haar		gehoor	roep
						(following Ponelis, 1993:421)	
		He	has	her	(call)	hear(a), heard(b)	(call)

The behaviour of perception verbs differs from causatives and modals at least in the Swiss German dialects and in Standard German. Both the bare infinitive and the past participle of the perception verb are grammatical, i.e., IPP is optional with this verb class in (Swiss) German. IPP is obligatory in Dutch and West Flemish, and optional in Afrikaans just as with causatives and modals.

2.5.4 Benefactives

Benefactives like *helfen* behave quite similarly to perception verbs in an IPP-context as (19) shows:

(19) 3-verb clusters in the perfect tense, V₂ a benefactive

Be	a. IPP	?	I	ha	re	d Chischte		häuffe	trääge
	b. PastP		I	ha	re	d Chischte		gghuufe	trääge
Ge	a. IPP		Ich	habe	ihr	die Kisten	tragen	helfen	
	b. PastP		Ich	habe	ihr	die Kisten	tragen	geholfen	
SG	a. IPP		I	ha	ere	t Chischte		helfe	träge
	b. PastP		I	ha	ere	t Chischte		gholfe	träge
Zü	a. IPP		Ich	han	ere	d Chischte		hälfe	trüüge
	b. PastP		Ich	han	ere	d Chischte		ghulfe	trüüge
Du ¹²	a. IPP		Ik	heb	haar	de krat		helfen	dragen
	b. PastP	*	Ik	heb	haar	de krat		geholfen	(te) dragen
WF	a. IPP		'k	'en	'eur	de dozen		'elpen	dragen
	b. PastP	*	'k	'en	'eur	de dozen		g'olpen	dragen
Af	a. IPP		Ek	het	(vir) haar	die bokse		help	dra
	b. PastP		Ek	het	(vir) haar	die bokse		gehelp	dra
			I	have	(for) her	the boxes	(carry)	help(a), helped(b)	(carry)

Benefactives behave like perception verbs in an IPP-context: The bare infinitive (i.e., IPP) and the past participle are both grammatical in the Swiss German dialects, Standard German,¹³ and Afrikaans. IPP is obligatory in Dutch and West Flemish.

¹²These judgements are taken from IJbema 1997:139. There is more variation, however. IJbema (1997:fn3) mentions that *helpen* 'help' may also embed a *to*-infinitival. In this case, the direct object appears between V₃ and V₂, and the benefactive appears as a past participle.

- (i) ... , dat ik haar heb geholpen het boek te lezen
 ... , that I have her helped-PastP this book to read

This has been confirmed by my informant, but see Rutten 1991:69f on the possibility of IPP even in these cases. As Rutten states 'there is a considerable amount of variation among speakers' with respect to these examples. I will follow IJbemas judgements that IPP is obligatory with benefactives. The observed variation among speakers will be left for further data work.

¹³This is at least true for my own variant of German (Standard German in a Swabian environment). The data judgements are also compatible with Meier 1994:7f. Note, however, that the judgements may be controversial as, e.g., Wurmbrand 1998:326 judges *helfen* with IPP as ungrammatical.

2.5.5 Duratives

Duratives show a different pattern to the verb classes investigated so far crosslinguistically when put in an IPP-context as shown in (20). Most examples in this section are taken from Vikner 2000, chapter 2.6.4.

(20) 3-verb clusters in the perfect tense, V₂ a durative

Be	a. IPP		T Lüt	si		bl[i]be	schtaa
	b. PastP	(*)	T Lüt	si		bbl[I]be	schtaa
Ge	a. IPP	*	Die Leute	sind	stehen	bleiben	
	b. PastP		Die Leute	sind	stehen	geblieben	
SG	a. IPP	*	T'Lüet	sind		bl[i:]be	schto
	b. PastP		T'Lüet	sind		pl[I]be	schto
Zü	a. IPP	*	D'Lüüt	sind	schtaa	bliibe	
	b. PastP		D'Lüüt	sind	schtaa	bblibe	
Du	a. IPP		De mensen	zijn		blijven	staan
	b. PastP	*	De mensen	zijn		gebleven	staan
WF	a. IPP		De mensen	zyn		bluven	stoan
	b. PastP	*	De mensen	zyn		gebleven	stoan
Af	a. IPP		De mense	het		bly	staan
	b. PastP	?	De mense	het		gebly	staan
			The people	have/are	(stand)	remain(a), remained(b)	(stand)

Crosslinguistically, with duratives IPP is less often grammatical. It is ungrammatical in Standard German, Sankt Gallen German, and Zürich German.¹⁴ In Bernese German, there are two groups of speakers according to my informant. The larger group favours the IPP-construction and excludes the past participle. Another group, however, also accepts the past participle. This is expressed by putting the ‘*’ in parenthesis in the example with past participle. In Dutch and West Flemish, IPP is obligatory with duratives, and in Afrikaans it is optional.¹⁵

¹⁴Note that in these languages the use of duratives is restricted. They only embed ‘stative’ verbs like ‘sit, stand, ...’. In other languages like Afrikaans, however, the complements of duratives may come from a larger class of verbs (e.g., *bly rook* ‘remain smoke’, see Ponelis 1993:42, and also IJbema 1997:142 for Dutch examples). It may therefore well be the case that we do not deal with duratives in Standard German and the Swiss German dialects here but with another verb class (‘statives’).

¹⁵The past participle is almost ungrammatical in examples like this, according to my in-

2.5.6 Inchoatives

The examples in (21) show the behaviour of inchoatives in an IPP-context:

(21) 3-verb clusters in the perfect tense, V₂ an inchoative

Be	a. IPP		Es	het		ufhöre		z rägne
	b. PastP		Es	het		ufghört		z rägne
Ge	a. IPP	*	Es	hat	zu regnen	aufhören		
	b. PastP		Es	hat	zu regnen	aufgehört		
SG ¹⁶	a. IPP		Es	hät		ufhöre		rägne
	b. PastP	?	Es	hät		ufghört		rägne
Zü	a. IPP	*	Es	hät		uufhöre		(z) rägne
	b. PastP		Es	hät		uufghört		(z) rägne
Du ¹⁷	a. IPP	*	Het	heeft		ophouden		(te) regenen
	b. PastP		Het	heeft		opgehouden		te regenen
WF ¹⁸	a. IPP	*	't	'e'		stoppen	me'	regnen
	b. PastP		't	'e'		gestopt	me'	regnen
Af	a. IPP		Dit	het		ophou		reën
	b. PastP		Dit	het		opgehou		reën
			It	has	(to rain)	stop(a), stopped(b)	Donaldson, 1993:225 (with) ((to) rain)	

formant. In the literature on Afrikaans, however, see Donaldson 1993:275, Ponelis 1993:413 and Robbers 1997:59ff, the occurrence of the past participle in these cases is seen as a matter of formality of speech and stylistic level: the more colloquial the speech, the better the past participle. Robbers 1997 therefore explicitly speaks of optionality of IPP in these cases.

¹⁶The usage of past participle and IPP seems to depend on the verb order in St. Gallen German: When the inchoative precedes the auxiliary, the past participle is preferred, otherwise the IPP. Both forms, however, are possible.

¹⁷These judgements are due to my informant. But see Rutten 1991 and Ijbema 1997 for examples of verbs of this class which may occur with IPP. Rutten 1991:67 mentions that there is a large amount of variation among speakers, and gives the following example:

- (i) ??dat Elsje hem een brief is beginnen te schrijven
that Elsje him a letter is begin to write

I will keep the judgements of my informant, however, for reasons of consistency.

¹⁸That *stoppen* 'stop' does not show IPP is presumably connected to an 'external' factor, namely that it has a CP-complement introduced by *me* ('with'). Other inchoatives like, e.g. *beginnen* 'begin', show optional IPP in West Flemish. I will therefore assume that IPP is not excluded here 'in principle' and mark IPP as optional with inchoatives in the following.

IPP is optional with inchoatives in Bernese German, Sankt Gallen German, West Flemish (but see footnote 18), and Afrikaans. It is impossible in Standard German, Zürich German, and Dutch. IPP is obligatory with inchoatives in none of the languages.

2.5.7 Control verbs

Control verbs largely pattern with inchoatives in an IPP-context as shown in (22):

(22) 3-verb clusters in the perfect tense, V₂ a control verb

Be	a. IPP		Er	het	nie		probiere	vorzgä	das...
	b. PastP		Er	het	nie		probiert	vorzgä	das...
Ge	a. IPP	*	Er	hat	nie	vorzugeben	versuchen		dass...
	b. PastP		Er	hat	nie	vorzugeben	versucht		dass...
SG	a. IPP	*	Er	hät	nie		versueche	vorztüsche	...
	b. PastP		Er	hät	nie		versuecht	vorztüsche	...
Zü	a. IPP	*	Er	hät	nie		versueche	voorztüüsche	...
	b. PastP		Er	hät	nie		versuecht	voorztüüsche	...
Du	a. IPP	*	Hij	heeft	nooit		proberen	voor te geven	...
	b. PastP		Hij	heeft	nooit		geprobeerd	voor te geven	...
WF	a. IPP		J'	'e'	nooit		proberen	(te) beweren	da'...
	b. PastP		J'	'e'	nooit		geprobird	te beweren	da'...
Af	a. IPP		Hy	het	nooit		probeer	voorgee nie	dat...
	b. PastP		Hy	het	nooit		geprobeer	voorgee nie	dat...
			He	has	never (pretend)		try(a), tried(b)	(to)(pretend)	that

(following Donaldson, 1993:275)

Both IPP and past participle may appear in Bernese German, West Flemish, and Afrikaans. IPP is not grammatical in Standard German, Sankt Gallen German, Zürich German, and Dutch.¹⁹

¹⁹Note that judgements again differ a lot in Dutch. For the informant I follow here, the sentences are not grammatical.

2.5.8 Raising verbs

Finally, the behaviour of raising verbs is investigated in an IPP-context. Examples are given in (23):

(23) 3-verb clusters in the perfect tense, V₂ a raising verb

Be Does not occur in the perfect tense

Ge	a. IPP	*	Diese	Methode	hat	ein Erfolg	zu sein	scheinen
	b. PastP	*	Diese	Methode	hat	ein Erfolg	zu sein	geschienen

SG Does not occur in the perfect tense

Zü	a. IPP	*	Die	Metooode	hät	en Erfolg	z sii	schiine
	b. PastP	??	Die	Metooode	hät	en Erfolg	z sii	gschune

The method has a success to be seem(a)
seemed(b)

Du ²⁰	a. IPP	*	Deze	methode	is	blijken	een succes	te zijn
	b. PastP	??	Deze	methode	is	gebleken	een succes	te zijn

WF	a. IPP	*	Die	metode	'e'	blijken	e suukses	te zien
	b. PastP	*	Die	metode	'e'	gebleken	e suukses	te zien

Af	a. IPP	*	Hierdie	metode	het	blyk	'n sukses	te wees
	b. PastP		Hierdie	metode	het	geblyk	'n sukses	te wees

(following Robbers, 1997:91)

The method has seem(a) a success to be
seemed(b)

As raising verbs do not appear in the perfect tense in most languages, the examples are not very informative with respect to IPP. We see, however, that in Afrikaans which allows raising verbs in the perfect tense, IPP is ungrammatical.

²⁰The judgements are due to my informant. Rutten (1991:70), however, gives examples for IPP with raising verbs. He says that ‘the compound tense with *blijken* (appear), *lijken* (appear, seem) and *schijnen* (seem) is not accepted by all speakers, but those who do prefer the IPP’.

- (i) ... , dat Elsje hem een brief heeft blijken te schrijven
... , that Elsje him a letter has seem to write

2.6 Overview of IPP-verbs

In this section, the behaviour of the different verb classes with respect to IPP will be summarised. For each language, a table is given in which examples of IPP-verbs are listed. The verbs are ordered according to the verb class they belong to. In the left column of each table, it is marked whether IPP is obligatory (+), optional (+ -), or not possible (-) with the respective verb class.

(24) Verbclasses and IPP in Bernese German

IPP	verbclasses	examples
+	causatives	<i>laa</i> (let)
+	modals	<i>dörffe</i> (may), <i>chönne</i> (can), <i>müesse</i> (must), <i>wöue</i> (want), <i>söue</i> (shall), <i>(nid) bruuche z</i> (need (not) to)
+ -	perception verbs	<i>gghööre</i> (hear), <i>gseeh</i> (see), <i>gschpüre</i> (feel), ...
+ -	benefactives	<i>häufe</i> (help), <i>lere</i> (teach, learn)
+ (-)	duratives	<i>blibe</i> (stay)
+ -	inchoatives	<i>aafa</i> (begin), <i>ufhöre z</i> (stop to)
+ -	control verbs	<i>probiere z</i> (try to), <i>wage z</i> (dare to), <i>verspräche z</i> (promise to)
*	raising verbs	<i>schiiine</i> (seem)

In Bernese German, IPP is obligatory with causatives and modals. It is optional with the other verb classes.

(25) Verbclasses and IPP in German

IPP	verbclasses	examples
+	causatives	<i>lassen</i> (let, make)
+	modals	<i>dürfen</i> (may), <i>können</i> (can), <i>müssen</i> (must), <i>mögen</i> (like (to)), <i>wollen</i> (want), <i>sollen</i> (should), <i>brauchen (zu)</i> (need (to))
+ -	perception verbs	<i>hören</i> (hear), <i>sehen</i> (see), <i>fühlen</i> (feel), ...
+ -	benefactives	<i>helfen (zu)</i> (help (to)), <i>lehren</i> (teach)
-	duratives	<i>bleiben</i> (stay)
-	inchoatives	<i>anfangen zu</i> (begin to), <i>aufhören zu</i> (stop to), <i>pflegen zu</i> (use to), ...
-	control verbs	<i>versuchen zu</i> (try to), <i>wagen zu</i> (dare to), <i>versprechen zu</i> (promise to), <i>überreden zu</i> (persuade to), ...
*	raising verbs	<i>scheinen zu</i> (seem to)

In German, IPP is obligatory with causatives and modals. It is optional with perception verbs and benefactives, and ungrammatical with the other verb classes.

(26) Verbclasses and IPP in Sankt Gallen German

IPP	verbclasses	examples
+	causatives	<i>lo</i> (let, make)
+	modals	<i>törfe</i> (may), <i>chöne</i> (can), <i>müese</i> (must), <i>möge</i> (like (to)), <i>wöle</i> (want), ...
+ -	perception verbs	<i>ghöre</i> (hear), <i>sehen</i> (gseh), <i>gschpüre</i> (feel), ...
+ -	benefactives	<i>helfe</i> (help), <i>lehre</i> (teach)
-	duratives	<i>bliibe</i> (stay)
+ -	inchoatives	<i>aafange</i> (begin), <i>ufhöre</i> (stop), <i>pflegen</i> (use to), ...
-	control verbs	<i>probiere</i> , <i>versueche</i> (try), <i>wage</i> (dare), <i>verschpreche</i> (promise), <i>überrede</i> (persuade), ...
*	raising verbs	<i>schine</i> (seem)

In Sankt Gallen German, IPP obligatorily appears with causatives and modals. It is optional with perception verbs, benefactives, and inchoatives, and not grammatical with the other verb classes.

(27) Verbclasses and IPP in Zürich German

IPP	verbclasses	examples
+	causatives	<i>laa</i> (let, make)
+	modals	<i>möge</i> (like), <i>chöne</i> (can), <i>müese</i> (must), <i>söle</i> (shall), <i>wele</i> (want), <i>bruuche (z)</i> (need (to))
+ -	perception verbs	<i>ghööre</i> (hear), ...
+ -	benefactives	<i>hälfe (z)</i> (help (to)), <i>leere</i> (teach, learn), ...
-	duratives	<i>bliibe</i> (stay)
-	inchoatives	<i>aafange (z)</i> (begin (to)), <i>ufhöre (z)</i> (stop (to)), ...
-	control verbs	<i>versueche (z)</i> (try (to)), <i>waage</i> (dare (to)), <i>verschprüche (z)</i> (promise (to)), ...
*	raising verbs	<i>schüine z</i> (seem to)

The Zürich German pattern is similar to Standard German: IPP is obligatory with causatives and modals. It is optional with perception verbs and benefactives, and ungrammatical with the other verb classes.

(28) Verbclasses and IPP in Dutch²¹

IPP	verbclasses	examples
+	causatives	<i>laten</i> (let, make), <i>doen</i> (do, make), <i>menen te</i> (believe, think, mean to)
+	modals	<i>mogen</i> (may), <i>kunnen</i> (can), <i>moeten</i> (must), <i>willen</i> (want), <i>hoeven</i> (need (to)), <i>dienen te</i> (be obliged to), <i>hebben te</i> (have to), <i>hoeven te</i> (need to), <i>horen te</i> (ought to)
+	perception verbs	<i>horen</i> (hear), <i>zien</i> (see), <i>voelen</i> (feel), ...
+	benefactives	<i>helpen (te)</i> (help (to)), <i>leren (te)</i> (learn, teach (to))
+	duratives	<i>blijven</i> (stay), <i>gaan</i> (go, will), <i>liggen (te)</i> (lie (and)), <i>lopen (te)</i> (walk (and)), <i>staan (te)</i> (stand (and)), <i>zijn</i> (be), <i>zitten (te)</i> (sit (and)) ...
-(+ -)	inchoatives	<i>beginnen te</i> (begin to), <i>aufhören</i> (stop), <i>komen (te)</i> (come (and)), <i>plegen te</i> (be used to) ...
-(+ -)	control verbs	<i>proberen te</i> (try to), <i>zien te</i> (try to), <i>trachten te</i> (try to), <i>weten te</i> (know (how to)), <i>dreigen te</i> (threaten to), <i>durven (te)</i> (dare (to)), <i>wagen (te)</i> (dare (to)), <i>weigeren te</i> (refuse (to)), ...
*	raising verbs	<i>blijken te</i> (appear to), <i>lijken te</i> (seem, appear to), <i>schijnen te</i> (seem to)

IPP is obligatory with causatives, modals, perception verbs, benefactives, and duratives in Dutch. It is not grammatical with other verb classes (at least for my informant). Note that the class of duratives includes verbs like ‘lie, walk, stand, sit ...’ here. Other than in Standard German and Swiss German dialects, these verbs can take a verbal complement in Dutch as shown in (29) (and also in West Flemish and Afrikaans). The example is taken from IJbema 1997:140:

- (29) ... , dat hij het boek heeft zitten/*gezeten te lezen
 ... , that he the book has sit-Inf/*sit-PastP to read
 ‘ that he has read the book while sitting’

²¹I will follow the judgements of my informant here to keep the data consistent. Keep in mind, however, that judgements differ a lot among native speakers of Dutch. Rutten 1991:27, e.g., reports optionality of IPP for inchoatives, control verbs, and even raising verbs. These judgements are given in parenthesis in the summarising table. I will refrain from them later on, however.

The behaviour of West Flemish verbs with respect to IPP is summarised in (30):

(30) Verbclasses and IPP in West Flemish

IPP	verbclasses	examples
+	causatives	<i>loaten</i> (let), <i>doen</i> (do, make)
+	modals	<i>meugen</i> (may), <i>keunen</i> (can), <i>moeten</i> (must), <i>willen</i> (want)
+	perception verbs	<i>uoren</i> (hear), <i>zien</i> (see), <i>voelen</i> (feel), ...
+	benefactives	<i>helpen (te)</i> (help (to)), <i>lieren</i> (learn, teach)
+	duratives	<i>bluven</i> (stay), <i>liggen (te)</i> (lie (and)), <i>luopen (te)</i> (walk (and)), <i>stoan (te)</i> (stand (and)), <i>zitten (te)</i> (sit (and)) ...
+ -	inchoatives ²²	<i>beginnen</i> (begin), <i>stoppen</i> (stop) <i>kommen</i> (come), <i>plegen te</i> (be used to) ...
+ -	control verbs	<i>preberen</i> (try), <i>tuechten</i> (try), <i>weten te</i> (know (how to)), <i>dreigen</i> (threaten), <i>durven</i> (dare), <i>waagen</i> (dare), ...
-	raising verbs	<i>blijken te</i> (appear to)

West Flemish behaves quite similarly to Dutch: IPP is obligatory with causatives, modals, perception verbs, benefactives, and duratives.²³ It is optional with inchoatives and control verbs.

²²Remember that *stoppen* ‘stop’ embeds a CP and does not allow IPP. IPP is optional, however, with other inchoatives such as *beginnen* ‘begin’.

²³The infinitival marker *te* is set in parenthesis as it may be left out in IPP-constructions although it is preferred there (Liliane Haegeman, p.c.).

- (31) Verbclasses and IPP in Afrikaans (based on Donaldson (1993) and Robbers (1997))

IPP	verbclasses	examples
+ -	causatives	<i>laat</i> (let), <i>maak</i> (to have (sth. done))
+ -	modals	<i>mag</i> (may), <i>kan</i> (can), <i>moet</i> (must), <i>basta</i> (must not), <i>wil</i> (want), <i>sal</i> (will), <i>beter</i> (had better) ²⁴
+ -	perception verbs	<i>hoor</i> (hear), <i>sien</i> (see) <i>voel</i> (feel), ...
+ -	benefactives	<i>help</i> (help), <i>laat</i> (let, i.e., allow), <i>leer</i> (learn, teach)
+ -	duratives	<i>bly</i> (stay), <i>aanhou</i> (keep on), <i>lê (en)</i> (lie (and)), <i>loop (en)</i> (walk (and)), <i>sit (en)</i> (sit (and)), <i>staan (en)</i> (stand (and))
+ -	inchoatives	<i>begin (te)</i> (begin (to)), <i>ophou</i> (stop), <i>gaan</i> (go), <i>kom</i> (come)
+ -	control verbs	<i>probeer</i> (try), <i>durf</i> (dare)
-	raising verbs	<i>scheinen</i> (seem)

In Afrikaans, IPP is optional with all verb classes except of raising verbs.

So far, The behaviour of IPP with respect to certain verb classes was shown separately for each language. Table (32) summarises the data by including all languages under consideration.

- (32) Summary (+: IPP, +/-: optional IPP, -: no IPP)

Be	Ge	SG	Zü	Du	WF	Af	verbclasses	examples
+	+	+	+	+	+	+	causatives	<i>let, make, do</i>
+	+	+	+	+	+	+	modals	<i>may, can, must, shall, need, ...</i>
+ -	+ -	+ -	+ -	+	+	+ -	perception verbs	<i>hear, see, feel, ...</i>
+ -	+ -	+ -	+ -	+	+	+ -	benefactives	<i>help, learn, teach</i>
+ (-)	-	-	-	+	+	+ -	duratives	<i>stay, remain, lie, sit, be ...</i>
+ -	-	+ -	-	-	+ -	+ -	inchoatives	<i>begin, continue, stop, ...</i>
+ -	-	-	-	-	+ -	+ -	control verbs	<i>try, dare, promise, ...</i>
*	*	*	*	*	*	-	raising verbs	<i>seem, appear</i>

²⁴In spoken Afrikaans, *beter* is used as a verb like English *better*, see Donaldson, 1993:252: *Jy beter uitkyk* 'You('d) better look out'.

The table in (32) illustrates that there is a pattern in the appearance of IPP: If IPP is e.g. obligatory with perception verbs, then it is also obligatory with modals and causatives, but not the other way round, i.e., it cannot be deduced whether IPP is obligatory with perception verbs when it is known that IPP is obligatory with modals. The IPP-data of the seven languages under consideration suggest that the verb classes are inherently ordered in an implicational hierarchy, ranging from the ‘most typical’ IPP-verbs like causatives and modals to the ‘least typical’ ones like raising verbs. The more ‘auxiliary-like’ a verb is, the higher is its probability to show IPP, or, to put it differently, the probability that a verb shows IPP decreases with its increasing syntactic and semantic markedness (see also Den Besten and Edmondson 1983:78, and Askedal 1991:16f).²⁵

2.7 Summary and questions resulting from the data

Having investigated data from several West Germanic languages we saw a whole bundle of phenomena. Looking at these, questions emerge that an account of the IPP construction should be able to handle. These questions are listed in the following:

- Quite general: Why does the bare infinitive occur in a context where the past participle is normally expected? This is the question that has to be asked in order to account for the verb form in IPP-constructions at all.
- More specific: IPP is only possible in a special ‘IPP-context’ (in the above shown standard cases at least), i.e., when the selected IPP-verb selects a verb itself. How can this context be integrated into an account of IPP?
- IPP occurs only with certain classes of verbs in the West Germanic languages. These verb classes are ordered in an implicational hierarchy ranging from causatives and modals that are most likely to show IPP to control verbs and raising verbs that are least likely to show IPP. How does this implicational hierarchy influence an account of IPP?
- IPP-constructions are sometimes obligatory, sometimes optional and sometimes impossible, depending on the verb class of the potential IPP-verb and on the respective language. How can this variation be accounted for – and, more specifically, how can optionality be accounted for?

I will come back to these questions in chapters 6, 7, and 8, in which an analysis of IPP is given.

²⁵The relative order of causatives and modals as well as perception verbs and benefactives cannot easily be determined as they behave alike with respect to IPP in all languages under consideration. There is some evidence, however, that causatives are ordered above modals from the Dutch dialect Achterhoeks. In this dialect, IPP is obligatory with causatives (under certain verb orders) but optional with modals, see Blom and Hoekstra 1996:76.

To sum up so far: It has been shown that both context and verb class play a role with respect to whether IPP appears or not. It has further been deduced from the data that IPP-verbs are ordered in an implicational hierarchy.

Having investigated the verb form in IPP-constructions in this chapter, I will look at the verb order in IPP-constructions in the following chapter.

3 The verb order

Not only does the verb form in IPP-constructions differ from the ‘normally expected’ verb form in the perfect tense as shown above but verb order in IPP-constructions differs also from the ‘normally expected’ verb order, at least in some of the West Germanic IPP-languages such as Standard German, and (depending on the verb class) Sankt Gallen German.

In this chapter, verb order in IPP-constructions is compared to the verb order in other 3-verb clusters,²⁶ each of which showing the normally expected morphological verb form. I concentrate on 3-verb clusters throughout the thesis. More explicitly, I use 2-verb clusters only for comparison (IPP does not appear in 2-verb clusters at least in the languages I focus on), and leave out 4- (and more) verb clusters. Although IPP also appears in 4-verb clusters these data are harder to judge. The more verbs appear in a cluster, the more difficulties the informants have. Judgements of 3-verb clusters, however, are still quite consistent.

As I am primarily interested in verb order, I will focus on ‘pure’ verb clusters here, i.e., I will leave cases of so-called ‘verb projection raising’ aside in which non-verbal material appears inside the verbal cluster (see Haegeman and van Riemsdijk (1986), Schönenberger (1995) for discussion).

Note that all examples in this section are embedded clauses. This is due to the fact that the whole range of verb order variation inside (3-) verb clusters is only visible when movement of the finite verb to the second position (‘verb-second’) does not apply, which is typical for Continental West Germanic main clauses.

3.1 Introduction

The data are grouped as follows: For each of the languages in this study, the verb order in IPP-constructions is compared to both the verb order in the corresponding perfect tense construction with a past participle (if both constructions are grammatical at all) and to the verb order in another 3-verb cluster of the language in which two bare infinitives are embedded. For this, I have chosen examples with the future tense auxiliary as the highest embedding verb of the cluster. I will restrict myself to these few constructions to ensure a direct comparison with the verb order in the IPP construction. It is this empirical comparison that I focus on in this chapter.

The data are classified according to the different verb classes of the potential IPP-verbs as discussed above in 2 and they are ordered according to table (32), i.e., Bernese German first and Afrikaans last.

²⁶The term ‘verb cluster’ is used purely descriptively in this chapter for at least two adjacent verbs at the end of a clause, without referring to a theory of cluster formation. There has been an extensive amount of literature on verb cluster formation and on the structure of verb clusters since Evers’ influential paper (Evers, 1975). For further information see, e.g., Wurmbrand (2001) and for a recent thorough overview of verb cluster accounts see Wurmbrand (2002).

Concerning the verb order in IPP-constructions the following questions arise:

- What does the verb order in IPP-constructions look like compared to constructions in which a potential IPP-verb occurs as a selected past participle or as a selected bare infinitive in the same language:
 - Does the verb order in IPP-constructions differ from the verb order in corresponding constructions with past participle, and if so, how? Can the verb order in IPP-constructions be called a ‘last resort’ as well?
 - Does the verb order in IPP-constructions differ from the verb order in other 3-verb clusters with two bare infinitives, i.e., do similarities of the verb form (two bare infinitives, finite verb) correspond to similarities of the verb order?
 - In other words: Does the IPP-verb behave more like a past participle or more like a bare infinitive with respect to the verb order?
- To what extent does the verb order for one and the same construction differ across languages?
- Which kinds of verb order variation in 3-verb clusters are possible at all across West Germanic IPP-languages for the constructions in question?
- Which parameters have an influence on the ordering of verbs inside verb clusters both language internal and across languages? Especially the verb class of V_2 will be discussed in the following.

3.2 Causatives

The first verb class I will deal with is the class of causatives. The data are ordered as follows: First, the verb order in the ‘normally expected’ case is given, i.e., the perfect tense with past participle, then the corresponding IPP-construction is given, and finally the same example is given in the future tense.

3.2.1 The present perfect tense, V_2 : past participle

As we have seen in the previous section, the past participle never occurs with causatives in an IPP-context, no matter which languages are discussed. For this reason, no data of this type is presented here and I will continue directly with the IPP-constructions in the next section.

3.2.2 The present perfect tense, V₂: IPP

(33) Be

- a. 321 *... , das er ne d Medizin trinke₃ la(a)₂ het₁
- b. 231 *... , das er ne d Medizin la(a)₂ trinke₃ het₁
- c. 123 ... , das er ne d Medizin het₁ la₂ trinke₃
- d. 132 *... , das er ne d Medizin het₁ trinke₃ la(a)₂
- e. 312 *... , das er ne d Medizin trinke₃ het₁ la(a)₂
- f. 213 *... , das er ne d Medizin la(a)₂ het₁ trinke₃
 ... , that he him the medicine has₂ make₂ drink₂
 All: 'that he has made him drink the medicine'

(34) Ge

- a. 321 *... , dass er ihn die Medizin trinken₃ lassen₂ hat₁
- b. 231 *... , dass er ihn die Medizin lassen₂ trinken₃ hat₁
- c. 123 *... , dass er ihn die Medizin hat₁ lassen₂ trinken₃
- d. 132 ... , dass er ihn die Medizin hat₁ trinken₃ lassen₂
- e. 312 *... , dass er ihn die Medizin trinken₃ hat₁ lassen₂
- f. 213 *... , dass er ihn die Medizin lassen₂ hat₁ trinken₃
 ... , that he him the medicine has₂ make₂ drink₂
 All: 'that he has made him drink the medicine'

(35) SG

- a. 321 ... , dass er en t' Medizin trinke₃ loo₂ hät₁
- b. 231 *... , dass er en t' Medizin loo₂ trinke₃ hät₁
- c. 123 *... , dass er en t' Medizin hät₁ loo₂ trinke₃
- d. 132 ?... , dass er en t' Medizin hät₁ trinke₃ loo₂
- e. 312 *... , dass er en t' Medizin trinke₃ hät₁ loo₂
- f. 213 *... , dass er en t' Medizin loo₂ hät₁ trinke₃
 ... , that he him the medicine has₂ make₂ drink₂
 All: 'that he has made him drink the medicine'

(36) Zü

- a. 321 ... , das er en d Medizin trinke₃ laa₂ hät₁
- b. 231 *... , das er en d Medizin laa₂ trinke₃ hät₁
- c. 123 ... , das er en d Medizin hät₁ la₂ trinke₃
- d. 132 ... , das er en d Medizin hät₁ trinke₃ laa₂
- e. 312 *... , das er en d Medizin trinke₃ hät₁ laa₂
- f. 213 *... , das er en d Medizin laa₂ hät₁ trinke₃
 ... , that he him the medicine has₂ make₂ drink₂
 All: 'that he has made him drink the medicine'

(37) Du

- a. 321 *... , dat hij hem het medicijn drinken₃ doen₂ heeft₁
- b. 231 *... , dat hij hem het medicijn doen₂ drinken₃ heeft₁

- c. 123 ... , dat hij hem het medicijn heeft₁ doen₂ drinken₃
- d. 132 *... , dat hij hem het medicijn heeft₁ drinken₃ doen₂
- e. 312 *... , dat hij hem het medicijn drinken₃ heeft₁ doen₂
- f. 213 *... , dat hij hem het medicijn doen₂ heeft₁ drinken₃
 ... , that he him the medicine has₂ make₂ drink₂
 All: 'that he has made him drink the medicine'

(38) WF

- a. 321 *... , da' j' 'em die medicien drienken₃ doen₂ 'et₁
- b. 231 ... , da' j' 'em die medicien doen₂ drienken₃ 'et₁
- c. 123 ... , da' j' 'em die medicien 'et₁ doen₂ drienken₃
- d. 132 *... , da' j' 'em die medicien 'et₁ drienken₃ doen₂
- e. 312 *... , da' j' 'em die medicien drienken₃ 'et₁ doen₂
- f. 213 *... , da' j' 'em die medicien doen₂ 'et₁ drienken₃
 ... , that he him the medicine has₂ make₂ drink₂
 All: 'that he has made him drink the medicine'

(39) Af

- a. 321 *... , dat hy hom die medisyne drink₃ maak₂ het₁
- b. 231 ... , dat hy hom die medisyne maak₂ drink₃ het₁
- c. 123 *... , dat hy hom die medisyne het₁ maak₂ drink₃
- d. 132 *... , dat hy hom die medisyne het₁ drink₃ maak₂
- e. 312 *... , dat hy hom die medisyne drink₃ het₁ maak₂
- f. 213 *... , dat hy hom die medisyne maak₂ het₁ drink₃
 ... , that he him the medicine has₂ make₂ drink₂
 All: 'that he has made him drink the medicine'

In Bernese German and in Dutch only the descending order 123 (c) is grammatical. Note that in Bernese German and in Zürich German the causative *laa* 'let' must be shortened to *la* in the 123 order (c). In German and Afrikaans also only one order is grammatical, namely the 132 order (d) in German, and the 231 order (b) in Afrikaans. The other languages allow two and more orders: The orders 321 (a) and 132 (d) are grammatical in Sankt Gallen German, the orders (a), (c), and (d) are grammatical in Zürich German²⁷, and the orders (b) and (c) in West Flemish.

3.2.3 The future tense, V₂: bare infinitive

I will now compare the verb order in the IPP-construction with the verb order in another 3-verb cluster with two embedded bare infinitives, namely the future tense. Note that in Swiss German the use of the future tense is unusual. The

²⁷That the order 132 (d) is grammatical in Sankt Gallen German as well as in Zürich German could be due to influence from Standard German; for Zürich German see, e.g., Schobinger 1984:71 on this.

interpretation of *wirt* ‘will’ in Swiss German is more one of epistemic modality than one of future tense. The forms are fine, however, in this modal sense and grammaticality judgements do not pose a problem.

Compared to the IPP-data two parameters have changed: Naturally, the finite auxiliary is the equivalent of ‘will’ instead of ‘have’, and the bare infinitive on V_2 is selected compared to the IPP-construction.

Despite the fact that the forms of the verbs are the same as in the IPP-examples (i.e., one finite verb and two bare infinitives), the same patterns do not (always) emerge as grammatical:

- (40) Be
- a. 321 *... , das er ne d Medizin trinke₃ la(a)₂ wirt₁
 - b. 231 *... , das er ne d Medizin la₂ trinke₃ wirt₁
 - c. 123 ... , das er ne d Medizin wirt₁ la(a)₂ trinke₃
 - d. 132 *... , das er ne d Medizin wirt₁ trinke₃ la(a)₂
 - e. 312 *... , das er ne d Medizin trinke₃ wirt₁ la(a)₂
 - f. 213 *... , das er ne d Medizin la(a)₂ wirt₁ trinke₃
 ... , that he him the medicine make will drink
 All: ‘that he will make him drink the medicine’
- (41) Ge
- a. 321 ??... , dass er ihn die Medizin trinken₃ lassen₂ wird₁²⁸
 - b. 231 *... , dass er ihn die Medizin lassen₂ trinken₃ wird₁
 - c. 123 *... , dass er ihn die Medizin wird₁ lassen₂ trinken₃
 - d. 132 ... , dass er ihn die Medizin wird₁ trinken₃ lassen₂
 - e. 312 *... , dass er ihn die Medizin trinken₃ wird₁ lassen₂
 - f. 213 *... , dass er ihn die Medizin lassen₂ wird₁ trinken₃
 ... , that he him the medicine make will drink
 All: ‘that he will make him drink the medicine’
- (42) SG
- a. 321 ?... , dass er en t’ Medizin trinke₃ loo₂ wirt₁
 - b. 231 *... , dass er en t’ Medizin loo₂ trinke₃ wirt₁
 - c. 123 ... , dass er en t’ Medizin wirt₁ loo₂ trinke₃
 - d. 132 *... , dass er en t’ Medizin wirt₁ trinke₃ loo₂
 - e. 312 *... , dass er en t’ Medizin trinke₃ wirt₁ loo₂
 - f. 213 *... , dass er en t’ Medizin loo₂ wirt₁ trinke₃
 ... , that he him the medicine make will drink
 All: ‘that he will make him drink the medicine’

²⁸This sentence is not ungrammatical. Interestingly it seems, however, that the permissive reading of *lassen*, ‘to allow’, is strongly preferred over the causative reading in this order. With the causative reading of *lassen*, order 123 (c) is much more natural.

- (43) Zü
- a. 321 ... , das er en d Medizin trinke₃ laa₂ wirt₁
 - b. 231 *... , das er en d Medizin laa₂ trinke₃ wirt₁
 - c. 123 ... , das er en d Medizin wirt₁ la₂ trinke₃²⁹
 - d. 132 ... , das er en d Medizin wirt₁ trinke₃ laa₂
 - e. 312 *... , das er en d Medizin trinke₃ wirt₁ laa₂
 - f. 213 *... , das er en d Medizin laa₂ wirt₁ trinke₃
 ... , that he him the medicine make will drink
 All: 'that he will make him drink the medicine'
- (44) Du
- a. 321 *... , dat hij hem het medicijn drinken₃ doen₂ zal₁
 - b. 231 *... , dat hij hem het medicijn doen₂ drinken₃ zal₁
 - c. 123 ... , dat hij hem het medicijn zal₁ doen₂ drinken₃
 - d. 132 *... , dat hij hem het medicijn zal₁ drinken₃ doen₂
 - e. 312 *... , dat hij hem het medicijn drinken₃ zal₁ doen₂
 - f. 213 *... , dat hij hem het medicijn doen₂ zal₁ drinken₃
 ... , that he him the medicine make will drink
 All: 'that he will make him drink the medicine'
- (45) WF
- a. 321 *... , da' j' 'em die medicien drienken₃ doen₂ got₁
 - b. 231 *... , da' j' 'em die medicien doen₂ drienken₃ got₁
 - c. 123 ... , da' j' 'em die medicien go'₁ doen₂ drienken₃
 - d. 132 *... , da' j' 'em die medicien go'₁ drienken₃ doen₂
 - e. 312 *... , da' j' 'em die medicien drienken₃ go'₁ doen₂
 - f. 213 *... , da' j' 'em die medicien doen₂ go'₁ drienken₃
 ... , that he him the medicine make will drink
 All: 'that he will make him drink the medicine'
- (46) Af
- a. 321 *... , dat hy hom die medisyne drink₃ maak₂ sal₁
 - b. 231 *... , dat hy hom die medisyne maak₂ drink₃ sal₁
 - c. 123 ... , dat hy hom die medisyne sal₁ maak₂ drink₃
 - d. 132 *... , dat hy hom die medisyne sal₁ drink₃ maak₂
 - e. 312 *... , dat hy hom die medisyne drink₃ sal₁ maak₂
 - f. 213 *... , dat hy hom die medisyne maak₂ sal₁ drink₃
 ... , that he him the medicine make will drink
 All: 'that he will make him drink the medicine'

The verb order 123 (c) is predominant here: It is again the only grammatical order in Bernese German and Dutch but also in Afrikaans and in West Flemish. In Sankt Gallen German and in Zürich German, verb order (c) is at least one of

²⁹Again, this clause is grammatical only when *laa* is shortened to *la*.

the possible orders. In Sankt Gallen German, the descending order 321 (a) is also grammatical (although slightly marked). In Zürich German the verb order 132 (d) is possible in addition to orders (a) and (c). In contrast to Zürich German, order 132 (d) is the only possible order in Standard German.

3.3 Modals

The next verb class I discuss is the class of modals. With respect to the verb form they behave similarly to causatives. The classes differ, however, with respect to verb order.

3.3.1 The present perfect tense, V₂: past participle

As shown with causatives, the past participle also never occurs with modals in this context. The IPP-construction is used obligatorily instead.

3.3.2 The present perfect tense, V₂: IPP

(47) Be

- a. 321 *... , das i das immer mache₃ wöue₂ ha₁
- b. 231 *... , das i das immer wöue₂ mache₃ ha₁
- c. 123 ... , das i das immer ha₁ wöue₂ mache₃
- d. 132 *... , das i das immer ha₁ mache₃ wöue₂
- e. 312 *... , das i das immer mache₃ ha₁ wöue₂
- f. 213 *... , das i das immer wöue₂ ha₁ mache₃
 ... , that I that always want₂ have₁ do₃
 All: 'that I have always wanted to do this'

(48) Ge

- a. 321 *... , dass ich das immer machen₃ wollen₂ habe₁
- b. 231 *... , dass ich das immer wollen₂ machen₃ habe₁
- c. 123 *... , dass ich das immer habe₁ wollen₂ machen₃
- d. 132 ... , dass ich das immer habe₁ machen₃ wollen₂
- e. 312 *... , dass ich das immer machen₃ habe₁ wollen₂
- f. 213 *... , dass ich das immer wollen₂ habe₁ machen₃
 ... , that I that always want₂ have₁ do₃
 All: 'that I have always wanted to do this'

(49) SG

- a. 321 *... , dass I das immer mache₃ wöle₂ ha₁
- b. 231 *... , dass I das immer wöle₂ mache₃ ha₁
- c. 123 ... , dass I das immer ha₁ wöle₂ mache₃
- d. 132 ... , dass I das immer ha₁ mache₃ wöle₂
- e. 312 ... , dass I das immer mache₃ ha₁ wöle₂

- f. 213 *... , dass I das immer wöle₂ ha₁ mache₃
 ... , that I that always want₂ have₁ do₃
 All: 'that I have always wanted to do this'
- (50) Zü:
- a. 321 ?... , das ich das immer mache₃ wele₂ ha₁
 b. 231 *... , das ich das immer wele₂ mache₃ ha₁
 c. 123 ... , das ich das immer ha₁ wele₂ mache₃
 d. 132 ... , das ich das immer ha₁ mache₃ wele₂
 e. 312 *... , das ich das immer mache₃ ha₁ wele₂³⁰
 f. 213 *... , das ich das immer wele₂ ha₁ mache₃
 ... , that I that always want₂ have₁ do₃
 All: 'that I have always wanted to do this'
- (51) Du
- a. 321 *... , dat ik dat altijd doen₃ willen₂ heb₁
 b. 231 *... , dat ik dat altijd willen₂ doen₃ heb₁
 c. 123 ... , dat ik dat altijd heb₁ willen₂ doen₃
 d. 132 *... , dat ik dat altijd heb₁ doen₃ willen₂
 e. 312 *... , dat ik dat altijd doen₃ heb₁ willen₂
 f. 213 *... , dat ik dat altijd willen₂ heb₁ doen₃
 ... , that I that always want₂ have₁ do₃
 All: 'that I have always wanted to do this'
- (52) WF
- a. 321 *... , da' 'k dat oltyd doen₃ willen₂ 'en₁
 b. 231 ?... , da' 'k dat oltyd willen₂ doen₃ 'en₁
 c. 123 ... , da' 'k dat oltyd 'en₁ willen₂ doen₃
 d. 132 *... , da' 'k dat oltyd 'en₁ doen₃ willen₂
 e. 312 *... , da' 'k dat oltyd doen₃ 'en₁ willen₂
 f. 213 *... , da' 'k dat oltyd willen₂ 'en₁ doen₃
 ... , that I that always want₂ have₁ do₃
 All: 'that I have always wanted to do this'
- (53) Af
- a. 321 *... , dat ek dit altyd doen₃ wil₂ het₁
 b. 231 ?... , dat ek dit altyd wil₂ doen₃ het₁
 c. 123 *... , dat ek dit altyd het₁ wil₂ doen₃
 d. 132 *... , dat ek dit altyd het₁ doen₃ wil₂
 e. 312 *... , dat ek dit altyd doen₃ het₁ wil₂

³⁰This sentence may be grammatical but only with focus on *mache* 'make'. I have not explicitly asked for information on stress/focus assignment but I will mention it whenever my informants told me so. I will come back to the interaction between stress and verb order in chapter 9.

- f. 213 *... , dat ek dit altyd wil₂ het₁ doen₃
 ... , that I that always want₂ have₁ do₃
 All: ‘that I have always wanted to do this’

Bernese German and Dutch again pattern together in that only order 123 (c) is grammatical. As before, Standard German shows order 132 (d). In Sankt Gallen German the orders 123 (c), 132 (d), and 312 (e) are grammatical. Zürich German also shows order (c) and (d) and also order 321 (a) in addition (slightly marked, however). In West Flemish and Afrikaans the order 231 (b) is also slightly marked.³¹ West Flemish also shows pattern 123 (c) which is fully grammatical.

3.3.3 The future tense, V₂: bare infinitive

(54) Be

- a. 321 *... , das i das immer mache₃ wöue₂ werde₁
 b. 231 *... , das i das immer wöue₂ mache₃ werde₁
 c. 123 ... , das i das immer werde₁ wöue₂ mache₃
 d. 132 *... , das i das immer werde₁ mache₃ wöue₂
 e. 312 *... , das i das immer mache₃ werde₁ wöue₂
 f. 213 *... , das i das immer wöue₂ werde₁ mache₃
 ... , that I that always want₂ will₁ do₃
 All: ‘that I will always want to do this’

(55) Ge

- a. 321 ?... , dass ich das immer machen₃ wollen₂ werde₁
 b. 231 *... , dass ich das immer wollen₂ machen₃ werde₁
 c. 123 *... , dass ich das immer werde₁ wollen₂ machen₃
 d. 132 ... , dass ich das immer werde₁ machen₃ wollen₂
 e. 312 *... , dass ich das immer machen₃ werde₁ wollen₂
 f. 213 *... , dass ich das immer wollen₂ werde₁ machen₃
 ... , that I that always want₂ will₁ do₃
 All: ‘that I will always want to do this’

(56) SG

- a. 321 ??... , dass I das immer mache₃ wöle₂ werd₁
 b. 231 *... , dass I das immer wöle₂ mache₃ werd₁
 c. 123 ... , dass I das immer werd₁ wöle₂ mache₃
 d. 132 ... , dass I das immer werd₁ mache₃ wöle₂
 e. 312 ... , dass I das immer mache₃ werd₁ wöle₂
 f. 213 *... , dass I das immer wöle₂ werd₁ mache₃
 ... , that I that always want₂ will₁ do₃
 All: ‘that I will always want to do this’³²

³¹In general, modals in the perfect tense have a special status in Afrikaans (see also chapter 2): Modals do not normally appear in the perfect tense, a compound form with the simple past is used instead.

³²The sentences are supposed to be better with ‘er’ than with ‘i’ for pragmatic reasons

- (57) Zü:
- a. 321 ?... , das ich das immer mache₃ wele₂ wiird₁
 - b. 231 *... , das ich das immer wele₂ mache₃ wiird₁
 - c. 123 ... , das ich das immer wiird₁ wele₂ mache₃
 - d. 132 ... , das ich das immer wiird₁ mache₃ wele₂
 - e. 312 *... , das ich das immer mache₃ wiird₁ wele₂³³
 - f. 213 *... , das ich das immer wele₂ wiird₁ mache₃
 ... , that I that always want₂ will₁ do₃
 All: 'that I will always want to do this'
- (58) Du
- a. 321 *... , dat ik dat altijd doen₃ willen₂ zal₁
 - b. 231 *... , dat ik dat altijd willen₂ doen₃ zal₁
 - c. 123 ... , dat ik dat altijd zal₁ willen₂ doen₃
 - d. 132 *... , dat ik dat altijd zal₁ doen₃ willen₂
 - e. 312 *... , dat ik dat altijd doen₃ zal₁ willen₂
 - f. 213 *... , dat ik dat altijd willen₂ zal₁ doen₃
 ... , that I that always want₂ will₁ do₃
 All: 'that I will always want to do this'
- (59) WF
- a. 321 *... , da' 'k eentwa' oltyd doen₃ willen₂ gon₁
 - b. 231 *... , da' 'k eentwa' oltyd willen₂ doen₃ gon₁
 - c. 123 ... , da' 'k eentwa' oltyd gon₁ willen₂ doen₃
 - d. 132 *... , da' 'k eentwa' oltyd gon₁ doen₃ willen₂
 - e. 312 *... , da' 'k eentwa' oltyd doen₃ gon₁ willen₂
 - f. 213 *... , da' 'k eentwa' oltyd willen₂ gon₁ doen₃
 ... , that I that always want₂ will₁ do₃
 All: 'that I will always want to do this'
- (60) Af
- a. 321 *... , dat ek dit altyd doen₃ wil₂ sal₁
 - b. 231 *... , dat ek dit altyd wil₂ doen₃ sal₁
 - c. 123 ... , dat ek dit altyd sal₁ wil₂ doen₃
 - d. 132 *... , dat ek dit altyd sal₁ doen₃ wil₂
 - e. 312 *... , dat ek dit altyd doen₃ sal₁ wil₂
 - f. 213 *... , dat ek dit altyd wil₂ sal₁ doen₃
 ... , that I that always want₂ will₁ do₃
 All: 'that I will always want to do this'

In Bernese German, Dutch, Afrikaans, and West Flemish pattern 123 (c) is the only grammatical order. In German, we get the slightly marked pattern 321 (a)

(Manuela Schönenberger, p.c.).

³³This sentence is again grammatical with stress on *mache*.

in addition to pattern 132 (d) of the IPP-case. In Sankt Gallen German, the same patterns are grammatical as before in the IPP-examples, namely patterns (c)-(e) (i.e., 123, 132, 312). The same holds for Zürich German: As in the IPP-case the slightly marked order 321 (a) is grammatical in addition to patterns (c) and (d).

3.4 Perception verbs

The next verbs I will discuss belong to the class of perception verbs.

3.4.1 The present perfect tense, V₂: past participle

(61) Be

- a. 321 *... , das er se rüeffe₃ ghöört₂ het₁
- b. 231 *... , das er se ghöört₂ rüeffe₃ het₁
- c. 123 ... , das er se het₁ ghöört₂ rüeffe₃
- d. 132 *... , das er se het₁ rüeffe₃ ghöört₂
- e. 312 *... , das er se rüeffe₃ het₁ ghöört₂
- f. 213 ?... , das er se ghöört₂ het₁ rüeffe₃
 ... , that he her heard₃ has₁ call₃
 All: 'that he has heard her call'

(62) Ge

- a. 321 ... , dass er sie rufen₃ gehört₂ hat₁
- b. 231 *... , dass er sie gehört₂ rufen₃ hat₁
- c. 123 *... , dass er sie hat₁ gehört₂ rufen₃
- d. 132 *... , dass er sie hat₁ rufen₃ gehört₂
- e. 312 *... , dass er sie rufen₃ hat₁ gehört₂
- f. 213 *... , dass er sie gehört₂ hat₁ rufen₃
 ... , that he her heard₃ has₁ call₃
 All: 'that he has heard her call'

(63) SG

- a. 321 ??... , dass er sie ruefe₃ ghört₂ hät₁
- b. 231 *... , dass er sie ghört₂ ruefe₃ hät₁
- c. 123 *... , dass er sie hät₁ ghört₂ ruefe₃
- d. 132 *... , dass er sie hät₁ ruefe₃ ghört₂
- e. 312 ??... , dass er sie ruefe₃ hät₁ ghört₂³⁴
- f. 213 ... , dass er sie ghört₂ hät₁ ruefe₃
 ... , that he her heard₃ has₁ call₃
 All: 'that he has heard her call'

³⁴This order may be grammatical when *ruefe* is stressed.

(64) Zü:

- a. 321 ... , das er si rüeffe₃ ghöört₂ hät₁
- b. 231 *... , das er si ghöört₂ rüeffe₃ hät₁
- c. 123 ?... , das er si hät₁ ghöört₂ rüeffe₃
- d. 132 *... , das er si hät₁ rüeffe₃ ghöört₂
- e. 312 *... , das er si rüeffe₃ hät₁ ghöört₂
- f. 213 ... , das er si ghöört₂ hät₁ rüeffe₃
... , that he her heard₃ has₁ call₃
All: 'that he has heard her call'

(65) Af

- a. 321 *... , dat hy haar roep₃ gehoor₂ het₁
- b. 231 ... , dat hy haar gehoor₂ roep₃ het₁
- c. 123 *... , dat hy haar het₁ gehoor₂ roep₃
- d. 132 *... , dat hy haar het₁ roep₃ gehoor₂
- e. 312 *... , dat hy haar roep₃ het₁ gehoor₂
- f. 213 *... , dat hy haar gehoor₂ het₁ roep₃
... , that he her heard₃ has₁ call₃
All: 'that he has heard her call'

Bernese German shows the pattern 123 (c) and also pattern 213 (f) which is slightly marked. (Standard) German shows the descending order 321 (a) whereas in Sankt Gallen German only order 213 (f) is grammatical. This order is also possible in Zürich German. Zürich German, however, also shows the descending order 321 (a) and the slightly marked order 123 (c). In Afrikaans, only order 231 (b) is grammatical.

The respective paradigms with V_2 as a perception verb in the past participle are ungrammatical in Dutch and West Flemish as has been shown above in 2. They are therefore left out in this overview.

3.4.2 The present perfect tense, V_2 : IPP

(66) Be

- a. 321 *... , das er se rüeffe₃ ghöre₂ het₁
- b. 231 *... , das er se ghöre₂ rüeffe₃ het₁
- c. 123 ... , das er se het₁ ghöre₂ rüeffe₃
- d. 132 *... , das er se het₁ rüeffe₃ ghöre₂
- e. 312 *... , das er se rüeffe₃ het₁ ghöre₂
- f. 213 *... , das er se ghöre₂ het₁ rüeffe₃
... , that he her hear₂ has₁ call₃
All: 'that he has heard her call'

- (67) Ge
- a. 321 *... , dass er sie rufen₃ hören₂ hat₁
 - b. 231 *... , dass er sie hören₂ rufen₃ hat₁
 - c. 123 *... , dass er sie hat₁ hören₂ rufen₃
 - d. 132 ... , dass er sie hat₁ rufen₃ hören₂
 - e. 312 *... , dass er sie rufen₃ hat₁ hören₂
 - f. 213 *... , dass er sie hören₂ hat₁ rufen₃
 ... , that he her hear₂ has₁ call₃
 All: 'that he has heard her call'
- (68) SG
- a. 321 *... , dass er sie rufe₃ ghöre₂ hät₁
 - b. 231 *... , dass er sie ghöre₂ rufe₃ hät₁
 - c. 123 ... , dass er sie hät₁ ghöre₂ rufe₃
 - d. 132 ??... , dass er sie hät₁ rufe₃ ghöre₂
 - e. 312 *... , dass er sie rufe₃ hät₁ ghöre₂
 - f. 213 *... , dass er sie ghöre₂ hät₁ rufe₃
 ... , that he her hear₂ has₁ call₃
 All: 'that he has heard her call'
- (69) Zü:
- a. 321 ??... , das er si rüeffe₃ ghööre₂ hät₁
 - b. 231 ?... , das er si ghööre₂ rüeffe₃ hät₁
 - c. 123 ... , das er si hät₁ ghööre₂ rüeffe₃
 - d. 132 *... , das er si hät₁ rüeffe₃ ghööre₂
 - e. 312 *... , das er si rüeffe₃ hät₁ ghööre₂
 - f. 213 *... , das er si ghööre₂ hät₁ rüeffe₃
 ... , that he her hear₂ has₁ call₃
 All: 'that he has heard her call'
- (70) Du
- a. 321 *... , dat hij haar roepen₃ horen₂ heeft₁
 - b. 231 *... , dat hij haar horen₂ roepen₃ heeft₁
 - c. 123 ... , dat hij haar heeft₁ horen₂ roepen₃
 - d. 132 *... , dat hij haar heeft₁ roepen₃ horen₂
 - e. 312 *... , dat hij haar roepen₃ heeft₁ horen₂
 - f. 213 *... , dat hij haar horen₂ heeft₁ roepen₃
 ... , that he her hear₂ has₁ call₃
 All: 'that he has heard her call'
- (71) WF
- a. 321 *... , da' j' 'eur roepen₃ 'oaren₂ 'et₁
 - b. 231 ... , da' j' 'eur 'oaren₂ roepen₃ 'et₁
 - c. 123 ... , da' j' 'eur 'et₁ 'oaren₂ roepen₃

- d. 132 *... , da' j' 'eur 'e'₁ roepen₃ 'oaren₂
- e. 312 *... , da' j' 'eur roepen₃ 'et₁ 'oaren₂
- f. 213 *... , da' j' 'eur 'oaren₂ 'e'₁ roepen₃
 ... , that he her hear₂ has₁ call₃
 All: 'that he has heard her call'

(72) Af

- a. 321 *... , dat hy haar roep₃ hoor₂ het₁
- b. 231 ... , dat hy haar hoor₂ roep₃ het₁
- c. 123 ?... , dat hy haar het₁ hoor₂ roep₃
- d. 132 *... , dat hy haar het₁ roep₃ hoor₂
- e. 312 *... , dat hy haar roep₃ het₁ hoor₂
- f. 213 *... , dat hy haar hoor₂ het₁ roep₃
 ... , that he her hear₂ has₁ call₃
 All: 'that he has heard her call'

When V_2 is a perception verb, a direct comparison between the construction with the selected past participle and the construction with IPP is possible for the first time (at least in some languages). We see that the constructions differ indeed with respect to the possible verb orders. A detailed comparison is given in the summary at the end of this chapter.

In Bernese German, Sankt Gallen German, and Dutch, only order 123 (c) is grammatical. This order is also possible in Zürich German, West Flemish, and (slightly marked in) Afrikaans. All of these languages show the order 231 (b) additionally (slightly marked in Zürich German, however). In (Standard) German we get the typical IPP-order 132 (d) again.

3.4.3 The future tense, V_2 : bare infinitive

(73) Be

- a. 321 *... , das er se rüeffe₃ ghöre₂ wirt₁
- b. 231 *... , das er se ghöre₂ rüeffe₃ wirt₁
- c. 123 ... , das er se wirt₁ ghöre₂ rüeffe₃
- d. 132 *... , das er se wirt₁ rüeffe₃ ghöre₂
- e. 312 *... , das er se rüeffe₃ wirt₁ ghöre₂
- f. 213 *... , das er se ghöre₂ wirt₁ rüeffe₃
 ... , that he her hear₂ will₁ call₃
 All: 'that he will hear her call'

(74) Ge

- a. 321 ... , dass er sie rufen₃ hören₂ wird₁
- b. 231 *... , dass er sie hören₂ rufen₃ wird₁
- c. 123 *... , dass er sie wird₁ hören₂ rufen₃
- d. 132 ... , dass er sie wird₁ rufen₃ hören₂

- e. 312 *... , dass er sie rufen₃ wird₁ hören₂
- f. 213 *... , dass er sie hören₂ wird₁ rufen₃
 ... , that he her hear₂ will₁ call₃
 All: 'that he will hear her call'

(75) SG

- a. 321 ??... , dass er sie rüefe₃ ghöre₂ wirt₁
- b. 231 *... , dass er sie ghöre₂ rüefe₃ wirt₁
- c. 123 ... , dass er sie wirt₁ ghöre₂ rüefe₃
- d. 132 ?... , dass er sie wirt₁ rüefe₃ ghöre₂
- e. 312 *... , dass er sie rüefe₃ wirt₁ ghöre₂
- f. 213 *... , dass er sie ghöre₂ wirt₁ rüefe₃
 ... , that he her hear₂ will₁ call₃
 All: 'that he will hear her call'

(76) Zü:

- a. 321 ... , das er si rüeffe₃ ghööre₂ wirt₁
- b. 231 ??... , das er si ghööre₂ rüeffe₃ wirt₁
- c. 123 ... , das er si wirt₁ ghööre₂ rüeffe₃
- d. 132 ... , das er si wirt₁ rüeffe₃ ghööre₂
- e. 312 *... , das er si rüeffe₃ wirt₁ ghööre₂
- f. 213 *... , das er si ghööre₂ wirt₁ rüeffe₃
 ... , that he her hear₂ will₁ call₃
 All: 'that he will hear her call'

(77) Du

- a. 321 *... , dat hij haar roepen₃ horen₂ zal₁
- b. 231 *... , dat hij haar horen₂ roepen₃ zal₁
- c. 123 ... , dat hij haar zal₁ horen₂ roepen₃
- d. 132 *... , dat hij haar zal₁ roepen₃ horen₂
- e. 312 *... , dat hij haar roepen₃ zal₁ horen₂
- f. 213 *... , dat hij haar horen₂ zal₁ roepen₃
 ... , that he her hear₂ will₁ call₃
 All: 'that he will hear her call'

(78) WF

- a. 321 *... , da' j' 'eur roepen₃ 'oaren₂ got₁
- b. 231 *... , da' j' 'eur 'oaren₂ roepen₃ got₁
- c. 123 ... , da' j' 'eur got₁ 'oaren₂ roepen₃
- d. 132 *... , da' j' 'eur go'₁ roepen₃ 'oaren₂
- e. 312 *... , da' j' 'eur roepen₃ got₁ 'oaren₂
- f. 213 *... , da' j' 'eur 'oaren₂ go'₁ roepen₃
 ... , that he her hear₂ will₁ call₃
 All: 'that he will hear her call'

- (79) Af
- a. 321 *... , dat hy haar roep₃ hoor₂ sal₁
 - b. 231 *... , dat hy haar hoor₂ roep₃ sal₁
 - c. 123 ... , dat hy haar sal₁ hoor₂ roep₃
 - d. 132 *... , dat hy haar sal₁ roep₃ hoor₂
 - e. 312 *... , dat hy haar roep₃ sal₁ hoor₂
 - f. 213 *... , dat hy haar hoor₂ sal₁ roep₃
 ... , that he her hear₂ will₁ call₃
 All: ‘that he will hear her call’

In Bernese German, Dutch, West Flemish, and Afrikaans only order 123 (c) is grammatical. This order is also possible (and preferred) in Sankt Gallen German and in Zürich German. In Sankt Gallen German also order 132 (d) is possible (but slightly marked), and in Zürich German, in addition to orders 123 (c) and 132 (d), the descending order 321 (a) is also grammatical. In (Standard) German both order 321 (a) and order 132 (d) are equally grammatical.

3.5 Benefactives

The next verb class I will discuss are benefactives like *helfen* ‘help’. As shown in chapter 2 they behave like perception verbs with respect to the IPP-form, i.e., IPP is optional. They differ, however, from perception verbs with respect to the verb order in IPP-constructions (at least in some languages such as Sankt Gallen German).

3.5.1 The present perfect tense, V₂: past participle

- (80) Be
- a. 321 *... , das i re d Chischte trää₃ gghuuffe₂ ha₁
 - b. 231 *... , das i re d Chischte gghuuffe₂ trää₃ ha₁
 - c. 123 ... , das i re d Chischte ha₁ gghuuffe₂ trää₃
 - d. 132 *... , das i re d Chischte ha₁ trää₃ gghuuffe₂
 - e. 312 *... , das i re d Chischte trää₃ ha₁ gghuuffe₂³⁵
 - f. 213 ??... , das i re d Chischte gghuuffe₂ ha₁ trää₃
 ... , that I her the boxes helped₂ have₁ carry₃
 All: ‘that I have helped her to carry the boxes’

- (81) Ge
- a. 321 ... , dass ich ihr die Kisten (zu) tragen₃ geholfen₂ habe₁
 - b. 231 *... , dass ich ihr die Kisten geholfen₂ (zu) tragen₃ habe₁
 - c. 123 *... , dass ich ihr die Kisten habe₁ geholfen₂ (zu) tragen₃

³⁵Under a special stress assignment (contrastive stress on *d chischte trää*) this order may also be grammatical.

- d. 132 *... , dass ich ihr die Kisten habe₁ (zu) tragen₃ geholfen₂
- e. 312 *... , dass ich ihr die Kisten (zu) tragen₃ habe₁ geholfen₂
- f. 213 ... , dass ich ihr die Kisten geholfen₂ habe₁ *(zu) tragen₃
 ... , that I her the boxes helped₂ have₁ (to) carry₃
 All: 'that I have helped her to carry the boxes'³⁶

(82) SG

- a. 321 *... , dass I ere t Chischte trääge₃ gholfe₂ ha₁
- b. 231 *... , dass I ere t Chischte gholfe₂ trääge₃ ha₁
- c. 123 *... , dass I ere t Chischte ha₁ gholfe₂ trääge₃
- d. 132 *... , dass I ere t Chischte ha₁ trääge₃ gholfe₂
- e. 312 *... , dass I ere t Chischte trääge₃ ha₁ gholfe₂
- f. 213 ... , dass I ere t Chischte gholfe₂ ha₁ trääge₃
 ... , that I her the boxes helped₂ have₁ carry₃
 All: 'that I have helped her to carry the boxes'

(83) Zü

- a. 321 ... , das i ere d Chischte trääge₃ ghulfe₂ han₁
- b. 231 ... , das i ere d Chischte ghulfe₂ trääge₃ han₁
- c. 123 ... , das i ere d Chischte han₁ ghulfe₂ trääge₃
- d. 132 ... , das i ere d Chischte han₁ trääge₃ ghulfe₂
- e. 312 ??... , das i ere d Chischte ghulfe₂ han₁ trääge₃
- f. 213 ... , das i ere d Chischte trääge₃ han₁ ghulfe₂
 ... , that I her the boxes helped₂ have₁ carry₃
 All: 'that I have helped her to carry the boxes'

(84) Af

- a. 321 *... , dat ek (vir) haar die bokse dra₃ gehelp₂ het₁
- b. 231 ... , dat ek (vir) haar die bokse gehelp₂ dra₃ het₁
- c. 123 ?... , dat ek (vir) haar die bokse het₁ gehelp₂ dra₃
- d. 132 *... , dat ek (vir) haar die bokse het₁ dra₃ gehelp₂
- e. 312 *... , dat ek (vir) haar die bokse dra₃ het₁ gehelp₂
- f. 213 *... , dat ek (vir) haar die bokse gehelp₂ het₁ dra₃
 ... , that I (for) her the boxes helped₂ have₁ carry₃
 All: 'that I have helped her to carry the boxes'

In Bernese German, again only order 123 (c) is grammatical. This order is also possible in Zürich German. Additionally, Zürich German shows the verb order patterns 321 (a), 231 (b), 132 (d), and 213 (f). In (Standard) German order 321 (a) is grammatical. But note that also order 213 (f) is possible when the most deeply embedded verb is a *to*-infinitive (*zu tragen* 'to carry'). In Sankt Gallen German the order (f) is even the only possible pattern here. Afrikaans finally

³⁶In contrast to order 321 (a) in which the use of *zu* is optional, order 213 (f) is only grammatical when *zu* is inserted.

shows both order 231 (b) and (slightly marked) order 123 (c).

In Dutch and in West Flemish it is ungrammatical to have the benefactive as a past participle in these constructions. The IPP is used instead.

3.5.2 The present perfect tense, V₂: IPP

(85) Be

- a. 321 *... , das i re d Chischte trääge₃ häuffe₂ ha₁
- b. 231 *... , das i re d Chischte häuffe₂ trääge₃ ha₁
- c. 123 ... , das i re d Chischte ha₁ häuffe₂ trääge₃
- d. 132 *... , das i re d Chischte ha₁ trääge₃ häuffe₂
- e. 312 *... , das i re d Chischte trääge₃ ha₁ häuffe₂
- f. 213 *... , das i re d Chischte häuffe₂ ha₁ trääge₃
 ... , that I her the boxes help₂ have₁ carry₃
 All: 'that I have helped her to carry the boxes'

(86) Ge

- a. 321 *... , dass ich ihr die Kisten tragen₃ helfen₂ habe₁
- b. 231 *... , dass ich ihr die Kisten helfen₂ tragen₃ habe₁
- c. 123 *... , dass ich ihr die Kisten habe₁ helfen₂ tragen₃
- d. 132 ... , dass ich ihr die Kisten habe₁ tragen₃ helfen₂
- e. 312 *... , dass ich ihr die Kisten tragen₃ habe₁ helfen₂
- f. 213 *... , dass ich ihr die Kisten helfen₂ habe₁ tragen₃
 ... , that I her the boxes help₂ have₁ carry₃
 All: 'that I have helped her to carry the boxes'

(87) SG

- a. 321 *... , dass I ere t Chischte trääge₃ helfe₂ ha₁
- b. 231 *... , dass I ere t Chischte helfe₂ trääge₃ ha₁
- c. 123 ... , dass I ere t Chischte ha₁ helfe₂ trääge₃
- d. 132 *... , dass I ere t Chischte ha₁ trääge₃ helfe₂
- e. 312 *... , dass I ere t Chischte trääge₃ ha₁ helfe₂
- f. 213 ??... , dass I ere t Chischte helfe₂ ha₁ trääge₃
 ... , that I her the boxes help₂ have₁ carry₃
 All: 'that I have helped her to carry the boxes'

(88) Zü

- a. 321 *... , das i ere d Chischte trääge₃ hälfe₂ han₁
- b. 231 ... , das i ere d Chischte hälfe₂ trääge₃ han₁
- c. 123 ... , das i ere d Chischte han₁ hälfe₂ trääge₃
- d. 132 *... , das i ere d Chischte han₁ trääge₃ hälfe₂
- e. 312 *... , das i ere d Chischte hälfe₂ han₁ trääge₃
- f. 213 ... , das i ere d Chischte trääge₃ han₁ hälfe₂
 ... , that I her the boxes help₂ have₁ carry₃
 All: 'that I have helped her to carry the boxes'

- (89) Du
- a. 321 *... , dat ik haar de krat dragen₃ helpen₂ heb₁
 - b. 231 *... , dat ik haar de krat helpen₂ dragen₃ heb₁
 - c. 123 ... , dat ik haar de krat heb₁ helpen₂ dragen₃
 - d. 132 *... , dat ik haar de krat heb₁ dragen₃ helpen₂
 - e. 312 *... , dat ik haar de krat dragen₃ heb₁ helpen₂
 - f. 213 *... , dat ik haar de krat helpen₂ heb₁ dragen₃
 ... , that I her the boxes help₂ have₁ carry₃
 All: 'that I have helped her to carry the boxes'
- (90) WF
- a. 321 *... , da' 'k 'eur de dozen dragen₃ 'elpen₂ 'en₁
 - b. 231 ... , da' 'k 'eur de dozen 'elpen₂ dragen₃ 'en₁
 - c. 123 ... , da' 'k 'eur de dozen 'en₁ 'elpen₂ dragen₃
 - d. 132 *... , da' 'k 'eur de dozen 'en₁ dragen₃ 'elpen₂
 - e. 312 *... , da' 'k 'eur de dozen dragen₃ 'en₁ 'elpen₂
 - f. 213 *... , da' 'k 'eur de dozen 'elpen₂ 'en₁ dragen₃
 ... , that I her the boxes help₂ have₁ carry₃
 All: 'that I have helped her to carry the boxes'
- (91) Af
- a. 321 *... , dat ek (vir) haar die bokse dra₃ help₂ het₁
 - b. 231 ... , dat ek (vir) haar die bokse help₂ dra₃ het₁
 - c. 123 *... , dat ek (vir) haar die bokse het₁ help₂ dra₃
 - d. 132 *... , dat ek (vir) haar die bokse het₁ dra₃ help₂
 - e. 312 *... , dat ek (vir) haar die bokse dra₃ het₁ help₂
 - f. 213 *... , dat ek (vir) haar die bokse help₂ het₁ dra₃
 ... , that I her the boxes help₂ have₁ carry₃
 All: 'that I have helped her to carry the boxes'

In Bernese German, Sankt Gallen German, and Dutch only order 123 (c) is grammatical. In (Standard) German we get order 132 (d) in the IPP-construction. Zürich German is a little more restrictive here than with past participle and allows the orders 231 (b), 123 (c), and 213 (f). In West Flemish, both order (b) and order (c) are equally grammatical, and in Afrikaans only order (b) is possible.

3.5.3 The future tense, V₂: bare infinitive

- (92) Be
- a. 321 *... , das i re d Chischte trääge₃ häuffe₂ wirde₁
 - b. 231 *... , das i re d Chischte häuffe₂ trääge₃ wirde₁
 - c. 123 ... , das i re d Chischte wirde₁ häuffe₂ trääge₃
 - d. 132 *... , das i re d Chischte wirde₁ trääge₃ häuffe₂
 - e. 312 *... , das i re d Chischte trääge₃ wirde₁ häuffe₂

- f. 213 *... , das i re d Chischte häuffe₂ wirde₁ trääge₃
 ... , that I her the boxes help₂ will₁ carry₃
 All: 'that I will help her to carry the boxes'
- (93) Ge
- a. 321 ... , dass ich ihr die Kisten tragen₃ helfen₂ werde₁
 b. 231 *... , dass ich ihr die Kisten helfen₂ tragen₃ werde₁
 c. 123 *... , dass ich ihr die Kisten werde₁ helfen₂ tragen₃
 d. 132 ... , dass ich ihr die Kisten werde₁ tragen₃ helfen₂
 e. 312 *... , dass ich ihr die Kisten tragen₃ werde₁ helfen₂
 f. 213 *... , dass ich ihr die Kisten helfen₂ werde₁ *(zu) tragen₃
 ... , that I her the boxes help₂ will₁ carry₃
 All: 'that I will help her to carry the boxes'³⁷
- (94) SG
- a. 321 *... , dass I ere t Chischte trääge₃ helfe₂ werd₁
 b. 231 *... , dass I ere t Chischte helfe₂ trääge₃ werd₁
 c. 123 ... , dass I ere t Chischte werd₁ helfe₂ trääge₃
 d. 132 *... , dass I ere t Chischte werd₁ trääge₃ helfe₂
 e. 312 *... , dass I ere t Chischte trääge₃ werd₁ helfe₂
 f. 213 ??... , dass I ere t Chischte helfe₂ werd₁ trääge₃
 ... , that I her the boxes help₂ will₁ carry₃
 All: 'that I will help her to carry the boxes'
- (95) Zü
- a. 321 ... , das i ere d Chischte trääge₃ hälfe₂ wird₁
 b. 231 ... , das i ere d Chischte hälfe₂ trääge₃ wird₁
 c. 123 ... , das i ere d Chischte wird₁ hälfe₂ trääge₃
 d. 132 ... , das i ere d Chischte wird₁ trääge₃ hälfe₂
 e. 312 ??... , das i ere d Chischte trääge₃ wird₁ hälfe₂³⁸
 f. 213 ??... , das i ere d Chischte hälfe₂ wird₁ trääge₃
 ... , that I her the boxes help₂ will₁ carry₃
 All: 'that I will help her to carry the boxes'
- (96) Du
- a. 321 *... , dat ik haar de krat dragen₃ helpen₂ zal₁
 b. 231 *... , dat ik haar de krat helpen₂ dragen₃ zal₁
 c. 123 ... , dat ik haar de krat zal₁ helpen₂ dragen₃
 d. 132 *... , dat ik haar de krat zal₁ dragen₃ helpen₂
 e. 312 *... , dat ik haar de krat dragen₃ zal₁ helpen₂
 f. 213 *... , dat ik haar de krat helpen₂ zal₁ dragen₃
 ... , that I her the boxes help₂ will₁ carry₃
 All: 'that I will help her to carry the boxes'

³⁷Again, order 213 (f) may be grammatical but only when *zu* is inserted. This time, however, the orders 321 (a) and 312 (d) are only grammatical without *zu*.

³⁸This clause is grammatical when *trääge* is stressed (*TRÄÄGE wird hälfe*).

(97) WF

- a. 321 *... , da' 'k 'eur de dozen dragen₃ 'elpen₂ gon₁
- b. 231 ... , da' 'k 'eur de dozen 'elpen₂ dragen₃ gon₁
- c. 123 ... , da' 'k 'eur de dozen gon₁ 'elpen₂ dragen₃
- d. 132 *... , da' 'k 'eur de dozen gon₁ dragen₃ 'elpen₂
- e. 312 *... , da' 'k 'eur de dozen dragen₃ gon₁ 'elpen₂
- f. 213 *... , da' 'k 'eur de dozen 'elpen₂ gon₁ dragen₃
... , that I her the boxes help₂ will₁ carry₃
All: 'that I will help her to carry the boxes'

(98) Af

- a. 321 *... , dat ek (vir) haar die bokse dra₃ help₂ sal₁
- b. 231 *... , dat ek (vir) haar die bokse help₂ dra₃ sal₁
- c. 123 ... , dat ek (vir) haar die bokse sal₁ help₂ dra₃
- d. 132 *... , dat ek (vir) haar die bokse sal₁ dra₃ help₂
- e. 312 *... , dat ek (vir) haar die bokse dra₃ sal₁ help₂
- f. 213 *... , dat ek (vir) haar die bokse help₂ sal₁ dra₃
... , that I (for) her the boxes help₂ will₁ carry₃
All: 'that I will help her to carry the boxes'

In Bernese German, Sankt Gallen German, Dutch, and Afrikaans the verb order 123 (c) is again the only grammatical pattern. In (Standard) German both orders 321 (a) and 132 (d) are grammatical, in Zürich German even the four patterns 321 (a), 231 (b), 123 (c), and 132 (d) are grammatical. West Flemish finally shows both order 231 (a), and order 123 (c).

3.6 Duratives

The verb order patterns in examples with duratives are more restricted in the perfect tense (i.e., they allow for less optionality) compared to the verb classes we have seen before.

3.6.1 The present perfect tense, V₂: past participle

In Dutch and in West Flemish, duratives in a context like the one below do not occur in the past participle but instead obligatorily in the IPP. These languages are therefore left out in this section.

(99) Be

- a. 321 *... , das t' Lüt schtaa₃ bbl[I]be₂ si₁
- b. 231 *... , das t' Lüt bbl[I]be₂ schtaa₃ si₁
- c. 123 *... , das t' Lüt si₁ bbl[I]be₂ schtaa₃
- d. 132 ??... , das t' Lüt si₁ schtaa₃ bbl[I]be₂³⁹

³⁹This example is accepted by a minority of Bernese German speakers (that do not allow the

- e. 312 *... , das t' Lüt schtaa₃ si₁ bbl[I]be₂
 f. 213 *... , das t' Lüt bbl[I]be₂ si₁ schtaa₃
 ... , that the people remained₂ are₁ stand₃
 All: 'that the people have remained standing'

(100) Ge

- a. 321 ... , dass die Leute stehen₃ geblieben₂ sind₁
 b. 231 *... , dass die Leute geblieben₂ stehen₃ sind₁
 c. 123 *... , dass die Leute sind₁ geblieben₂ stehen₃
 d. 132 *... , dass die Leute sind₁ stehen₃ geblieben₂
 e. 312 *... , dass die Leute stehen₃ sind₁ geblieben₂
 f. 213 *... , dass die Leute geblieben₂ sind₁ stehen₃
 ... , that the people remained₂ are₁ stand₃
 All: 'that the people have remained standing'

(101) SG

- a. 321 ... , dass t' Lüt schto₃ bl[I]be₂ sind₁
 b. 231 *... , dass t' Lüt bl[I]be₂ schto₃ sind₁
 c. 123 *... , dass t' Lüt sind₁ bl[I]be₂ schto₃
 d. 132 ??... , dass t' Lüt sind₁ schto₃ bl[I]be₂
 e. 312 *... , dass t' Lüt schto₃ sind₁ bl[I]be₂
 f. 213 *... , dass t' Lüt bl[I]be₂ sind₁ schto₃
 ... , that the people remained₂ are₁ stand₃
 All: 'that the people have remained standing'

(102) Zü:

- a. 321 ... , das d Lüüt schtaa₃ bblibe₂ sind₁
 b. 231 *... , das d Lüüt bblibe₂ schtaa₃ sind₁
 c. 123 *... , das d Lüüt sind₁ bblibe₂ schtaa₃
 d. 132 *... , das d Lüüt sind₁ schtaa₃ bblibe₂
 e. 312 *... , das d Lüüt schtaa₃ sind₁ bblibe₂
 f. 213 *... , das d Lüüt bblibe₂ sind₁ schtaa₃
 ... , that the people remained₂ are₁ stand₃
 All: 'that the people have remained standing'

(103) Af

- a. 321 *... , dat de mense staan₃ gebly₂ het₁
 b. 231 ?... , dat de mense gebly₂ staan₃ het₁⁴⁰
 c. 123 *... , dat de mense het₁ gebly₂ staan₃
 d. 132 *... , dat de mense het₁ staan₃ gebly₂
 e. 312 *... , dat de mense staan₃ het₁ gebly₂

IPP here).

⁴⁰As already mentioned in chapter 2, the use of the past participle in these examples is very colloquial but possible nevertheless (see, e.g., Donaldson 1993:275).

- f. 213 *... , dat de mense gebly₂ het₁ staan₃
 ... , that the people remained₂ are₁ stand₃
 All: ‘that the people have remained standing’

In Bernese German we have an exception to the strict 123 (c) pattern. Only order 132 (d) is marginally possible. Remember, however, that this construction is exceptional anyway: According to my informant only a minority of Bernese German speakers use the durative as a past participle here at all.

In (Standard) German, Sankt Gallen German, and Zürich German only order 321 (a) is grammatical. This is unusual for the Swiss German dialects that otherwise show a larger diversity of possible patterns. Afrikaans only shows order 231 (b).

3.6.2 The present perfect tense, V₂: IPP

The examples for Standard German, Sankt Gallen German, and Zürich German are not given here because IPP-constructions with durative verbs do not occur in these languages.

- (104) Be
- a. 321 *... , das t' Lüt schtaa₃ bl[i]be₂ si₁
 - b. 231 *... , das t' Lüt bl[i]be₂ schtaa₃ si₁
 - c. 123 ... , das t' Lüt si₁ bl[i]be₂ schtaa₃⁴¹
 - d. 132 *... , das t' Lüt si₁ schtaa₃ bl[i]be₂
 - e. 312 *... , das t' Lüt schtaa₃ si₁ bbl[I]be₂
 - f. 213 *... , das t' Lüt bbl[I]be₂ si₁ schtaa₃
 ... , that the people remain₂ are₁ stand₃
 All: ‘that the people have remained standing’
- (105) Du
- a. 321 *... , dat de mensen staan₃ blijven₂ zijn₁
 - b. 231 *... , dat de mensen blijven₂ staan₃ zijn₁
 - c. 123 ... , dat de mensen zijn₁ blijven₂ staan₃
 - d. 132 *... , dat de mensen zijn₁ staan₃ blijven₂
 - e. 312 *... , dat de mensen staan₃ zijn₁ blijven₂
 - f. 213 *... , dat de mensen blijven₂ zijn₁ staan₃
 ... , that the people remain₂ are₁ stand₃
 All: ‘that the people have remained standing’

⁴¹Obligatory IPP with order 123 (c) is used by the majority of Bernese German speakers.

(106) WF⁴²

- a. 321 *... , dan de mensen stoan₃ bluve_n₂ zyn₁
- b. 231 ... , dan de mensen bluve_n₂ stoan₃ zyn₁
- c. 123 ... , dan de mensen zyn₁ bluve_n₂ stoan₃
- d. 132 *... , dan de mensen zyn₁ stoan₃ bluve_n₂
- e. 312 *... , dan de mensen stoan₃ zyn₁ bluve_n₂
- f. 213 *... , dan de mensen bluve_n₂ zyn₁ stoan₃
... , that the people remain₂ are₁ stand₃
All: 'that the people have remained standing'

(107) Af

- a. 321 *... , dat de mense staan₃ bly₂ het₁
- b. 231 ... , dat de mense bly₂ staan₃ het₁
- c. 123 ?... , dat de mense het₁ bly₂ staan₃
- d. 132 *... , dat de mense het₁ staan₃ bly₂
- e. 312 *... , dat de mense staan₃ het₁ bly₂
- f. 213 *... , dat de mense bly₂ het₁ staan₃
... , that the people remain₂ are₁ stand₃
All: 'that the people have remained standing'

As before in the IPP-construction with perception verbs (see 3.4.2), both patterns 231 and 123 (slightly less grammatical) are possible in Afrikaans, and (without restrictions) in West Flemish. Again as before, pattern 123 is the only possibility in Dutch and in Bernese German.

3.6.3 The future tense, V₂: bare infinitive

(108) Be

- a. 321 *... , das t' Lüt schtaa₃ bl[i]be₂ wärde₁
- b. 231 *... , das t' Lüt bl[i]be₂ schtaa₃ wärde₁
- c. 123 ... , das t' Lüt wärde₁ bl[i]be₂ schtaa₃
- d. 132 *... , das t' Lüt wärde₁ schtaa₃ bl[i]be₂
- e. 312 *... , das t' Lüt schtaa₃ wärde₁ bbl[I]be₂
- f. 213 *... , das t' Lüt bbl[I]be₂ wärde₁ schtaa₃
... , that the people remain₂ will₁ stand₃
All: 'that the people will remain standing'

(109) Ge

- a. 321 ... , dass die Leute stehen₃ bleiben₂ werden₁
- b. 231 *... , dass die Leute bleiben₂ stehen₃ werden₁
- c. 123 *... , dass die Leute werden₁ bleiben₂ stehen₃
- d. 132 *... , dass die Leute werden₁ stehen₃ bleiben₂

⁴²Note that many speakers of West Flemish tend to use the verb *have* as auxiliary when *bluven* is embedded. The possible verb order patterns, however, do not change.

- e. 312 *... , dass die Leute stehen₃ werden₁ bleiben₂
- f. 213 *... , dass die Leute bleiben₂ werden₁ stehen₃
 ... , that the people remain₂ will₁ stand₃
 All: 'that the people will remain standing'

(110) SG

- a. 321 ?... , dass t' Lüt schto₃ bl[i:]be₂ werdet₁
- b. 231 *... , dass t' Lüt bl[i:]be₂ schto₃ werdet₁
- c. 123 *... , dass t' Lüt werdet₁ bl[i:]be₂ schto₃
- d. 132 ... , dass t' Lüt werdet₁ schto₃ bl[i:]be₂
- e. 312 *... , dass t' Lüt schto₃ werdet₁ bl[i:]be₂
- f. 213 *... , dass t' Lüt bl[i:]be₂ werdet₁ schto₃
 ... , that the people remain₂ will₁ stand₃
 All: 'that the people will remain standing'

(111) Zü:

- a. 321 ... , das d Lüüt schtaa₃ bliibe₂ weerdet₁
- b. 231 *... , das d Lüüt bliibe₂ schtaa₃ weerdet₁
- c. 123 *... , das d Lüüt weerdet₁ bliibe₂ schtaa₃
- d. 132 ... , das d Lüüt weerdet₁ schtaa₃ bliibe₂
- e. 312 ??... , das d Lüüt schtaa₃ weerdet₁ bliibe₂⁴³
- f. 213 *... , das d Lüüt bliibe₂ weerdet₁ schtaa₃
 ... , that the people remain₂ will₁ stand₃
 All: 'that the people will remain standing'

(112) Du

- a. 321 *... , dat de mensen staan₃ blijven₂ zullen₁
- b. 231 *... , dat de mensen blijven₂ staan₃ zullen₁
- c. 123 ... , dat de mensen zullen₁ blijven₂ staan₃
- d. 132 *... , dat de mensen zullen₁ staan₃ blijven₂
- e. 312 *... , dat de mensen staan₃ zullen₁ blijven₂
- f. 213 *... , dat de mensen blijven₂ zullen₁ staan₃
 ... , that the people remain₂ will₁ stand₃
 All: 'that the people will remain standing'

(113) WF

- a. 321 *... , dan de mensen stoan₃ bluyen₂ gon₁
- b. 231 *... , dan de mensen bluyen₂ stoan₃ gon₁
- c. 123 ... , dan de mensen gon₁ bluyen₂ stoan₃
- d. 132 *... , dan de mensen gon₁ stoan₃ bluyen₂
- e. 312 *... , dan de mensen stoan₃ gon₁ bluyen₂
- f. 213 *... , dan de mensen bluyen₂ gon₁ stoan₃
 ... , that the people remain₂ will₁ stand₃
 All: 'that the people will remain standing'

⁴³This sentence is only possible when *schtaa* is stressed.

- (114) Af
- a. 321 *... , dat de mense staan₃ bly₂ sal₁
 - b. 231 *... , dat de mense bly₂ staan₃ sal₁
 - c. 123 ... , dat de mense sal₁ bly₂ staan₃
 - d. 132 ??... , dat de mense sal₁ staan₃ bly₂
 - e. 312 *... , dat de mense staan₃ sal₁ bly₂
 - f. 213 *... , dat de mense bly₂ sal₁ staan₃
 ... , that the people remain₂ will₁ stand₃
 All: 'that the people will remain standing'

In Bernese German, Dutch, West Flemish, and Afrikans we get again order 123 (c) as the only possible pattern. (Standard) German shows order 321 (a) as expected. This order is also possible in Sankt Gallen German (slightly marked, however) and in Zürich German, both of which also show order 312 (d) in addition.

3.7 Inchoatives

Inchoatives differ from the verb classes discussed so far in that they do not embed a bare infinitive in most languages: In Bernese German, (Standard) German, Dutch, and optionally in Zürich German a 'to-infinitive' is selected. In West Flemish, the prepositional element *met* 'with' is even preferred to *to* in the examples below.

3.7.1 The present perfect tense, V₂: past participle

- (115) Be
- a. 321 *... , das es z räggen₃ ufgghört₂ het₁
 - b. 231 *... , das es ufgghört₂ z rägne₃ het₁
 - c. 123 ... , das es het₁ ufgghört₂ z rägne₃
 - d. 132 *... , das es het₁ z räggen₃ ufgghört₂
 - e. 312 *... , das es z rägne₃ het₁ ufgghört₂
 - f. 213 ... , das es ufgghört₂ het₁ z rägne₃
 ... , that it stopped₂ has₁ to rain₃
 All: 'that it has stopped raining'
- (116) Ge
- a. 321 ... , dass es zu regnen₃ aufgehört₂ hat₁
 - b. 231 *... , dass es aufgehört₂ zu regnen₃ hat₁
 - c. 123 *... , dass es hat₁ aufgehört₂ zu regnen₃
 - d. 132 *... , dass es hat₁ zu regnen₃ aufgehört₂
 - e. 312 *... , dass es zu regnen₃ hat₁ aufgehört₂
 - f. 213 ... , dass es aufgehört₂ hat₁ zu regnen₃
 ... , that it stopped₂ has₁ to rain₃
 All: 'that it has stopped raining'

(117) SG

- a. 321 *... , dass es rägne₃ ufghört₂ het₁
- b. 231 *... , dass es ufghört₂ rägne₃ het₁
- c. 123 ??... , dass es het₁ ufghört₂ rägne₃
- d. 132 *... , dass es het₁ rägne₃ ufghört₂
- e. 312 *... , dass es rägne₃ het₁ ufghört₂
- f. 213 ... , dass es ufghört₂ het₁ rägne₃
... , that it stopped₂ has₁ rain₃
All: 'that it has stopped raining'

(118) Zü:

- a. 321 ??... , das es (z) rägne₃ uufghört₂ hät₁
- b. 231 ... , das es uufghört₂ (z) rägne₃ hät₁
- c. 123 *... , das es hät₁ uufghört₂ (z) rägne₃
- d. 132 *... , das es hät₁ (z) rägne₃ uufghört₂
- e. 312 *... , das es (z) rägne₃ hät₁ uufghört₂
- f. 213 ... , das es uufghört₂ hät₁ (z) rägne₃
... , that it stopped₂ has₁ (to) rain₃
All: 'that it has stopped raining'

(119) Du

- a. 321 *... , dat het te regenen₃ opgehouden₂ heeft₁
- b. 231 *... , dat het opgehouden₂ te regenen₃ heeft₁
- c. 123 ... , dat het heeft₁ opgehouden₂ te regenen₃
- d. 132 *... , dat het heeft₁ te regenen₃ opgehouden₂
- e. 312 *... , dat het te regenen₃ heeft₁ opgehouden₂
- f. 213 ... , dat het opgehouden₂ heeft₁ te regenen₃
... , that it stopped₂ has₁ to rain₃
All: 'that it has stopped raining'

(120) WF

- a. 321 *... , da' 't me' regenen₃ gestopt₂ 'et₁
- b. 231 ... , da' 't gestopt₂ me' regenen₃ 'et₁
- c. 123 *... , da' 't 'et₁ gestopt₂ me' regenen₃
- d. 132 *... , da' 't 'et₁ me' regenen₃ gestopt₂
- e. 312 *... , da' 't me' regenen₃ 'et₁ gestopt₂⁴⁴
- f. 213 ... , da' 't gestopt₂ 'et₁ me' regenen₃
... , that it stopped₂ has₁ with rain₃
All: 'that it has stopped raining'

Example (b) was judged as ungrammatical by my West Flemish informant when *me*' ('with') is replaced by *te*, and example (f) was assigned a question mark.

⁴⁴This sentence is only grammatical with contrastive accent on *regenen*. I will come back to the influence of stress on verb order in chapter 8.

- (121) Af
- a. 321 *... , dat dit reen₃ opgeh₂ het₁
 - b. 231 ... , dat dit opgeh₂ reen₃ het₁
 - c. 123 ?... , dat dit het₁ opgeh₂ reen₃
 - d. 132 *... , dat dit het₁ reen₃ opgeh₂
 - e. 312 *... , dat dit reen₃ het₁ opgeh₂
 - f. 213 ... , dat dit opgeh₂ het₁ reen₃
 ... , that it stopp₂ has₁ rain₃
 All: 'that it has stopped raining'

Bernese German and Dutch again pattern alike in that they allow order 123 (c) and additionally order 213 (f). (Standard) German shows both orders 321 (a) and 213, and in Sankt Gallen German, only verb order 213 is fully grammatical. Zürich German behaves like West Flemish with respect to this construction: Both languages show order 231 (b) and order 213. In Afrikaans, order 231 (b) and 213 (f) are also grammatical as well as (slightly marked) order 123 (c). In general we see that order 213 (f) appears more often with inchoatives than with other verb classes. It is grammatical in all languages discussed here.

3.7.2 The present perfect tense, V₂: IPP

- (122) Be
- a. 321 *... , das es z räg₃ ufhö₂ het₁
 - b. 231 *... , das es ufhö₂ z räg₃ het₁
 - c. 123 ... , das es het₁ ufhö₂ z räg₃
 - d. 132 *... , das es het₁ z räg₃ ufhö₂
 - e. 312 *... , das es z räg₃ het₁ ufhö₂
 - f. 213 *... , das es ufhö₂ het₁ z räg₃
 ... , that it stopp₂ has₁ to rain₃
 All: 'that it has stopped raining'

- (123) SG
- a. 321 *... , dass es räg₃ ufhö₂ het₁
 - b. 231 *... , dass es ughö₂ räg₃ het₁
 - c. 123 ... , dass es het₁ ufhö₂ räg₃
 - d. 132 *... , dass es het₁ räg₃ ufhö₂
 - e. 312 *... , dass es räg₃ het₁ ufhö₂
 - f. 213 ??... , dass es ufhö₂ het₁ räg₃
 ... , that it stopp₂ has₁ rain₃
 All: 'that it has stopped raining'

- (124) Af
- a. 321 *... , dat dit reen₃ oph₂ het₁
 - b. 231 ?... , dat dit oph₂ reen₃ het₁

- c. 123 ... , dat dit het₁ ophou₂ reen₃
- d. 132 *... , dat dit het₁ reen₃ ophou₂
- e. 312 *... , dat dit reen₃ het₁ ophou₂
- f. 213 ... , dat dit ophou₂ het₁ reen₃
 ... , that it stopp₂ has₁ rain₃
 All: 'that it has stopped raining'

In Bernese German again only order 123 (c) is grammatical as well as in Sankt Gallen German. In Afrikaans, both order (c) and order 213 (f) are fully grammatical. Order 231 (b) is possible as well but slightly marked.

As shown above in chapter 2, the IPP-construction is ungrammatical with inchoatives in Standard German, Zürich German, Dutch and West Flemish.⁴⁵

3.7.3 The future tense, V₂: bare infinitive

- (125) Be
- a. 321 *... , das es z räggen₃ ufhöre₂ wirt₁
 - b. 231 *... , das es ufhöre₂ z rägne₃ wirt₁
 - c. 123 ... , das es wirt₁ ufhöre₂ z rägne₃
 - d. 132 *... , das es wirt₁ z räggen₃ ufhöre₂
 - e. 312 *... , das es z rägne₃ wirt₁ ufhöre₂
 - f. 213 *... , das es ufhöre₂ wirt₁ z rägne₃
 ... , that it stop₂ will₁ to rain₃
 All: 'that it will stop raining'

- (126) Ge:
- a. 321 ... , dass es *(zu) regnen₃ aufhören₂ wird₁
 - b. 231 *... , dass es aufhören₂ *(zu) regnen₃ wird₁
 - c. 123 *... , dass es wird₁ aufhören₂ *(zu) regnen₃
 - d. 132 *... , dass es wird₁ *(zu) regnen₃ aufhören₂
 - e. 312 *... , dass es *(zu) regnen₃ wird₁ aufhören₂
 - f. 213 ... , dass es aufhören₂ wird₁ *(zu) regnen₃
 ... , that it stop₂ will₁ to rain₃
 All: 'that it will stop raining'

- (127) SG
- a. 321 *... , dass es rägne₃ ufhöre₂ wirt₁
 - b. 231 ??... , dass es ufhöre₂ rägne₃ wirt₁

⁴⁵Remember from chapter 2, however, that in West Flemish the verb *stoppen* 'stop' differs from other inchoatives in embedding a (CP-) complement introduced by the preposition *me* 'with'. This may be the reason why IPP is not possible here. IPP is optional, however, with other inchoatives like, e.g. *beginnen* 'begin' that embed a *to*-infinitive.

With respect to Dutch, note that speaker judgements vary a lot. To be consistent, I always give the judgements of my informant, also when it differs from judgements in the literature as in, for example, Rutten (1991).

- c. 123 ... , dass es wirt₁ ufhöre₂ rägne₃
- d. 132 *... , dass es wirt₁ rägne₃ ufhöre₂
- e. 312 *... , dass es rägne₃ wirt₁ ufhöre₂
- f. 213 *... , dass es ufhöre₂ wirt₁ rägne₃
 ... , that it stop₂ will₁ rain₃
 All: 'that it will stop raining'

(128) Zü:

- a. 321 *... , das es (z) rägne₃ uufhöre₂ wirt₁
- b. 231 ... , das es uufhöre₂ (z) rägne₃ wirt₁
- c. 123 ... , das es wirt₁ uufhöre₂ (z) rägne₃
- d. 132 *... , das es wirt₁ (z) rägne₃ uufhöre₂
- e. 312 *... , das es (z) rägne₃ wirt₁ uufhöre₂
- f. 213 ... , das es uufhöre₂ wirt₁ (z) rägne₃
 ... , that it stop₂ will₁ (to) rain₃
 All: 'that it will stop raining'

(129) Du

- a. 321 *... , dat het te regenen₃ ophouden₂ zal₁
- b. 231 *... , dat het ophouden₂ te regenen₃ zal₁
- c. 123 ... , dat het zal₁ ophouden₂ te regenen₃
- d. 132 *... , dat het zal₁ te regenen₃ ophouden₂
- e. 312 *... , dat het te regenen₃ zal₁ ophouden₂
- f. 213 ... , dat het ophouden₂ zal₁t te regenen₃
 ... , that it stop₂ will₁ to rain₃
 All: 'that it will stop raining'

(130) WF

- a. 321 *... , da' 't me' regenen₃ stoppen₂ got₁
- b. 231 *... , da' 't stoppen₂ me' regenen₃ got₁
- c. 123 ... , da' 't go' ₁ stoppen₂ me' regenen₃
- d. 132 *... , da' 't go' ₁ me' regenen₃ stoppen₂
- e. 312 *... , da' 't me' regenen₃ go' ₁ stoppen₂
- f. 213 ... , da' 't stoppen₂ go' ₁ me' regenen₃
 ... , that it stop₂ will₁ with rain₃
 All: 'that it will stop raining'

(131) Af

- a. 321 *... , dat dit reen₃ ophou₂ sal₁
- b. 231 *... , dat dit ophou₂ reen₃ sal₁
- c. 123 ... , dat dit sal₁ ophou₂ reen₃
- d. 132 *... , dat dit sal₁ reen₃ ophou₂
- e. 312 *... , dat dit reen₃ sal₁ ophou₂
- f. 213 ... , dat dit ophou₂ sal₁ reen₃
 ... , that it stop₂ will₁ rain₃
 All: 'that it will stop raining'

In Bernese German and in Sankt Gallen German only order 123 (c) is grammatical. This order is also possible in Zürich German, Dutch, West Flemish, and Afrikaans. Dutch, West Flemish, and Afrikaans allow order 213 (f) in addition, and Zürich German the orders 231 (b) and (f). In (Standard) German the orders 321 (a) and (f) are grammatical.

3.8 Control verbs

Like inchoatives, the verb class of control verbs also embeds a *to*-infinitive in most languages discussed here (Bernese German, (Standard) German, Sankt Gallen German, Zürich German, and Dutch). In West Flemish, however, *to* is optional, and only Afrikaans still shows the bare infinitive alone.

3.8.1 The present perfect tense, V₂: past participle

(132) Be

- a. 321 *... , das er das nie vorzgä₃ probiert₂ het₁
- b. 231 *... , das er das nie probiert₂ vorzgä₃ het₁
- c. 123 ... , das er das nie het₁ probiert₂ vorzgä₃
- d. 132 ??... , das er das nie het₁ vorzgä₃ probiert₂
- e. 312 *... , das er das nie vorzgä₃ het₁ probiert₂
- f. 213 ... , das er das nie probiert₂ het₁ vorzgä₃
 ... , that he that never tried₂ has₁ to-pretend₃
 All: 'that he has never tried to pretend that'

(133) Ge

- a. 321 ... , dass er das nie vorzugeben₃ versucht₂ hat₁
- b. 231 *... , dass er das nie versucht₂ vorzugeben₃ hat₁
- c. 123 ??... , dass er das nie hat₁ versucht₂ vorzugeben₃
- d. 132 ??... , dass er das nie hat₁ vorzugeben₃ versucht₂
- e. 312 *... , dass er das nie vorzugeben₃ hat₁ versucht₂
- f. 213 ... , dass er das nie versucht₂ hat₁ vorzugeben₃
 ... , that he that never tried₂ has₁ to-pretend₃
 All: 'that he has never tried to pretend that'

(134) SG

- a. 321 *... , dass er es nie vorztüsche₃ probiert₂ het₁
- b. 231 *... , dass er es nie probiert₂ vorztüsche₃ het₁
- c. 123 ??... , dass er es nie het₁ probiert₂ vorztüsche₃
- d. 132 *... , dass er es nie het₁ vorztüsche₃ probiert₂
- e. 312 *... , dass er es nie vorztüsche₃ het₁ probiert₂
- f. 213 ... , dass er es nie probiert₂ het₁ vorztüsche₃
 ... , that he that never tried₂ has₁ to-pretend₃
 All: 'that he has never tried to pretend that'

(135) Zü:

- a. 321 ... , das er s nie vorztüüsche₃ versuecht₂ hät₁
- b. 231 *... , das er s nie versuecht₂ vorztüüsche₃ hät₁
- c. 123 ... , das er s nie hät₁ versuecht₂ vorztüüsche₃
- d. 132 *... , das er s nie hät₁ vorztüüsche₃ versuecht₂
- e. 312 *... , das er s nie vorztüüsche₃ hät₁ versuecht₂
- f. 213 ... , das er s nie versuecht₂ hät₁ vorztüüsche₃
... , that he it never tried₂ has₁ to-pretend₃
All: 'that he has never tried to pretend that'

(136) Du

- a. 321 *... , dat hij nooit te doen alsof₃ geprobeerd₂ heeft₁
- b. 231 *... , dat hij nooit geprobeerd₂ te doen alsof₃ heeft₁
- c. 123 ... , dat hij nooit heeft₁ geprobeerd₂ te doen alsof₃
- d. 132 *... , dat hij nooit heeft₁ te doen alsof₃ geprobeerd₂
- e. 312 *... , dat hij nooit te doen alsof₃ heeft₁ geprobeerd₂
- f. 213 ... , dat hij nooit geprobeerd₂ heeft₁ te doen alsof₃
... , that he never tried₂ has₁ to do as-if₃
All: 'that he has never tried to pretend'

(137) WF

- a. 321 *... , dat ie 'et nooit (te) beweren₃ geprobird₂ 'et₁
- b. 231 ... , dat ie 'et nooit geprobird₂ *(te) beweren₃ 'et₁
- c. 123 *... , dat ie 'et nooit 'e'₁ geprobird₂ (te) beweren₃
- d. 132 *... , dat ie 'et nooit 'e'₁ (te) beweren₃ geprobird₂
- e. 312 *... , dat ie 'et nooit (te) beweren₃ 'e'₁ geprobird₂
- f. 213 ... , dat ie 'et nooit geprobird₂ 'e'₁ *(te) beweren₃
... , that he that never tried₂ has₁ (to) pretend₃
All: 'that he has never tried to pretend that'

(138) Af

- a. 321 *... , dat hy dit nooit voorgee₃ geprobeer₂ het₁ nie
- b. 231 ?... , dat hy dit nooit geprobeer₂ voorgee₃ het₁ nie
- c. 123 ?... , dat hy dit nooit het₁ geprobeer₂ voorgee₃ nie
- d. 132 *... , dat hy dit nooit het₁ voorgee₃ geprobeer₂ nie
- e. 312 *... , dat hy dit nooit voorgee₃ het₁ geprobeer₂ nie
- f. 213 ... , dat hy dit nooit geprobeer₂ het₁ voorgee₃ nie
... , that he that never tried₂ has₁ pretend₃ not
All: 'that he has never tried to pretend that'

Bernese German and Dutch again behave alike in showing both pattern 123 (c) and pattern 213 (f). Pattern (f) is also grammatical in all other languages discussed. In Sankt Gallen German it is even the only possible pattern. In (Standard) German, pattern 321 (a) is grammatical in addition to (f), in Zürich

German both patterns 321 (a) and 123 (c) are grammatical; whereas in West Flemish pattern 231 (b), and in Afrikaans both orders 231 (b) and 123 (c) are possible (slightly marked, however, as my informant judged the past participle to be possible but unusual here).

3.8.2 The present perfect tense, V_2 : IPP

The IPP-construction is ungrammatical with control verbs in (Standard) German as well as in Sankt Gallen German and in Zürich German (see chapter 2). The respective examples are therefore not mentioned here. The same is true for Dutch (at least for my informant, judgements, however, differ a lot).

(139) Be

- a. 321 *... , das er das nie vorzgä₃ probiere₂ het₁
- b. 231 *... , das er das nie probiere₂ vorzgä₃ het₁
- c. 123 ... , das er das nie het₁ probiere₂ vorzgä₃
- d. 132 *... , das er das nie het₁ vorzgä₃ probiere₂
- e. 312 *... , das er das nie vorzgä₃ het₁ probiere₂
- f. 213 *... , das er das nie probiere₂ het₁ vorzgä₃
 ... , that he that never try₂ has₁ to-pretend₃
 All: 'that he has never tried to pretend that'

(140) WF

- a. 321 *... , dat ie 'et nooit (te) beweren₃ proberen₂ 'et₁
- b. 231 ... , dat ie 'et nooit proberen₂ ?(te) beweren₃ 'et₁
- c. 123 ... , dat ie 'et nooit 'e'₁ proberen₂ (te) beweren₃
- d. 132 *... , dat ie 'et nooit 'e'₁ (te) beweren₃ proberen₂
- e. 312 *... , dat ie 'et nooit (te) beweren₃ 'e'₁ proberen₂
- f. 213 *... , dat ie 'et nooit proberen₂ 'e'₁ (te) beweren₃
 ... , that he that never try₂ has₁ (to) pretend₃
 All: 'that he has never tried to pretend that'

(141) Af

- a. 321 *... , dat hy dit nooit voorgee₃ probeer₂ het₁ nie
- b. 231 ?... , dat hy dit nooit probeer₂ voorgee₃ het₁ nie
- c. 123 ... , dat hy dit nooit het₁ probeer₂ voorgee₃ nie
- d. 132 *... , dat hy dit nooit het₁ voorgee₃ probeer₂ nie
- e. 312 *... , dat hy dit nooit voorgee₃ het₁ probeer₂ nie
- f. 213 ... , dat hy dit nooit probeer₂ het₁ voorgee₃ nie
 ... , that he that never try₂ has₁ pretend₃ not
 All: 'that he has never tried to pretend that'

In Bernese German, again only pattern 123 (c) is grammatical. In addition to pattern (c), pattern 231 (b) is possible in West Flemish. In Afrikaans, both patterns (c) and (b) (slightly marked) are grammatical as well as pattern 213 (f).

3.8.3 The future tense, V₂: bare infinitive

(142) Be

- a. 321 *... , das er das nie vorzgä₃ probiere₂ wirt₁
- b. 231 *... , das er das nie probiere₂ vorzgä₃ wirt₁
- c. 123 ... , das er das nie wirt₁ probiere₂ vorzgä₃
- d. 132 *... , das er das nie wirt₁ vorzgä₃ probiere₂
- e. 312 *... , das er das nie vorzgä₃ wirt₁ probiere₂
- f. 213 *... , das er das nie probiere₂ wirt₁ vorzgä₃
 ... , that he that never try₂ will₁ to-pretend₃
 All: 'that he will never try to pretend that'

(143) Ge

- a. 321 ... , dass er das nie vorzugeben₃ versuchen₂ wird₁
- b. 231 *... , dass er das nie versuchen₂ vorzugeben₃ wird₁
- c. 123 *... , dass er das nie wird₁ versuchen₂ vorzugeben₃
- d. 132 ??... , dass er das nie wird₁ vorzugeben₃ versuchen₂
- e. 312 *... , dass er das nie vorzugeben₃ wird₁ versuchen₂
- f. 213 ... , dass er das nie versuchen₂ wird₁ vorzugeben₃
 ... , that he that never try₂ will₁ to-pretend₃
 All: 'that he will never try to pretend that'

(144) SG

- a. 321 *... , dass er es nie vorztüsche₃ probiere₂ wirt₁
- b. 231 *... , dass er es nie probiere₂ vorztüsche₃ wirt₁
- c. 123 ?... , dass er es nie wirt₁ probiere₂ vorztüsche₃
- d. 132 *... , dass er es nie wirt₁ vorztüsche₃ probiere₂
- e. 312 *... , dass er es nie vorztüsche₃ wirt₁ probiere₂
- f. 213 ... , dass er es nie probiere₂ wirt₁ vorztüsche₃
 ... , that he that never try₂ will₁ to-pretend₃
 All: 'that he will never try to pretend that'

(145) Zü:

- a. 321 ... , das er s nie voorztüüsche₃ versueche₂ wirt₁
- b. 231 *... , das er s nie versueche₂ voorztüüsche₃ wirt₁
- c. 123 ... , das er s nie wirt₁ versueche₂ voorztüüsche₃
- d. 132 ... , das er s nie wirt₁ voorztüüsche₃ versueche₂
- e. 312 *... , das er s nie voorztüüsche₃ wirt₁ versueche₂
- f. 213 ... , das er s nie versueche₂ wirt₁ voorztüüsche₃
 ... , that he it never try₂ will₁ to-pretend₃
 All: 'that he will never try to pretend that'

(146) Du

- a. 321 *... , dat hij nooit te doen alsof₃ prober₂ zal₁
- b. 231 *... , dat hij nooit prober₂ te doen alsof₃ zal₁

- c. 123 ... , dat hij nooit zal₁ proberen₂ te doen alsof₃
- d. 132 *... , dat hij nooit zal₁ te doen alsof₃ proberen₂
- e. 312 *... , dat hij nooit te doen alsof₃ zal₁ proberen₂
- f. 213 ... , dat hij nooit proberen₂ zal₁ te doen alsof₃
 ... , that he never try₂ will₁ to do as-if₃
 All: 'that he will never try to pretend'

(147) WF

- a. 321 *... , dat ie 'et nooit (te) beweren₃ proberen₂ got₁
- b. 231 ?... , dat ie 'et nooit proberen₂ (*te) beweren₃ got₁
- c. 123 ... , dat ie 'et nooit go'₁ proberen₂ (te) beweren₃
- d. 132 *... , dat ie 'et nooit go'₁ (te) beweren₃ proberen₂
- e. 312 *... , dat ie 'et nooit (te) beweren₃ go'₁ proberen₂
- f. 213 *... , dat ie 'et nooit proberen₂ go'₁ (te) beweren₃
 ... , that he that never try₂ will₁ (to) pretend₃
 All: 'that he will never try to pretend that'

(148) Af

- a. 321 *... , dat hy dit nooit voorgee₃ probeer₂ sal₁ nie
- b. 231 *... , dat hy dit nooit probeer₂ voorgee₃ sal₁ nie
- c. 123 ... , dat hy dit nooit sal₁ probeer₂ voorgee₃ nie
- d. 132 ??... , dat hy dit nooit sal₁ voorgee₃ probeer₂ nie
- e. 312 *... , dat hy dit nooit voorgee₃ sal₁ probeer₂ nie
- f. 213 ... , dat hy dit nooit probeer₂ sal₁ voorgee₃ nie
 ... , that he that never try₂ will₁ pretend₃ not
 All: 'that he will never try to pretend that'

In Bernese German the possible verb order patterns are most restricted. Again, only pattern 123 (c) is grammatical in the future tense. In Sankt Gallen German, Dutch, and Afrikaans both patterns 123 (c) (slightly marked in Sankt Gallen German) and 213 (f) are possible. In West Flemish, pattern (c) is grammatical as well and, marginally, also pattern 231 (b). Zürich German allows even four verb order patterns here: In addition to pattern (c) and (f) also pattern 321 (a) and pattern 132 (d). Patterns (a) and (f) are also grammatical in (Standard) German.

3.9 Summary from the perspective of the different languages

In this section the results of the data overview shown above will be summarised. First, the data are grouped according to the respective language and, internally, both according to the verb class of V_2 and according to the constructions in question. As should have become clear from above, the language internal parameters 'verb class' and 'verb form' (i.e. 'construction') are crucial for the range of possi-

ble verb order patterns in addition to the parameters that differentiate between the languages in general.

Before taking the wider perspective of comparing verb orders across languages, I will look at language internal properties and come back to the first question raised at the beginning of this chapter: What is the relation between IPP-constructions and ‘regular’ 3-verb constructions? Does the verb order in IPP-constructions resemble either the order in the perfect tense with V_2 as a past participle or the order in the future tense in the same language or is it different of both? Another question concerns the role of the verb class of V_2 with respect to verb order patterns. As the examples in this chapter have shown, the choice of the verb class is clearly one of the parameters that have an influence on verb order patterns.

Summarising tables are given for each language that allow a direct comparison of the three constructions and, internally, of the different verb classes. The verb order of each construction (i.e., the perfect tense with V_2 as a past participle, the IPP-construction, and the future tense) is given for all verb classes of potential IPP-verbs as V_2 .

Note that for this overview, I have judged all data that were marked with two question marks by my informants as ungrammatical.

3.9.1 Bernese German

(149) Overview of the verb order patterns in Bernese German

	Perfect, V_2 : PastP	Perfect, V_2 : IPP	Future
Causative	*	123	123
Modal	*	123	123
PV	123, ?213	123	123
Benefactive	123	123	123
Durative	*	123	123
Inchoative	123, 213	123	123
CV	123, 213	123	123

Bernese German shows a quite homogeneous picture: The order 123 is predominant and appears almost without exception. Nevertheless, the influence of the verb class on verb order patterns is visible. When V_2 is a causative, a modal, or a durative and appears in the past participle, the perfect tense construction is not grammatical at all (as shown in the left column in (149)). The IPP-construction is obligatory instead. When V_2 is an inchoative, a control verb, or (marginally) a perception verb that appears as a past participle the order 213 is also possible.

3.9.2 Standard German

(150) Overview of the verb order patterns in Standard German

	Perfect, V ₂ : PastP	Perfect, V ₂ : IPP	Future
Causative	*	132	132
Modal	*	132	?321, 132
PV	321	132	321, 132
Benefactive	321	132	321, 123
Durative	321	*	321
Inchoative	321, 213	*	321, 213
CV	321, 213	*	321, 213

In Standard German, only one verb order is grammatical in IPP-constructions, namely the order 132 as shown in the second column of the table in (150). This order differs from the ‘regular’ perfect tense construction with V₂ as a past participle. In this construction, order 321 is predominant as shown in the first column. This descending verb order is most prominent in Standard German. It also appears in the future tense no matter what verb class is chosen for V₂, as shown in the last column of the table. Looking more closely at the future tense, however, we see that with modals and perception verbs the order 132 – that is known from the IPP-construction – is possible as well (in the case of causatives and modals, this order is even preferred).

To sum up: The verb order in the IPP-construction may be ‘exceptional’ and ‘unusual’ for the perfect tense but not for German in general. It is still a verb order that appears in other constructions as well, like e.g. in the future tense.⁴⁶ In other words, the verb order in IPP-constructions is a subset of the verb orders that can be found in the future tense but differs from the possible verb orders with V₂ as a past participle.

The verb class of V₂ also plays a role with respect to verb order in Standard German. On the one hand, there are cases where a construction is not possible at all when V₂ is part of a certain verb class (see causatives and modals in the ‘regular’ perfect tense with past participle or duratives, inchoatives, and control verbs in the IPP-construction). On the other hand, there are differences in the number of possible verb orders. As already mentioned above, modals, perception verbs, and benefactives are more ‘liberal’ than, e.g., duratives in allowing for two possible verb orders instead of only one in the future tense, as shown in the last column of the table. Inchoatives and control verbs allow order 213 in addition to order 321 as shown in the last two lines of the table.

⁴⁶The 132 order is also possible for some speakers – in addition to the ascending order – when V₁ is a modal: *... , dass sie das Buch will lesen können* ‘... , that she wants to read the book’. As data judgements differ a lot in this area, I will not focus on modal constructions in the following.

3.9.3 Sankt Gallen German

Sankt Gallen German shows a wider range of possible verb orders than the other languages we have seen so far. Nevertheless, a predominant verb order for each of the three constructions is still visible.

(151) Overview of the verb order patterns in Sankt Gallen German

	Perfect, V ₂ : PastP	Perfect, V ₂ : IPP	Future
Causative	*	321, ?132	?321, 123
Modal	*	123, 132, 312	123, ?132
PV	213	123	321, 123, 132
Benefactive	213	123	123
Durative	321	*	?321, 132
Inchoative	213	123	123
CV	213	*	?123, 213

In the IPP-construction the order 123 is predominant although there is variation due to the different verb classes of V₂. From the verb classes that allow IPP (i.e., excluding duratives and control verbs) causatives and modals show most variation in verb order. In addition to order 123, the (Standard) German order 132 and order 312 are also grammatical with modals. Causatives behave exceptionally in that they do not show order 123 but order 321 and (the slightly marked) order 132 instead.

The predominant verb order 123 of the IPP-construction does not occur in the correspondent construction with past participle as shown in the first column of the table. The order that appears most often in this construction is order 213 (namely with perception verbs, benefactives, inchoatives and control verbs). Only duratives show the descending order 321.

Looking at the possible verb order patterns of the future tense, however, we see a large intersection with the verb orders of the IPP-construction. As in the case of IPP, verb order 123 is predominant, and by and large also the same additional patterns appear (with the exception of order 213 that appears with control verbs in the future tense). Variation is again due to the different verb classes, and although future tense and IPP-construction largely share the same verb order patterns the distribution of these patterns differs.

To sum up: As before in Standard German, the possible verb orders in IPP-constructions differ from the perfect tense with past participle. Again, the verb order patterns in IPP-constructions are not ‘exceptional’ but appear as well in other constructions like the future tense.

The verb class of V₂ plays an important role for the verb orders in Sankt Gallen German. Despite clearly visible general tendencies (i.e., order 213 in the perfect tense with past participle, order 123 in IPP-constructions and in the

future tense) each verb class shows its own typical verb order patterns. There are no two verb classes that pattern alike with respect to all three constructions.

3.9.4 Zürich German

Zürich German shows the largest variation of verb order patterns of all languages discussed here. With the exception of order 312 (only possible with a special stress pattern), all logically possible patterns are confirmed by my informant.

(152) Overview of the verb order patterns in Zürich German

	Perfect, V ₂ : PastP	Perfect, V ₂ : IPP	Future
Causative	*	321, 123, 132	321, 123, 132
Modal	*	?321, 123, 132	?321, 123, 132
PV	321, ?123, 213	?231, 123	321, 123, 132
Benefactive	321, 231, 123, 132, 213	231, 123, 213	321, 231, 123, 132
Durative	321	*	321, 132
Inchoative	231, 213	*	231, 123, 213
CV	321, 123, 213	*	321, 123, 132, 213

Starting again with the IPP-construction in the second column, we see that order 123 is predominant once more. Whenever IPP is an option then this order is grammatical. Depending on the verb class of V₂ it is accompanied by other patterns like 321 and 132 (causatives and modals), 231 (perception verbs and benefactives), and 213 (benefactives).

In contrast to e.g. (Standard) German and Sankt Gallen German the same orders appear in the perfect tense with past participle. The frequency of occurrence of the single orders differs, however. Both orders 321 and 213 are slightly more frequent than order 123 when V₂ is a past participle. The verb class of V₂ influences the variation of verb order patterns a lot: The number of possible verb orders reaches from one (V₂ a durative) to five (V₂ a benefactive).

The future tense shows a lot of verb order variation, too. The orders 321, 123, and 132 are equally frequent in the small sample presented in (152). Again, verb order patterns vary depending on the verb class of V₂.

To sum up: Zürich German shows a lot of verb order variation with a tendency to the order 123 in IPP-constructions. In IPP-constructions (across verb classes), however, there is no verb order that does not also appear in other constructions as well, i.e., verb order in IPP-constructions is again not ‘special’ for the language.

3.9.5 Dutch

(153) Overview of the verb order patterns in Dutch

	Perfect, V ₂ : PastP	Perfect, V ₂ : IPP	Future
Causative	*	123	123
Modal	*	123	123
PV	*	123	123
Benefactive	*	123	123
Durative	*	123	123
Inchoative	123, 213	*	123, 213
CV	123, 213	*	123, 213

In Dutch, only order 123 is grammatical in the IPP-construction independently of the verb class of V₂. Variation due to the verb class is visible nevertheless as inchoatives and control verbs do not allow for IPP at all.

The regular perfect tense construction with past participle (the first column) is not grammatical when V₂ is either a causative, modal, perception verb, benefactive, or a durative. In the case of inchoatives and control verbs, however, order 123 is grammatical just as in the case of IPP but, different from IPP, order 213 is possible as well.

A look at the future tense examples reveals that the ascending order 123 is grammatical for all verb classes of V₂. As with the perfect tense construction with past participle the order 213 is possible in addition with inchoatives and control verbs.

Again, the verb order in the IPP-construction is not at all exceptional in Dutch.

3.9.6 West Flemish

(154) Overview of the verb order patterns in West Flemish

	Perfect, V ₂ : PastP	Perfect, V ₂ : IPP	Future
Causative	*	231, 123	123
Modal	*	?231, 123	123
PV	*	231, 123	123
Benefactive	*	231, 123	231, 123
Durative	*	231, 123	123
Inchoative	231, 213 'me'	*	123, 213 'me'
CV	231, 213	231, 123	?231, 123

In West Flemish two verb order patterns are possible in the IPP-construction (almost) independently of the verb class of V₂: order 231 and order 123.

As in Dutch, the regular perfect tense construction is only grammatical if V_2 is either an inchoative or a control verb as shown in the first column of the table. The possible verb order patterns are 231 (as in the IPP-construction) and 213.

A comparison between the verb order in IPP-constructions and in the future tense shows that these constructions share the descending verb order 123. Depending on the verb class, however, order 231 (benefactives, control verbs) and order 213 (inchoative *stoppen me* ‘stop with’) are possible as well.

3.9.7 Afrikaans

(155) Overview of the verb order patterns in Afrikaans

	Perfect, V_2 : PastP	Perfect, V_2 : IPP	Future
Causative	*	231	123
Modal	*	?231	123
PV	231	231, ?123	123
Benefactive	231, ?123	231	123
Durative	?231	231, ?123	123
Inchoative	231, ?123, 213	?231, 123, 213	123, 213
CV	?231, ?123, 213	?231, 123, 213	123, 213

Looking again at IPP-constructions first, we see that the same orders are predominant as in West Flemish: the ascending order 123 and order 231 (apart from order 213 that only appears with inchoatives and control verbs). These orders are not special in Afrikaans. The first column of the table in (155) shows that the same orders are also found in perfect tense constructions with V_2 as a past participle.⁴⁷ Although we do not get exactly the same patterns for each verb class when we compare the perfect tense/past participle construction with the IPP-construction, the differences are not very big either. Perception verbs, e.g., show only order 231 in the perfect tense with V_2 as a past participle but both order 231 and (slightly marked) order 123 in the IPP-construction. For benefactives it is exactly the other way round: They allow both order 231 and (slightly marked) order 123 in the perfect tense with past participle but only order 231 in the case of IPP. In the future tense the order 123 is predominant in Afrikaans as shown in the rightmost column in (155).

To sum up, as in the other languages above the order(s) in the IPP-construction are not exceptional in Afrikaans. All orders that are grammatical in IPP-constructions in Afrikaans also appear in other constructions of the language.

⁴⁷Note that these data go against the often held claim (see, e.g. Wurmbrand 2002:10, Scheifele 1999:134) that the order 231 is only found in IPP-constructions. I posit this remark here as Afrikaans is a very clear empirical counterexample. Note, however, that also West Flemish and (quite restricted) Zürich German show order 231 in non-IPP constructions.

3.10 Summary from the perspective of the different constructions

In this section, I will come back to the question of to what extent the verb order in one and the same construction differs across languages. The question what parameters are at stage crosslinguistically was among the questions raised at the beginning of this chapter.

One table for each construction is given to compare the languages and to summarise the results. All verb order possibilities for a cluster of three verbs are listed and the grammatical orders are marked by ‘√’ for each language.

Note that in the following I abstract away from verb class differences. I always give the best possibility, i.e., when a construction is marked as grammatical with one kind of verb (e.g., perception verbs) but marked as deviating with another kind of verb (e.g., modals) I will mark the construction as grammatical here. With this table I want to show which patterns appear at all. Only the predominant patterns are repeated in chapter 9 below, following the judgements of my informants.

3.10.1 The present perfect tense, V₂: past participle

	Be	Ge	SG	Zü	Du	WF	Af
321	*	√	√	√	*	*	*
231	*	*	*	√	*	√	√
123	√	*	*	√	√	*	√
132	*	*	*	√	*	*	*
312	*	*	*	*	*	*	*
213	√	√	√	√	√	√	√

Bernese German and Dutch pattern alike in only allowing order 213 (f) apart from the predominant order 123 (c). Also Standard German and Sankt Gallen German look similar at first glance. They both show order 321 (a) and order 213 (f). When we look back at the tables (150) and (151), however, we see that order 321 is predominant in Standard German, and that order 213 is predominant in Sankt Gallen German. Zürich German, West Flemish and Afrikaans show order 231 (b). Whereas in both West Flemish and Afrikaans order 213 is possible as well, and in Afrikaans even order 123, Zürich German shows all verb order patterns except pattern 132 (e).

Interestingly, order 312 (e) is not attested at all in this construction, and order 132 (d) only appears in Zürich German, and here only if V₂ is a benefactive, see table (152). Apart from the strictly ascending order 123 (c), these are the only patterns in which the past participle V₂ does not precede the auxiliary V₁. I will come back to this observation in chapters 7 and 9 below.

Apart from order 312, all other patterns can be found. Order 213 (f) is

possible in all languages but as we have seen before, it most often only appears with inchoatives and control verbs. As the tables for the different constructions aim to show which orders are possible in general, and which are not, we do not get any information on the predominant orders here. For the predominant orders of each construction, and an analysis of these see chapter 9.

3.10.2 The present perfect tense, V_2 : IPP

	Be	Ge	SG	Zü	Du	WF	Af
321	*	*	√	√	*	*	*
231	*	*	*	√	*	√	√
123	√	*	√	√	√	√	√
132	*	√	√	√	*	*	*
312	*	*	√	*	*	*	*
213	*	*	*	√	*	*	√

In the IPP-construction, the construction that I am most interested in here, all patterns are documented in at least one language with at least one verb class. Bernese German, Dutch and German are ‘strict’ in the sense that they allow only one verb order in IPP constructions. This is order 132 (d) in German, and order 123 (c) in Bernese German and in Dutch. Afrikaans and West Flemish resemble in this respect: They allow both order 231 (b) and order 123, and Afrikaans also shows order 213 (f) with at least some verb classes. In Sankt Gallen German, even four orders are grammatical. In addition to the already mentioned orders 123 and 132, there are also the orders 321 (a) and 312 (e). In Zürich German, again all patterns are possible with the exception of order 312.⁴⁸

Order 123 is predominant in IPP-constructions in general. Apart from Standard German, it is among the possible patterns of each language.

3.10.3 The future tense, V_2 : bare infinitive

	Be	Ge	SG	Zü	Du	WF	Af
321	*	√	√	√	*	*	*
231	*	*	*	√	*	√	*
123	√	*	√	√	√	√	√
132	*	√	√	√	*	*	*
312	*	*	√	*	*	*	*
213	*	√	√	√	√	√	√

Like the IPP-constructions above, the future tense also shows all verb order patterns in at least one language. The individual languages differ a lot, however,

⁴⁸Note, however, that in contrast to the perfect tense with V_2 as a past participle, this order has been judged as possible under a special stress assignment in the IPP-construction.

in how many patterns they allow. Bernese German is most restrictive. It only shows pattern 123 (c). Dutch and Afrikaans show order 213 (f) in addition, and West Flemish also order 231 (b). Standard German is again the only language in which pattern 123 is not grammatical. It shows order 321 (a), order 132 (d), and, quite restricted, also order 213 (f). As for the IPP-construction, Sankt Gallen German and Zürich German exhibit the largest variation of verb orders. In Zürich German, all patterns are possible apart from pattern 312 (e). Sankt Gallen German shows this pattern but does not allow order 231 (b). Order 123 is prominent in the future tense apart from order 213 (f) which is only possible with a few verb classes (mostly inchoatives and control verbs), however.

3.11 Summary

In this chapter, the verb order of IPP-constructions has been compared to the verb order of two other constructions: the perfect tense with V_2 a past participle, and the future tense. Examples were given of all seven languages with special consideration of the verb class of V_2 . Finally, the verb order patterns of all IPP-languages under discussion were summarised according to language, verb class of V_2 , and construction type.

Construction type is clearly a parameter that determines the verb order: With respect to the IPP-construction we saw that its typical verb order pattern(s) differ from the typical verb order patterns of the ‘expected’ perfect tense construction with past participle in many languages up to a certain degree, at most, however, in (Standard) German, and Sankt Gallen German. The verb order patterns in the IPP-constructions differ from the verb order patterns in the future tense to a minor degree. The verb order patterns in IPP-constructions, however, are not ‘exceptional’ in that they do not appear anywhere else in the language. On the contrary, all verb orders that are possible in the IPP-construction also appear in other constructions as well. Only the frequency of occurrence and the distribution with respect to the verb class of V_2 may differ. This answers the question raised at the beginning of this chapter concerning the relation between the verb order in IPP-constructions and ‘regular’ 3-verb constructions of the language. As the verb order in IPP-constructions often coincides with verb orders that appear elsewhere, we cannot speak of a ‘last resort’ in the case of verb order in IPP-constructions.

The verb class of V_2 is yet another important parameter that determines verb order. Although this gives rise to variation, typical, i.e., predominant patterns for each construction and each language can be extracted nevertheless as will be shown below in chapter 9.

Before I come to my own analysis in chapters 6 to 9, I will briefly discuss previous accounts of IPP in the following chapter, and give an introduction to Optimality Theory in chapter 5.

4 Previous accounts of the IPP-construction

The IPP-construction has fascinated linguists since Grimm (1837) both from a non-generative (see, e.g. Merkes (1895), Aldenhoff (1962), Lange (1981), Lange (1982), Askedal (1991), ...) and generative background (see, e.g., Bierwisch (1963), den Besten and Edmondson (1983), Hoeksema (1988), Vanden Wyngaerd (1994), IJbema (1997), ...). In 1837, Grimm wrote: ‘When in Modern German the participial – if combined with an infinitive – apparently itself turns into an infinitive, then such bizarre structure can only be understood as the accidental similarity of strong participle forms with the infinitive. The true infinitive would be counterintuitive.’ (translation by den Besten and Edmondson 1983:160).⁴⁹

Explanations are sought for the unexpected verb form as well as – at least for German – the unexpected verb order. As den Besten and Edmondson (1983:159) wrote: ‘The problem of form and position, of the inter- and intralanguage variation with respect to the [IPP] has been a troublesome feature in grammatical analyses for both traditional and modern treatments.’

In this chapter, I will summarise some previous accounts of the IPP-construction, and I will show which factors are held responsible for IPP in the literature. I will also show to which extent the suggested accounts can answer the questions resulting from the empirical data in chapters 2 and 3. The main questions are repeated below:

- How is IPP accounted for, and what functions as the trigger for IPP?
- How is the implicational hierarchy of potential IPP-verbs integrated into the account?
- How is the alternation of obligatory IPP, no IPP, and optional IPP accounted for both inside one language and across languages?
- Is there a connection between the verb form and the verb order in IPP-constructions?

Before I give a brief overview of previous accounts and see how these questions are dealt with, I will first discuss the status of the IPP-form: Is the IPP a bare infinitive or a past participle with atypical morphology? This question is not clearly answered in the literature. Connected to it is the question of the selectional properties of perfect tense auxiliaries.

⁴⁹The original citation is the following (Grimm 1837:168): ‘Wenn nun nhd., nicht das allein stehende sondern das mit einem inf. (...) verbundene part. scheinbar selbst in den inf. verwandelt wird, so begreift sich eine so seltsame structur bloß aus der zufälligen ähnlichkeit starker participialformen mit dem inf.; der wirkliche inf. wäre widersinnig.’ (sic)

4.1 The status of the IPP: infinitive or past participle?

It has been proposed in the literature that the IPP-form is some sort of past participle (see, e.g., Askedal 1991:18f, Hinterhölzl 1999:79, Plank 2000). Proponents of this hypothesis assume that the past participle may vary between ‘true’ participial morphology and ‘IPP-morphology’. Under this view, IPP is seen as a ‘participial allomorph’ which is phonetically equivalent to the bare infinitive. The hypothesis that the IPP is a prefixless past participle goes back to Grimm 1837.⁵⁰

Under the ‘past participle hypothesis’ of IPP, the assumption that a perfect tense auxiliary selects only one verbal status, which is the past participle, can be kept.

Much more common in the IPP-literature is the view, however, that the IPP-form is a bare infinitive. I will also follow this more simple and intuitive way to look at IPP in the following: When IPP-forms look like bare infinitives, then this is so because they are indeed bare infinitives. Plank 2000:26f also mentions this analysis of IPP but sees as a serious drawback

‘(...) that the syntax is getting needlessly complicated: main verbs normally governing resultative participles would become alternative governors of the infinitive if the governed verbs are modals (...).’

Something like this has in fact been proposed for the German auxiliary *haben* ‘have’ by Evers 2001:33,36. Most accounts of IPP, however, simply do not discuss these consequences of the assumption that the IPP-form is a bare infinitive. The proposal that perfect tense auxiliaries govern both past participles and bare infinitives goes against the well grounded observation that a verbal governor may govern only one verbal status (see, e.g., Bech (1983)). The complication of this straightforward system is only necessary when constraints are not assumed to be violable. Under the assumption that constraints are violable, however, we can keep the generalisation that a perfect tense auxiliary governs only one verbal

⁵⁰This view has been discussed under the name ‘homophony hypothesis’ in the literature. The homophony hypothesis sees the origin of the IPP-construction in the formal identity of the prefixless past participle of some verbs and the infinitive. Speakers are assumed to have wrongly taken the infinitive for the past participle and then carried the infinitival form over to other verbs.

Critics of this view, see, e.g., Erdmann 1886:110-112, and the thorough discussion in Merkes 1895:13-29, rightly noted that the infinitival form was also taken over by verbs that clearly distinguished between infinitive and past participle (like, e.g. *kunnen* ‘can’ – *gekonnt* ‘could’, *helfen* ‘help’ – *geholpen* ‘helped’), and that the IPP-construction only occurred in a special context, a fact that was neglected by the homophony hypothesis (see also Hoeksema 1988:151, den Besten and Edmondson 1983:fn1, IJbema 1997:149f for discussion).

An alternative view was suggested instead that assumed a participle form to take over the infinitival form in an infinitival environment (‘assimilation hypothesis’). With this account the question arises why the IPP-form is not found with all past participles that embed an infinitival complement, or why the past participle does not assimilate to an embedded *to*-infinitive (for a critical discussion of the assimilation account see Hoeksema 1988:151f.)

status, namely the past participle. This generalisation is violated when under certain conditions a bare infinitive appears instead.

The table in (156) summarises the different views on IPP-form and selectional properties of perfect tense auxiliaries:

- (156) Status of the IPP-form and selectional properties of perfect tense auxiliaries ('have')

	IPP is a past participle	IPP is a bare infinitive
<i>have</i> governs pastp	Grimm 1837, Askedal 1991, Hinterhölzl 1999	Schmid, this study
<i>have</i> governs pastp and bare infinitive	–	Evers 2001

4.2 Triggers and accounts of the IPP-construction

In this section, I will summarise the triggers that have been suggested for the IPP-construction and illustrate the different accounts. Before doing so, however, I will briefly discuss the structure of IPP-constructions.

Complements of IPP-verbs are part of the larger class of verbal complements that are not assumed to form a clausal domain of their own. These so-called 'coherent' constructions (see Bech (1983)) differ from clause-like complements (incoherent constructions) in being transparent for a number of otherwise clause bounded processes. Since Evers 1975, it has therefore been assumed that both constructions structurally differ from each other. Evers suggested some sort of verb cluster formation achieved by a process called 'verb raising' that applies to coherent constructions.⁵¹

There is an extensive amount of literature on how exactly verb cluster formation is achieved. For a very rough overview, two general strategies can be distinguished: derivation or base generation. It has either been assumed that verb clusters are derived from a clausal variant by movement operations (either by X-movement Evers (1975) and many successors), or (remnant) XP-movement (e.g., Hinterhölzl (1999), Koopman and Szabolcsi (2000)) sometimes followed by a restructuring process including some kind of reanalysis (e.g., Evers (1975), Haegeman and van Riemsdijk (1986), Stechow and Sternefeld (1988)). Some linguists assume instead that verb clusters are base generated, either as VPs or V-complexes (see, e.g., Haider (1991), Haider (1993), Wurmbrand (1998), Wurmbrand (2001)).

As in most of the general literature on the structure of verbal complexes the

⁵¹This process consists of two steps: (i) the embedded verb is extracted from the complement clause and adjoined to the matrix verb, and (ii) 'S-pruning' applies, i.e., the S-node of the complement clause is deleted as a consequence of operation (i) (see Evers 1975:166).

IPP-construction has only marginally been dealt with, I will not go further into the general issue of verb cluster formation here. Instead, I will concentrate on work that focusses on the IPP-construction. For a good overview of the structure of infinitives and a discussion of the different accounts as well as for further literature, the reader is referred to Wurmbrand (2001). With this in mind, let us now turn to some previous accounts of the IPP-constructions.⁵²

Among the first articles in the generative framework that solely concentrate on IPP are Edmondson (1980) and den Besten and Edmondson (1983). The authors give a detailed account of German and Dutch IPP-constructions with respect to both the verb form and the verb order. They mention the presence of a lexical verb depending on the IPP-verb as well as the verb class of the IPP-verb as important factors that influence the occurrence of IPP. A gradient distribution of IPP is stated in, e.g., Edmondson 1980:66: IPP is obligatory with modals, slightly less used with *brauchen* ‘need’, even less with *lassen* ‘let, cause’ and least with ‘sensory verbs’ (which include perception verbs and benefactives). In the transformation rules they suggest, these factors are explicitly included (see, e.g., den Besten and Edmondson 1983:174). It is also explicitly stated that both the IPP-form and the verb order in IPP-constructions differ from the normally expected form, and that rules are violated whose effects are otherwise visible in the language (see, e.g., Edmondson 1980:59f).

An account that makes both verb cluster formation, and the presence of the *ge-* prefix responsible for IPP is Lange (1981), Lange (1982). Lange investigates German (and also Dutch in the 1981 article) and assumes that in these languages IPP-verbs and their infinitival complement merge into a complex verb. When the verbs are merged, however, the ‘past participle frame’, i.e., the morphology *ge-t/en* cannot be applied anymore as the verbal unit, on the one hand, is too complex to let the *ge-* prefix inside the cluster, and on the other hand the verbal unit is not totally reanalysed as one verb. Therefore, the prefix (*ge-*) cannot be separated from the suffix (*-t/-en*) by the verbal complex. The conflict is solved by dispensing with the whole past participle frame. As a last resort (‘Ausweichkonstruktion’, Lange 1982:177), the bare infinitive appears instead.

Apart from the fact that the notion of verb-merger remains unclear (see Hoeksema 1988:154 for discussion) it is also problematic for the account that some verbs optionally show IPP. Although Lange sees the IPP-form as a bare infinitive, he does not discuss the problems that result from this assumption in a grammatical system in which rules/constraints normally are not violable.

Hoeksema (1988) also relates the occurrence of the IPP to the participle prefix *ge-*. He proposes that IPP is the result of a constraint on governors in the verb cluster that prohibits governing verbs which are complex. He assumes that this

⁵²I will summarise some more influential accounts of the form of IPP in this section. This, however, leaves aside accounts that mainly concentrate on verb order like, e.g., Haegeman (1998) for West Flemish, or Haftka (1994) for German.

constraint was valid for *ge*-verbs in Middle Dutch when *ge*- was still a derivational marker. After reanalysis of *ge*- to an inflectional marker, *ge*-verbs no longer counted as complex. This is seen as the reason for ‘apparent’ exceptions to the IPP: After the reanalysis of *ge*-, many verbs were used as verbal governors that could not occur in the verbal complex before the 18th century. Verbs that showed the IPP-effect in Middle Dutch, however, kept the IPP-form although ‘the original motivation for it has disappeared’ (Hoeksema 1988:158). Hoeksema assumes that Modern German has lost the constraint on complex governors completely. He speculates that this loss took place quite early, which he takes to be a reason for the many exceptions to the IPP in German.

It is not clear how optionality of IPP fits into Hoeksema’s system, as it is not discussed at all. Hoeksema also states that the IPP-form is a bare infinitive. He does not mention, however, that this view presupposes that the IPP-form is either in conflict with the selectional properties of the perfect tense auxiliary – when it is assumed to select only a past participle⁵³ – or that the perfect tense auxiliary must be assumed to select both a bare infinitive and a past participle.

Bennis and Hoekstra 1989 discuss the IPP-construction in Dutch in the larger context of infinitival complementation. They assume that a verb must be identified by tense via a process called tense linking, i.e., the tense and the verb are related by means of the positions of a tense chain (including C, T, AGR, V), whereby intervening heads may not be skipped. A T(ense)-Chain between a dependent T and a governing T can be composed if some link of C₁ (i.e., the tense chain of the dependent T) is a sister to some link of C₂ (i.e., the tense chain of the governing T.)

This condition on T-chain composition functions as a trigger for either verb raising or extraposition in order to adjoin a link of the depending T to a sister position of the governing T.

Bennis and Hoekstra stipulate that participles cannot be links in a T-chain in contrast to bare infinitives and in this way account for the bare infinitive in IPP-constructions (again without discussing the consequences for the selectional properties of perfect tense auxiliaries).

As in Lange (1981), and Hoeksema (1988), the past participle prefix *ge*- is also relevant in the account of Vanden Wyngaerd 1994. He investigates the effects of Kayne’s antisymmetry framework (see Kayne (1994)) on verb cluster formation. Vanden Wyngaerd assumes that when a bare infinitive adjoins to a past participle with *ge*-prefix, both the infinitival suffix and the past participle prefix are dominated by a node with the same categorial feature. As a consequence, neither affix c-commands the other, so no total linear order can be achieved, and Kayne’s Linear Correspondence Axiom (LCA) is violated. To avoid a violation of the LCA, the past participle is replaced by a bare infinitive. Vanden Wyngaerd discusses the IPP-construction rather abstractly with focus on the verb form.

⁵³At least synchronically, i.e., after the reanalysis of *ge*- as an inflectional marker.

Although he gives a few examples from German and Dutch, the differences of verb order in IPP-constructions in these languages is not discussed at all.

IJbema 1997 suggests an account of IPP in the minimalist framework (following Chomsky (1993), Chomsky (1995)) that crucially relies on the assumptions that an infinitive (XP) has to check its features in a specifier position of the embedding verb⁵⁴ in verbal complexes, and that past participles with *ge*-prefix behave like unaccusatives in that they have no light verb projection.⁵⁵ From these two assumptions, the IPP-construction is deduced: If there is no specifier position in which the bare infinitive can check its features, then the derivation will crash. In order to avoid this, the past participle is replaced by a bare infinitive that supplies the relevant checking position. The differences between, e.g., German and Dutch verb order are due to the fact that in Dutch movement of the embedded verb for checking reasons is covert (i.e., it applies after spell-out, at LF, due to a weak categorial V-feature) whereas it is overt in German (due to a strong categorial V-feature).⁵⁶ Although IJbema (1997) also only discusses German and Dutch with respect to the verb classes that appear with IPP it is one of the few accounts that presents data of several languages (German, Zürich German, Dutch (including dialects), West Flemish, and Afrikaans) with respect to the verb order. Nevertheless, the analysis is only exemplified for German, and sketched for Dutch. It faces problems, however, when it is extended to the other languages. In general, the analysis cannot derive order 213 (f). This is taken as an advantage by IJbema 1997 as she assumes that this order does not appear in IPP-constructions. As we have seen in chapter 3, however, and as will be repeated below, this is not true. Apart from this, it is also not clear how the other five verb orders can be derived without stipulating that verbs of one and the same language differ with respect to the feature value (strong/weak) of the categorial V-feature. The derivation is not shown for the individual languages. Furthermore, to account for exceptions to IPP in German, IJbema (1997:162) has to stipulate that the non-IPP verbs embed verbal complements with nominal features (gerunds) that are checked in a different position. Optionality of IPP could not be derived without further stipulation along these lines. This issue has not been dealt with, however. Therefore, although IJbema (1997) is one of the few articles on IPP that at least extends the database of IPP-constructions, the extension of the analysis to all these languages does not work without further stipulations.

⁵⁴More precisely, the infinitive checks its categorial V-feature in the outer specifier position of the light verb. The inner specifier of the light verb is the base position of the external argument, see IJbema 1997:157 for details.

⁵⁵Unaccusatives do not have an external argument, and the past participles prefix *ge*- is assumed to absorb the external theta-role of the verb it attaches to, both when it functions as passive morpheme, and when it functions as perfect morpheme. That unaccusatives and past participles only project a VP (and no v_{max}) is a structural reflex of these properties.

⁵⁶Note that IJbema (1997) assumes an underlying VO-order.

This short overview of previous IPP-accounts briefly described the main analyses. The table in (157) summarises the different accounts with respect to the suggested triggers for IPP, and the languages investigated.

(157) Summary (triggers of IPP and languages investigated)

	factors that trigger/influence IPP	language(s) investigated
Edmondson 1980, Den Besten and Edmondson 1983	context and verb class	Du, Ge
Lange 1981, 1982	<i>ge-</i> and formation of V-complex	Du, Ge
Hoeksema 1988	constraint on complex governors (diachronic)	Du, Ge
Bennis and Hoekstra 1989	PastP cannot be a link in a T-chain	Du
Vanden Wyngaerd 1994	verb cluster of infinitive and past participle with <i>ge-</i> violates the LCA	Du, Ge
IJbema 1997	PastP + <i>ge-</i> lacks a checking position for the embedded infinitive	verb form: Du, Ge; additionally for verb order: Af, Wf, Zü, Du dialects

To sum up, we have seen that the context (verbal complement embedded under a past participle) plays an important role for the account of IPP, as well as – at least in some accounts – verb cluster formation, and the prefixal nature of the past participle marker (*ge-*).

Interestingly, all accounts of the IPP-construction that assume the IPP-form to be a bare infinitive must either assume that both ranking and violability of constraints takes place or that a perfect tense auxiliary selects both the expected past participle and a bare infinitive. Apart from Edmondson (1980), den Besten and Edmondson (1983) who explicitly state that rules of the grammar are violated, this is not discussed in the literature.

After this brief overview of the IPP-literature, three issues come up: (i) Although there is much literature on IPP there is not much comparative work. Most often only Dutch and German are discussed. (ii) If there is work on another language apart from these two, then the discussion is often restricted to this language (see, e.g., Hoekstra and Taanman (1996) on West Frisian Dutch, Blom and Hoekstra (1996), Haegeman (1998) on West Flemish, ...). (iii) If comparative approaches are given, then they turn out to be problematic when confronted with the complex IPP-data (see, e.g. the discussion of IJbema (1997) above),

i.e., although the previous work on IPP unquestionably is very valid, there is still enough work to do.

After this general overview of previous IPP-accounts, I will more specifically address two correlations in connection with IPP, and see whether they can be maintained.

4.3 Correlations with respect to IPP

In this section, I will discuss two correlations that are often mentioned in connection with IPP in the literature: a correlation of the past participle prefix *ge-* and IPP, and a correlation of certain verb orders and IPP.

4.3.1 The perfect tense prefix *ge-* and IPP

It has often been claimed in the literature on IPP that there is a correlation between the occurrence of the past participle prefix *ge-* and the IPP-construction (see, e.g., Lange 1981, 1982, Hoeksema 1988, Vanden Wyngaerd 1994, IJbema 1997). Lange 1981:63 gives examples of West Germanic languages like Frisian (spoken in the province of Friesland, the Netherlands), and the German dialect ‘Low German’ (spoken in some parts of Northern Germany) that do not show the IPP-construction and that also lack the past participle prefix *ge-*. His examples are repeated in (158) and (159):

(158) Frisian: ... , dat er it boek leze kent hat
 ..., that he the book read could-PastP has

(159) Low German: ... , dat he dat Book lesen kunnt hett
 ..., that he the book read could-PastP has

Hoeksema 1988:150 adds examples from the Dutch dialect of Groningen, spoken in the northern part of the Netherlands. This dialect also lacks the past participle prefix *ge-* and does not show IPP:

(160) a. 'k Heb nait kkomm duurt
 I have not come dared
 b. Hai het 't nait koopm wild
 He has it not buy wanted

Lange (1981:64, 1982:174) generalises that IPP appears in all German languages that form their past participle with the prefix *ge-*. And Hoeksema (1988:150) states that ‘the non-occurrence’ of the IPP in these languages and dialects correlates exactly with the absence of the participial marker *ge-* (...).’

Although the connection between *ge-* and IPP is striking, not all languages fit into the pattern. Yiddish, e.g., is problematic for this correlation.⁵⁷ Although

⁵⁷This was already mentioned in Hoeksema 1988:fn4.

it has a past participle prefix *ge-*, it does not show IPP as illustrated in (161) (following Lockwood 1995:82):

- (161) a. Zey hobn *gemuzt* zikh farteydikn
 They have must-PastP themselves defend
 b. *Zey hobn *muzn* zikh farteydikn
 They have must-Inf themselves defend⁵⁸

Therefore, the correlation can only state that whenever a language shows IPP then it also has a past participle with *ge-* prefix. Now, another language seems problematic, however: West Frisian Dutch, a Dutch dialect spoken in the province of North Holland. Hoekstra and Taanman (1996) point out that West Frisian Dutch goes against the generalisation by Lange (1981), Hoeksema (1988) in not having a *ge-* prefix for the past participle but showing IPP nevertheless. They attribute this behaviour to the intermediate status of West Frisian Dutch between Dutch and Frisian, however, and suggest that it is due to bilingualism between West Frisian Dutch and (Standard-) Dutch.

Although at least Yiddish is a counterexample to the observed correlation between *ge-* prefix and IPP, the correlation is still too striking to be a mere coincidence. I will come back to it in chapter 6.

4.3.2 Verb order and IPP

In many analyses of the IPP-effect, the verb order plays an important role (e.g., den Dikken (1989), Zwart (1996)). I will deal with correlations of verb order and IPP that have been suggested in the literature, and see whether they can be upheld with respect to the data set given in chapters 2 and 3.

A common observation in the literature on verb order in verb clusters is that order 213 (f) only appears when V_2 is a past participle⁵⁹ but not when it is a bare infinitive (see, e.g., IJbema 1997:148 for the IPP-construction, and Wurmbrand 2002:10 for verb clusters in general, among many others). The statement is that of the six logically possible verb orders in 3-verb clusters only five orders indeed occur. As the data in chapter 3 show, however, this is not true either. Order 213 (f) is possible in IPP-constructions in Zürich German (with V_2 a benefactive), and in Afrikaans (with V_2 either an inchoative or a control verb). In Sankt Gallen German, order 213 is even the only possible order in IPP-constructions with modals under a certain focus assignment.⁶⁰ Another correlation is stated

⁵⁸Note that the bare infinitive *muzn* ‘must’ is ungrammatical in all possible orders.

⁵⁹This construction has been analysed as a ‘third construction’ between verb cluster formation and extraposition by many authors, with different properties than ‘real’ verb cluster formations, e.g., Rutten (1991), Robbers (1997), Wurmbrand (2001), but see also Wöllstein-Leisten (2001) who analyses this construction as an instance of verb cluster formation.

⁶⁰The more general claim that order 213 (f) does not appear when V_2 is a bare infinitive can be maintained even less: With the exception of Bernese German, all languages investigated in

in den Dikken (1989) who observes that IPP only appears when the underlying verb order in the verbal complex has been changed through verb raising. As den Dikken assumes that all IPP-languages are underlying SOV, it follows that IPP cannot appear when the verb order pattern in the verbal complex is the strictly descending order 321, (see also Zwart 1996:235). However, this is not true empirically. As shown in chapter 3, Sankt Gallen German shows order 321 (a) (among others) when V_2 is a causative, and Zürich German shows order 321 when V_2 is either a causative or a modal.⁶¹

A last generalisation will be mentioned here that was made by Wurmbrand 2002:10 (see also Scheffele (1999)). She states that the verb order 231 (b) is only found in IPP-constructions. As shown in chapter 3, however, there are also exceptions to this generalisation. Order 231 is found in the perfect tense with V_2 a past participle in Zürich German (with benefactives and inchoatives), in West Flemish (with inchoatives⁶² and control verbs), and in Afrikaans (with all verb classes from perception verbs to control verbs). Zürich German and West Flemish also show order 231 in the future tense: Zürich German with benefactives and inchoatives, and West Flemish with benefactives and control verbs.

A summary of the above is given in (162):

(162) (Non-)correlations of certain verb order patterns and IPP

(non)-correlation	stated by	empirical counter examples in
no IPP:		
213 (f)	Zwart 1996, IJbema 1997, Scheffele 1999, Wurmbrand 2001, ...	Zü, SG, Af
321 (a)	den Dikken 1989 Zwart 1996	SG, Zü, ...
only found with IPP:		
231 (b)	Wurmbrand 2002 Scheffele 1999	Zü, WF, Af

To summarise: None of the correlations between verb order pattern(s) and IPP that have been established in the literature are without exceptions. I will therefore conclude that there is no direct causal relationship between the (non-) occurrence of a certain verb order pattern and IPP (see also Wurmbrand 2002:6).

this study may show order 213 in the future tense at least with some verb classes.

⁶¹See also IJbema 1997:147 citing an example of IPP with order 321 by Blom and Hoekstra 1996:75-76 from the Dutch Dialect Achterhoeks, and Haider 2002:fn7 for colloquial Viennese Austrian German that also shows IPP with order 321.

⁶²Note, however, that *me* 'with' is obligatory here.

What seems to be correlating with the verb order is the form of V_2 in a 3-verb cluster: The different verb order patterns are largely due to whether V_2 is a past participle or a bare infinitive, the construction type (perfect tense or future tense, i.e., the verb class of V_1), and also the verb class of V_2 . I will come back to these factors in chapter 7.

4.4 Summary

Let us finally turn again to the four questions on verb form and verb order raised at the beginning of this chapter. The answers that can be provided after the discussion of the literature are given below:

- Quite general: How is IPP accounted for, and what functions as the trigger for IPP?
IPP is said to be an ‘exceptional form’ that appears in situations in which the past participle is not allowed (the context of an embedded verb below the past participle, and the *ge*-prefix are relevant).
- How is the implicational hierarchy of potential IPP-verbs integrated into the account?
Most accounts only mention different verb classes. An exception are, e.g., Edmondson 1980, den Besten and Edmondson 1983 who explicitly state a hierarchy for German and also include it into their IPP-rule.
- How is the alternation of obligatory IPP, no IPP, and optional IPP accounted for both inside one language and across languages?
If alternation is observed at all then it is traced back to lexical differences between the verb classes in different languages. Optionality is at most observed (if at all) but not accounted for.
- Is there a connection between the verb form and the verb order in IPP-constructions?
No, although this is often stated in the literature, and although some patterns appear more often with the IPP-construction than others, a strict correlation cannot be deduced.

To sum up: There are some repeatedly mentioned observations in the literature that I think are important for an account of the IPP-construction. These are: (i) the observation that the context of an infinitival complement embedded under a past participle is responsible for the IPP-effect, (ii) the observation that the occurrence of the IPP-construction is verb (class) sensitive. Most often only a list of IPP-verbs (for German and Dutch) is given in the literature. I will go one step further in working out the connection between IPP and certain verb classes along the lines of the implicational hierarchy stated in chapter 2, (iii)

the observation of a correlation between the past participle prefix *ge-* and the occurrence of IPP-constructions. Although this correlation is not a strict one, it is nevertheless interesting.

An observation that I think cannot be maintained is that IPP is connected to certain verb order patterns. Although this observation is often found in the IPP-literature, there are many exceptions to all suggested correlations between verb order and IPP. To conclude this summary, I will mention some ‘missing pieces’ which have not received much attention in previous accounts of IPP although they seem to be important with respect to the IPP-data:

First, alternation of IPP and past participle in typical IPP-contexts (depending on different verb classes) has not really been investigated. Optionality of IPP is clearly observed in the data but an explicit account of it is rarely given. Therefore, I will deal with the alternation of obligatory IPP and impossible IPP in chapter 6 for German, and explicitly investigate optionality of IPP in chapter 8. Second, most accounts of IPP-constructions only concentrate on one or two languages (mostly German and Dutch). A more comparative approach of the IPP-phenomenon is still missing. I will try to fill this gap by including the data of the seven languages introduced in chapters 2 and 3 into an analysis of the IPP-construction. Although the analysis is exemplified for German in chapters 6 to 8, I will also account for the differences between German and the other languages in chapter 9.

The perhaps most interesting result of this survey of previous IPP-accounts is that the bare infinitive in the IPP-construction is, on the one hand, regarded as an exception, i.e., as a substitute for the past participle that is normally derived by the grammar. This view is clearly reflected by the terms ‘Ersatzinfinitiv’ (‘substitute infinitive’) or IPP (Infinitivus pro Participio). On the other hand, however, most of the time it is not explicitly stated that the IPP-form violates otherwise valid rules of the grammar, although this must be implicitly assumed in all accounts that refer to the IPP-form as a bare infinitive. The reason for this may be that the standard theories that assume that rules/constraints are ‘absolute’, i.e., cannot be violated, have problems in accounting for such cases. One of the main goals of this study will be therefore to make the implicitly assumed constraint violation explicit. I will follow the larger part of the IPP-literature in assuming that the IPP-form is a bare infinitive, and I will also assume that perfect tense auxiliaries always select a past participle. My hypothesis will be that the occurrence of IPP indeed violates certain constraints of the grammar. Therefore, IPP appears as a ‘last resort’ or repair strategy only in cases where the past participle would be even worse. As the IPP-data suggest the violability of constraints, the analysis will be laid out in the framework of Optimality Theory in which the violation and ordering of constraints is assumed.

Before I make explicit the ‘last resort’ analysis of IPP for German, I will introduce the basic assumptions of Optimality Theory in the next chapter.

5 Introduction to Optimality Theory (OT)

An extensive introduction to Optimality Theory is quite superfluous nowadays: It is almost a decade ago that Optimality Theory was developed by Alan Prince and Paul Smolensky (Prince and Smolensky (1993)) and a lot of literature has been written on OT since then (introductory books include, e.g., Archangeli and Langendoen (1997), a mixture of introductory book and paper collection, Kager (1999) (mostly) on phonology, Müller (2000b) on syntax. There are many collections of OT-articles as well, see, e.g., Beckman *et al.* (1995), Barbosa *et al.* (1998), Legendre *et al.* (2001). Nevertheless, I will give a brief overview of some parts of the theory in this chapter both to motivate the use of OT for the case at hand and to introduce some perhaps less familiar parts of the theory (e.g., ways to handle implicational scales) that will be used in the analysis later on.

5.1 General introduction

Optimality Theory combines the concept of violable constraints with the idea of a competition of (potentially infinite) candidates. Especially the assumption that constraints are violable differs fundamentally from other concepts of (generative) grammar where the violation of a rule or a constraint of the grammar leads to ungrammaticality. In OT, the grammatical structure may violate constraints, albeit only minimally. OT was first applied to phonology (apart from Prince and Smolensky (1993) see, e.g., McCarthy and Prince (1995)) – where it has become the standard framework – but soon it became interesting for syntacticians as well (see Grimshaw (1997), Pesetsky (1997) and the more detailed version Pesetsky (1998),⁶³ Müller (1997), Vikner (1997), Legendre *et al.* (1998), and Ackema and Neeleman (1998) to mention only a few) and currently it has even spread to the field of semantics (see, e.g., Hendriks and de Hoop (2001)).

One of the things that makes OT so popular is its ‘meta-theory’ character. Its main ideas can be (and are indeed) applied to several generative theories as an overall framework. Albeit most of the existing literature on OT syntax makes use of GB-style notions and constraints (in the tradition of, e.g., Chomsky (1981), Chomsky (1986)) and its further development in the Minimalist Program, see Chomsky (1995). There are, to a lesser extent, also OT-analyses in an LFG-tradition, see, e.g., Bresnan (1998), and Kuhn (2001). What is it that makes OT such a promising theory across a plethora of modules and frameworks?

I will try an answer by briefly introducing the groundwork of OT that is similar in most applications.

In OT, the grammar of a language consists of a set of universal and highly conflicting constraints on well-formedness (the constraint component CON) together with a means of resolving these conflicts. The structure (i.e., the candidate) that

⁶³Versions of these articles by Grimshaw and Pesetsky go back to 1993/1994.

best satisfies the set of universal and (language-specifically) ordered constraints is optimal and thereby grammatical. The central ideas of OT are summarised in (163):

- (163) Basic assumptions (see among many others Prince and Smolensky (1993))
- a. Constraints are universal
 - b. Constraints are violable
 - c. Grammars are (language specific) rankings of (universal) constraints
 - d. An optimal candidate in a candidate set is grammatical, all non-optimal candidates are ungrammatical

It follows from the statements in (163) that the grammaticality of a candidate does not only depend on its inherent properties but also on the properties of the competing candidates. The candidates in a given candidate set are generated by a part of the grammar (*GEN*, for generator) which contains only inviolable and unranked constraints and resembles the grammar in standard theories. *GEN* takes an underlying form (the input) and builds up all possible output structures. These outputs called the candidates are evaluated by another part of the grammar, the function *H-EVAL* (Harmony Evaluation) which determines the optimal candidate(s) based on the constraint hierarchy of the language. The constraint component consists of different constraint types. Two types of constraints that have been distinguished are markedness constraints and faithfulness constraints. Faithfulness constraints are ‘preserving’ in nature, i.e., they demand that outputs must not differ from their input. They are evaluated by comparing output structures with the input. Markedness constraints, however, ban certain (marked) structures, i.e., they are in conflict with faithfulness constraints whenever a faithful candidate is marked.⁶⁴ Violations of markedness constraints are evaluated by looking at the output alone.⁶⁵ Apart from these kinds of constraints that are instantiations of a general schema (‘be faithful to X’, ‘*X’), Smolensky 1995:2 also explicitly includes two more complex types of constraints into the constraint component *CON*. First, constraint hierarchies that are due to harmony scales (I will come back to these kinds of constraints when I introduce universal markedness subhierarchies later in this section), and so-called ‘local conjunction subhierarchies’ (which I will discuss in chapter 6). All these constraint types will become relevant in my analysis later on.

⁶⁴Note that the existence of faithfulness constraints and their interaction with markedness constraints prevents a scenario in which all languages resort to the least marked structure. See Chomsky 1995:380,fn.4 for this kind of objection.

⁶⁵Grimshaw 1998:section4, distinguishes between markedness constraints, that prohibit marked structures, and structural constraints (alignment constraints), that demand structural well-formedness. I have subsumed both types under the notion of markedness constraints here.

5.1.1 Universal Grammar in Optimality Theory

Like other generative theories, OT assumes an innate Universal Grammar (UG), a ‘speech organ’, that enables children to acquire their mother tongue independently of, e.g., intelligence or social status, and whose existence may account for the surprising similarities between totally different types of languages. Universal Grammar must be both restrictive and liberal: Restrictive enough to account for the relatively short period of time that children need to acquire their mother tongue and liberal enough to account for the differences between all languages of the world. The restrictiveness requirement of UG is accounted for in two different parts of the OT-grammar: in GEN and in CON. Both parts consist of constraints that are innate, i.e., universal. The only difference lies in the violability of the constraints in CON and the inviolability of the constraints in GEN. Apart from the constraints themselves, the formal evaluation mechanism, H-EVAL, is also part of the universal component of the grammar. The liberality of UG is reflected in the ordering possibilities of the universal constraints. Different grammars are different hierarchical orders of the universal constraints inside CON. Ideally, the different ranking of constraints is the only language particular part of the grammar.

5.1.2 The Question of the Input

In OT-phonology, there is a broad consent that the input equals the underlying representation of generative phonology. In syntax, however, the question of what the input looks like is not resolved at all.⁶⁶ It is, e.g., seen as ‘(...) typically interpretive (simplified d-structure/LF) information’, Smolensky 1995:1, or as ‘(...) a lexical head plus its argument structure (...) plus a specification of the associated tense (...)’, Grimshaw 1997:375f.

All candidates that can be traced back to the same input are part of the same candidate set, i.e., they compete for optimality.⁶⁷

5.2 Last resort

Having introduced the basic assumptions of OT, it is not surprising that an optimality theoretic account suits certain empirical phenomena, questions, and issues more than others. Among the phenomena with an ‘OT-flavour’ are phenomena that may be subsumed under the notions blocking effects and competition of candidates, ‘emergence of the unmarked’ (see McCarthy and Prince (1994)), con-

⁶⁶See Heck *et al.* (2001) for an approach of abandoning the notion of input in syntax altogether. Note, however, that a criterion that defines the competition is still needed (and hard to formalise, see, e.g., Sternefeld (1997)).

⁶⁷For a discussion of the different definitions of candidate sets as well as of the form of the candidates see Müller (2000b).

straint conflict, and, finally, last resort (see Müller 2000b:33-74 for an overview and examples for each of these cases).

The IPP-effect shows more than one of these properties (implicitly assumed constraint conflict, competition of the past participle and the bare infinitive, ...) but I assume that it mainly falls into the category of last resort cases. We talk of a last resort case when a well-formed construction X shows properties that are normally not tolerated by the grammar.⁶⁸ Despite the fact that X violates certain constraints it may be optimal nevertheless in certain contexts. Whenever all competing candidates violate higher ranked constraints, X may appear as a last resort, i.e. as a repair strategy as its constraint profile – fatal under other circumstances – is the best option now. I will briefly give an example for a last resort case from the OT-literature to show how such an account works.⁶⁹

5.2.1 *Do*-insertion in English (Grimshaw 1997)

Grimshaw gives an OT-account of *do*-insertion in English in terms of *do* as a last resort. I will briefly summarise her account of object questions.

Grimshaw follows Chomsky's (Chomsky (1957), Chomsky (1991)) generalisation that *do* is possible only when it is necessary. In declarative sentences, the insertion of *do* is ungrammatical as shown in (164). The idea is that it is not necessary and therefore not possible:

- (164) a. She said that
b. *She did say that

Grimshaw assumes that the semantically empty *do* differs from auxiliaries with semantic content in not being part of the input. She further assumes that the auxiliary *do* is derived from the lexical verb *do* by taking away its lexical structure and meaning. The semantically empty *do* may be freely inserted by GEN but its insertion does not come for free: It violates a constraint called FULL INT(ERPRETATION) that demands lexical conceptual structure to be parsed. In cases like (164), the violation of FULL-INT by *do* is crucial. There are other cases, however, in which the candidate with *do*-insertion is optimal despite its violation of FULL-INT. This is the case when by violating FULL-INT a higher ranked constraint can be obeyed as, e.g., in object question, see (165):

- (165) a. What did she say?
b. *What she said?

The higher ranked constraint that triggers *do*-insertion is OBLIGATORY HEAD,

⁶⁸In OT terms: When a candidate is optimal in certain contexts that violates a well established, i.e., relatively high-ranked constraint of the grammar.

⁶⁹This is a 'classical last resort account' in syntax. More recent accounts in an OT-framework are, e.g., Müller (2000a), Heck (prep).

(OB-HD), that demands a head to be present in each projection, and a head is only there when the position is filled. Due to another constraint, all wh-operators (like, e.g., the pronoun *what*) must be in a specifier position. To obey this constraint, object questions have an additional projection (compared to declaratives) whose specifier is filled by the wh-operator and which needs a head due to OB-HD. This head is supplied by *do*-insertion under violation of the crucially lower ranked FULL-INT. A simplified tableau is given in (166), ‘e’ stands for ‘empty head’:

		OB-HD	FULL-INT
☞	a. [What did [she say]]		*
	b.* [What e [she said]]	*!	

To sum up: The constraint FULL-INT prevents the random insertion of *do* in the ‘normal’ case, i.e., in declaratives. In special contexts, e.g., in object questions it is, however, possible that the optimal candidate violates FULL-INT in order to fulfill the higher ranked constraint OB-HD. This is a typical last resort strategy: *Do* is only possible when necessary. We will see in chapter 6 that IPP can be analysed along the same lines.

5.3 Fixed Hierarchies

One question that arises with respect to freely ranked constraints is how to handle implicational generalisations that are empirically motivated in OT, like, e.g., the sonority hierarchy. With respect to these cases, a fixed constraint hierarchy is called for. One solution with respect to implicational generalisations is given in markedness subhierarchies, see, e.g., Baković (1998). A general method to derive universal constraint subhierarchies is the mechanism of ‘harmonic alignment’.⁷⁰ I will introduce harmonic alignment in some detail here as I will refer to it later on in Chapter 6.

5.3.1 Harmonic alignment

Harmonic alignment is a method that allows to generate new constraints systematically. It has already been introduced by Prince and Smolensky, 1993:129,136 (for a summary see also Müller, 2000b:301-303). Harmonic alignment is a process in which two a priori independent prominence scales (one of them binary) combine to form so-called ‘harmony scales’ in a first step: The prominent position of the binary scale prefers the more prominent elements of the other scale, and

⁷⁰Prince and Smolensky (1993) call the whole process ‘alignment’. ‘Harmonic alignment’ to them is the first step of this process. To distinguish, however, this kind of alignment from the so-called ‘alignment constraints’ that align an element to the left/right edge of a domain, Müller (2000b) coins the term ‘harmonic alignment’ for the whole process of alignment of scales. I will follow this terminology throughout.

the non-prominent position prefers the less prominent elements. A second step, the so-called constraint alignment says that associating less prominent elements [...] to the more prominent position [...] produces the most dominant marks; similarly for associating more prominent elements [...] to the less prominent position [...]', Prince and Smolensky, 1993:136.

A formal definition is given in (166), again taken from Prince and Smolensky, 1993:136.

- (166) Harmonic alignment:
 Suppose given a binary dimension D_1 with a scale $X > Y$ on its elements $\{X, Y\}$, and another dimension D_2 with a scale $a > b \dots > z$ on its elements. The *harmonic alignment* of D_1 and D_2 is the pair of harmony scales:
 $H_X: X/a \succ X/b \succ \dots \succ X/z$
 $H_Y: Y/z \succ \dots \succ Y/b \succ Y/a$
 The *constraint alignment* is the pair of constraint hierarchies:
 $C_X: *X/z \gg \dots \gg *X/b \gg *X/a$
 $C_Y: *Y/a \gg *Y/b \gg \dots \gg *Y/z$

Prince and Smolensky (1993:68) distinguish three kinds of scales: elementary scales, marked by $>$ which is to be read as 'is more prominent than', harmony scales, marked by \succ which is to be read as 'is less marked than', and, finally, the dominance hierarchies, marked by \gg which is to be read as 'is higher ranked than'. Elementary scales do not themselves give rise to harmony or well-formedness considerations. It is the combination of elementary scales to form harmony scales that leads to harmony judgements, like, e.g., a segment in a certain structural position is more harmonic than in another one. Most harmonic, i.e., least marked, are the cases in which either the highest elements or the lowest elements of the two elementary scales are combined. Most marked are those cases in which either the higher element of the binary scale is combined with the lowest element of the other elementary scale or, vice versa, when the lower element of the binary (elementary) scale is combined with the highest element of the other elementary scale. In a last step, the so-called constraint alignment, the harmony scales are transferred from harmony statements into constraints with a fixed order. This is done by reverting them and putting a '*' in front of the combinations.

To illustrate the mechanism of harmonic alignment, an example from phonology is given. Prince and Smolensky 1993:132ff introduce the mechanism of harmonic alignment to replace their former constraint H-NUC, 'harmonic nucleus', in order to gain a more adequate analysis for Berber syllable structure. H-NUC is a non-binary constraint that chooses the candidate with the highest sonority in the nucleus of a syllable, i.e., H-NUC is not simply assessed to be violated or not but '(...) assessed against a graded constraint favoring more sonorous peaks'

(Prince and Smolensky 1993:134). To assess a candidate with respect to H-NUC a comparison with all the other candidates is always included. A local evaluation i.e., looking at the properties of each candidate separately is not sufficient here. This method of evaluation, however, may be seen as conceptually less attractive. Alternatively, Prince and Smolensky 1993 suggest a constraint hierarchy deduced via the mechanism of harmonic alignment that is grounded on the same hierarchy of ‘peak harmony’ necessary for the evaluation of H-NUC. Peak Harmony means: The higher the sonority of an element the better it functions as the nucleus (i.e., peak) of a syllable, i.e. the least marked peak is an [a]. This peak harmony scale is given in (167):

$$(167) \quad H_{Peak}: P/a \succ P/i \succ \dots \succ P/t$$

Prince and Smolensky (1993:136) deduce this scale from two elementary scales concerning position and sonority in a syllable. These elementary scales are given in (168) – the peak (P) of a syllable is a more prominent position than the margin (M) – and in (169) that shows the sonority hierarchy:

$$(168) \quad \text{Syllable position prominence (binary): } P > M$$

$$(169) \quad \text{Segmental sonority prominence: } a > i > \dots > t$$

Harmonic alignment of these scales following the definition in (166) results in the peak harmony scale as was shown in (167) and in the margin harmony scale in (170):

$$(170) \quad H_{Margin}: M/t \succ \dots \succ M/i \succ M/a$$

The margin harmony scale says: The less sonorous an element, the better it functions as a margin, i.e., [t] is the least marked margin.

The application of the last step in the definition in Prince and Smolensky (1993), constraint alignment, results in the constraint hierarchies given in (171). Note that the constraints stand in a fixed order with respect to each other:

(171) Constraint alignment:

$$\text{a. } C_{Peak}: *P/t \gg \dots \gg *P/i \gg *P/a$$

$$\text{b. } C_{Margin}: *M/a \gg *M/i \gg \dots \gg *M/t$$

As before from H-NUC, it now follows from the peak hierarchy C_{Peak} that the most sonorous element available forms the best nucleus.⁷¹ There are additional advantages of the constraint hierarchies derived by harmonic alignment. First, they allow for more flexibility than one single constraint as other constraints may

⁷¹Note that C_{Margin} is not needed here. It is often the case that only one of the constraint hierarchies derived by harmonic alignment can be shown to be active. Till cases are found where indeed both constraint hierarchies are needed, this overgeneration may be seen as a disadvantage of the mechanism of harmonic alignment.

be interspersed among them and second, all constraints of the fixed constraint hierarchies are binary, i.e., the additional non-local evaluation process is not needed.

An expository remark: In what follows, I will always restrict myself to the relevant candidates, i.e., the ones that are the most interesting competitors of the optimal candidates because they have the ‘next’ best constraint profile. I hope that no relevant candidates are left out this way.

6 A case study of German I: The verb form (obligatory IPP versus impossible IPP)

In this chapter, I will analyse obligatory IPP-constructions as a last resort strategy which is to say that they occur as a repair only when the expected past participle is even less acceptable to the grammar, i.e. when it is ‘more costly’ in a certain context. Furthermore, I will account for cases without IPP in which the past participle occurs as expected.

As a crucial prerequisite for the occurrence of IPP, I assume the status of a potential IPP-verb as both selector and selectee in combination with the verb class hierarchy deduced from the data in chapter 2. Both the verb class hierarchy and the placement of the IPP-verb will combine in a markedness constraint sub-hierarchy that partly overrules the expected selectional properties of verbs and functions as a trigger for IPP in certain contexts.

The analysis of IPP as a last resort will be laid out in an optimality-theoretic framework as introduced and argued for in chapter 5. I will show that the effects of the implicational hierarchy of verb classes introduced in chapter 2 can be maintained in an OT-approach and how constraints can be systematically deduced from this underlying verb class scale.

In this chapter, I will mainly be concerned with Standard German (with a brief look at Swabian). The analysis, however, also carries over to the other West Germanic languages introduced in chapter 2. This will be shown in chapter 9. Before I introduce and motivate the relevant constraints I will repeat the crucial data for Standard German. Note that in this section only the clear-cut cases are discussed. Naturally, this is by far not all that can be said about the verbal complex in German (see e.g. Meurers (2000) for a detailed overview).

6.1 The data revisited

In chapter 2 we have seen an implicational relation between the occurrence of IPP-constructions and certain verb classes. The observation was the following: The more ‘main verb properties’ verbs have, i.e., the more meaning of their own they contribute to the meaning of the sentence, the less likely is their occurrence as IPP-verbs across languages. The implicational scale of possible IPP-verbs that was deduced from the data in chapter 2 is repeated in (172). The linear order of the different verb classes mirrors the increasing main verb properties (<): Causatives and modals are least ‘main-verb-like’ and control verbs are most ‘main-verb-like’⁷²:

⁷²Even more main-verb-like are of course those verbs which do not take verbal complements, a crucial condition for IPP. They are therefore left out in this overview of potential IPP-verbs.

- (172) causatives < modals < perception verbs < benefactives < duratives < inchoatives < control verbs

The connection of this verb class scale to the occurrence of IPP will be shown in more detail for Standard German by giving one example for each verb class in a typical IPP-context. I take the connection between verb form and word order into account by giving both the IPP-cases in (a) and the past participle cases in (b) with their respective grammatical word order.⁷³ As shown in chapter 2, the West Germanic IPP-languages differ in the location of cut-off points in the verb class hierarchy so that obligatory, optional, or impossible IPP results. Standard German has the cut-off point between obligatory IPP and optional IPP between modals and perception verbs and the one between optional and impossible IPP between benefactives and duratives as illustrated in (173) to (179):

Obligatory IPP:

- (173) Causatives

- a. ... , dass er ihn die Medizin hat trinken lassen
 ... , that he him the medicine has drink make-Inf
 b. *... , dass er ihn die Medizin trinken gelassen hat
 ... , that he him the medicine drink made-PastP has

- (174) Modals

- a. ... , dass ich das immer habe machen wollen
 ... , that I that always have do want-Inf

⁷³Whenever a past participle is grammatical the finite auxiliary follows its selected verb, and whenever the IPP occurs the finite auxiliary precedes its selected verb.

For one kind of *lassen* with optional IPP that I call stative *lassen*, ‘stative *let*’ the correlation between verb form and word order is not as clear cut (following the examples in Bausewein 1991:249):

- (i) a. ... , weil Marie den Tee hat stehen lassen
 ... , because Mary the tea has stand let-Inf
 b. ... , weil Marie den Tee stehen lassen hat
 ... , because Mary the tea stand let-Inf has
 c. *... , weil Marie den Tee hat stehen gelassen
 ... , because Mary the tea has stand let-PastP
 d. ... , weil Marie den Tee stehen gelassen hat
 ... , because Mary the tea stand let-PastP has

In addition to the expected IPP-case (a) with the auxiliary in front of the other verbs and the expected past participle case (d) with the auxiliary following the other verbs, example (b) with IPP and final auxiliary sounds natural as well. This may be due to the special status of ‘stative *let*’ that only appears with a very restricted set of verbs such as *stehen* ‘stand’, *liegen* ‘lie’ that are ‘stative’ themselves.

- b. *... , dass ich das immer machen gewollt habe
 ... , that I that always do wanted-PastP have

Optional IPP:

(175) Perception verbs

- a. ... , dass er sie hat rufen hören
 ... , that he her has call hear-Inf
 b. ... , dass er sie rufen gehört hat
 ... , that he her call heard-PastP has

(176) Benefactives

- a. ... , dass Marie Peter die Kisten hat tragen helfen
 ... , that Marie Peter the boxes has carry help-Inf
 b. ... , dass Marie Peter die Kisten tragen geholfen hat
 ... , that Marie Peter the boxes carry helped-PastP has

No IPP:

(177) Duratives

- a. *... , dass sie ist liegen bleiben
 ... , that she is lie remain-Inf
 b. ... , dass sie liegen geblieben ist
 ... , that she lie remained-PastP is

(178) Inchoatives

- a. *... , dass es hat zu regnen aufhören
 ... , dass it has to rain stop-Inf
 b. ... , dass es zu regnen aufgehört hat
 ... , that it to rain stopped-PasP has

(179) Control verbs

- a. *... , dass Marie Peter hat zu überzeugen versuchen
 ... , that Marie Peter has to convince try-Inf
 b. ... , dass Marie Peter zu überzeugen versucht hat
 ... , that Marie Peter to convince tried-PastP has

IPP is obligatory with causatives, (173), and modals, (174), optional with perception verbs, (175), and benefactives, (176), and impossible with the remaining verb classes, i.e. with duratives, (177), inchoatives, (178), and control verbs, (179). As I will only be concerned with obligatory and impossible IPP in this chapter, I exemplarily choose one verb class for each of these cases: for obligatory IPP the class of modals, and for impossible IPP in an IPP-context the class of

duratives.⁷⁴

An account of optional IPP requires a more specific look at ways to handle optionality in OT in general. It will therefore be postponed till chapter 8.

Remember from chapter two that the impossibility of IPP in perfect tenses is much more widespread than the obligatoriness of IPP. In addition to the above cases, IPP never occurs when the potential IPP verb in a perfect tense does not select a verbal complement. Instead the potential IPP-verb appears as a past participle as expected independently of the verb class in question:

(180) Causatives⁷⁵

- a. *... , dass er ihn hat lassen
... , that he him has make-Inf
- b. *... , dass er ihn gelassen hat
... , that he him made-PastP has

(181) Modals

- a. *... , dass ich das immer habe wollen
... , that I that always have want-Inf
- b. ... , dass ich das immer gewollt habe
... , that I that always wanted-PastP have

(182) Perception verbs

- a. *... , dass er sie hat hören
... , that he her has hear-Inf
- b. ... , dass er sie gehört hat
... , that he her heard-PastP has

(183) Benefactives

- a. *... , dass Marie Peter hat helfen
... , that Marie Peter has help-Inf
- b. ... , dass Marie Peter geholfen hat
... , that Marie Peter helped-PastP has

(184) Duratives

- a. *... , dass sie dort ist bleiben
... , that she there is remain-Inf
- b. ... , dass sie dort geblieben ist
... , that she there remained-PastP is

⁷⁴Note that German differs from e.g. Dutch in that *bleiben* ‘remain’ is the only verb in the class of duratives that selects a verb itself. Additionally, in German and in Swiss German, the selected verb can only be a stative verb.

⁷⁵The only German causative that embeds a bare infinitive, *lassen* ‘let’, does not occur without an embedded verb at all. It is included here, however, for the sake of completeness to keep these examples as parallel as possible to the above examples with an IPP-context. Note that with the permissive meaning of *let* sentence (b) would be grammatical.

- (185) Inchoatives
- a. *... , dass es hat aufhören
... , that it has stop-Inf
 - b. ... , dass es aufgehört hat
... , that it stopped-PasP has
- (186) Control verbs
- a. *... , dass Marie es hat versuchen
... , that Marie it has try-Inf
 - b. ... , dass Marie es versucht hat
... , that Marie it tried-PastP has

All of the above verb classes that may occur without a verbal complement in general appear as a past participle when no IPP-context is given. This is shown in the (b) examples above. The (a) sentences in which the potential IPP-verbs occur as a bare infinitive are all ungrammatical.

So far, the examples for Standard German given in chapters 2 and 3 were repeated. We have seen for the present perfect tense⁷⁶ that the verbs embedded by the auxiliary occur more often as a past participle than in the IPP. First, they occur as past participles in all non-IPP contexts independently of the verb class they belong to. Second, even in IPP-contexts, most of the potential IPP-verbs occur as past participles in Standard German. Only causatives and modals appear obligatorily, and perception verbs and benefactives appear optionally as IPP. The asymmetry in the occurrences of the past participle and the IPP is shown in table (187):

- (187) Occurrences of the past participle and the IPP:

Verb classes	[- verbal complement]	[+ verbal complement]
Causatives	*	IPP
Modals	PastP	IPP
Perception verbs	PastP	IPP, PastP
Benefactives	PastP	IPP, PastP
Duratives	PastP	PastP
Inchoatives	PastP	PastP
Control verbs	PastP	PastP

For the occurrence of the IPP-constructions the combination of a special context with a special verb class is needed: The potential IPP-verb must both occur

⁷⁶For the other two perfect tenses in German, past perfect (*gehört hatte*, ‘heard had’) and future perfect (*gehört haben wird*, ‘will have heard’), the result would be the same, the difference lying in the (form and number of the) auxiliaries.

with a verbal complement and – for Standard German – be part of the class of causatives or modals (obligatory IPP) or the class of perception verbs or benefactives (optional IPP).

In the next section, I will introduce the constraints whose interaction is responsible for both the occurrence of the IPP-construction as a last resort with causatives and modals and the occurrence of the past participle as the default case otherwise. Optionality will be postponed till chapter 8.

6.2 Morphological selection

For the ‘default’ case in which the past participle occurs embedded under a perfect auxiliary in perfect tenses, I go back to the idea of verbal case or ‘status’ as it was originally formalised by Gunnar Bech back in 1955.⁷⁷ The occurrences of the past participle, however, form only part of the cases that Bech looks at. He is interested in the connection between selecting elements and their verbal complements in general. A verbal head is lexically specified to govern the form of its complement verb, i.e. it depends on inherent properties of the governing verb⁷⁸ whether the embedded verb occurs as a bare infinitive (the *first status* in Bech’s terminology), as a *to*-infinitive (the *second status*) or as a past participle (the *third status*). Each verb may only govern one single verbal case as shown in (188):

(188) Bare infinitive: Modals like *wollen* ‘want’ govern the bare infinitive:

- a. ...dass ich das Buch *lesen* will
...that I the book read-Inf want
- b. *...dass ich das Buch *gelesen* will
...that I the book read-PastP want
- c. *...dass ich das Buch *zu lesen* will
...that I the book to read want

(189) Past Participle: Temporal auxiliaries like *haben* ‘have’ govern the past participle:

- a. ...dass ich das Buch *gelesen* habe
...that I the book read-PastP have
- b. *...dass ich das Buch *lesen* habe
...that I the book read-Inf have
- c. *...dass ich das Buch *zu lesen* habe
...that I the book to read have

⁷⁷In the following, I will refer to the reprint of this work from 1983.

⁷⁸I will only discuss verbs as governors of verbal complements here. Some nouns, adjectives and prepositions however, may govern the *to*-infinitive as well.

- (190) ‘To’-Infinitive: Verbs like *versuchen* ‘try’ govern the ‘to’-Infinitive:
- a. ...dass ich das Buch *zu lesen* versuche
...that I the book to read try
 - b. *...dass ich das Buch *lesen* versuche
...that I the book read-Inf try
 - c. *...dass ich das Buch *gelesen* versuche
...that I the book read-PastP try

In the following, I will concentrate on cases of verbal government in connection with the bare infinitive and with the past participle, and exclude the *to*-infinitive for the time being.

A constraint that refers to Bech’s account is given in (191):⁷⁹

- (191) MORPH: Morphological selectional properties of lexical items must be observed.

I take this constraint to be obeyed whenever a verbal element appears in the (morphological) form that is required by its selecting element.⁸⁰ For the examples in (189), repeated as (192), I give the violations of MORPH in the candidates (b) and (c):

- (192) ..., dass ich das Buch *gelesen* habe
..., that I the book read-PastP have

	MORPH
☞ a. dass ich das Buch <i>gelesen_{PastP}</i> habe	
b.* dass ich das Buch <i>lesen_{Inf}</i> habe	*!
c.* dass ich das Buch <i>zu lesen</i> habe	*!

In this 2-verb cluster only the selected past participle as given in (a) does not violate MORPH. The constraint on morphological selection may be violated, however. This is, e.g. the case in IPP constructions as shown in (193) for obligatory IPP with modals. As I will concentrate on the verb form in this section and in order to avoid an interaction with the verb order, I give a main clause example here.

⁷⁹This constraint was called ‘Projection Principle’ in Schmid (1999), and Schmid (2000). It was formulated in terms of general selectional properties of a lexical item, partly following Chomsky’s (1981) projection principle (for a similar idea, see Müller’s (2000) constraint on selection, SEL). As the violable constraint on selection is restricted to morphological selection, it is called MORPH here.

⁸⁰Note that the constraint as formulated here is not a faithfulness constraint. The information concerning the selectional properties of lexical items is found in each output candidate.

- (193) Ich habe das Buch lesen *wollen*-Inf/**gewollt*-PastP
 I have the book read want/*wanted

	MORPH
☞ a.* Ich habe das Buch lesen <i>gewollt</i> _{PastP}	
b. Ich habe das Buch lesen <i>wollen</i> _{Inf}	*!
c.* Ich habe das Buch lesen <i>zu wollen</i>	*!

The MORPH-respecting candidate (a) is ungrammatical but it would incorrectly appear as optimal if only MORPH is taken into consideration, cf. that (a) has both ‘*’ and ‘☞’. The grammatical IPP-candidate in (b) violates MORPH.⁸¹

6.3 Examples of violations of morphological selection

IPP-constructions are not the only examples that come to mind when looking for violations of MORPH. In this section, I will briefly mention some more examples to show that the violation of morphological selection is not as rare as one might think at first glance.

6.3.1 R-pronoun insertion in German, Müller (2000a)

German uses two different strategies to express pronominalisation inside prepositional phrases. Sometimes, the regular personal pronoun appears as shown in (194):

- (194) a. Fritz hat gestern [PP an [NP sie]] gedacht
 Fritz has yesterday at her thought
 ‘Fritz has thought about her yesterday’
 b. Maria hat damals [PP für [NP ihn]] gestimmt
 Maria has then for him voted
 ‘Maria voted for him then’

Sometimes, however, a so-called R-pronoun⁸² occurs instead of the normally expected personal pronoun as shown in (195) (a) versus (b):

- (195) a. Fritz hat gestern [PP da-r-an] gedacht
 Fritz has yesterday there-r-on thought
 ‘Fritz has thought about it yesterday’
 b. *Fritz hat gestern [PP an [NP es]] gedacht
 Fritz has yesterday at it thought
 ‘Fritz has thought about it yesterday’

⁸¹Note that so far no distinction is made between the IPP-case in (193)(b) and the *zu*-infinitive in (193)(c).

⁸²The term ‘R-pronoun’ is due to the phonetically motivated [R]-insertion before a vowel-initial preposition as shown in example (195)(a).

In (195) (a), the regular selected NP pronoun *es* is replaced by the non-selected R-pronoun *da* (see Müller, 2000a:146).

Müller (2000a) gives an OT analysis for these cases. He assumes that R-pronoun insertion is a repair, i.e., a last resort strategy to avoid a dilemma that arises from the conflict of two rules of grammar. The last-resort form ‘R-pronoun’, however, violates a constraint on selection. This account is very similar to the analysis of the IPP-cases that I will introduce in the following.

6.3.2 ‘Imperativus pro Infinitivo’ in West Frisian

Following Höhle (1997), many Low German dialects as well as North Frisian and West Frisian show ‘asymmetrical coordination’, i.e., a bare infinitive may appear at the beginning of the second conjunct. In West Frisian, this bare infinitive is replaced by the imperative. This construction is often called ‘Imperativus pro Infinitivo’. In (196) (a), the normal, symmetrical coordination is given, and in (196) (b), the ‘Imperativus pro Infinitivo’.

- (196) a. De plysje soe bij him komme en [syn papieren
The police will to him come-Inf and [his documents
meinimme/*nim]
withtake-Inf/*-Imperative
- b. De plysje soe bij him komme en [nim/*nimme syn
The police will to him come-Inf and [take-Imperative/*-Inf his
papieren mei]
documents with]
‘The police will come to him and take his documents with them’

Note that *soe* ‘will’ selects a bare infinitive as shown in the (a) example and in the first conjunct of (b). This suggests that in the ‘Imperativus pro Infinitivo’-case, a constraint on morphological selection is violated. Interestingly – and different to the IPP-case – the ‘unexpected’ form is not another non-finite form in this case but the imperative.⁸³

The violation of morphological selection is common to IPP, R-pronoun insertion, and ‘Imperativus pro Infinitivo’. This was illustrated by the examples above. The trigger for this violation, however, looks quite different in each case. As I concentrate on IPP in the following, R-pronoun insertion and ‘Imperativus pro Infinitivo’ will not be discussed any further.

I will, however, consider a last example for the violation of MORPH in more detail that seems to share the triggering context for the violation of morphological selection with the IPP-cases.

⁸³I assume that imperatives form a separate unit different from both finite and non-finite forms (but see Eisenberg 2000:192 who counts imperatives as non-finite). Although imperatives do not distinguish person, they differ from non-finite forms by showing a number distinction.

6.3.3 PPI as a counterpart of IPP

In some Germanic languages like Swedish and Norwegian variants⁸⁴ (Wiklund (2001), Abraham 1994:38f), Faroese (see Lockwood, 1964:141), and Frisian (see den Dikken and Hoekstra (1997)), the typical IPP-context gives rise to another phenomenon that also involves an ‘unexpected’ verb form. The so-called PPI-construction, i.e., ‘Particium-pro-Infinitivo’ (DenDikken and Hoekstra, 1997:1058), however, behaves as a mirror image of the IPP-construction in some respect: A bare infinitive changes to the past participle when it is selected by a modal (also with some other verbs) in the past participle. The examples in (197), (198), and (199) are taken from Wiklund, 2001:201 (see also Lockwood 1964:141ff on Faroese)⁸⁵ and the examples in (200) are taken from den Dikken and Hoekstra, 1997:1058). PPI seems to be optional, at least in Faroese and Frisian. It is unclear to which extent PPI is optional in Swedish and Norwegian PPI-dialects, however, due to the influence of the standard language that never shows PPI (Wiklund, p.c.).

(197) Swedish variants

- a. Jag hade velat *läst* boken (PPI)
I had want-PastP read-PastP book-DEF
- b. Jag hade velat *läsa* boken (bare inf., as expected)
I had want-PastP read-Inf book-DEF
‘I had wanted to read the book’

(198) Norwegian variants

- a. Jeg hadde villet *lest* boka (PPI)
I had want-PastP read-PastP book-DEF
- b. Jeg hadde villet *lese* boka (bare inf., as expected)
I had want-PastP read-Inf book-DEF
‘I had wanted to read the book’

(199) Faroese

- a. Han hevði viljað *lisið* bókina (PPI)
He had want-PastP read-PastP book-DEF
- b. Han hevði viljað *lesa* bókina (bare inf, as expected)
He had want-PastP read-Inf book-DEF
‘He had wanted to read the book’

⁸⁴The Swedish and Norwegian PPI-variants are not easily located in any geographical sense. Anna Lena Wiklund, p.c., informed me that in Swedish the phenomenon is widespread both in the northern (maybe more common here) and southern dialects/variants. Speakers vary within what could be viewed as one dialect and there may also be variation within the same speaker. The phenomenon may thus be a question of register.

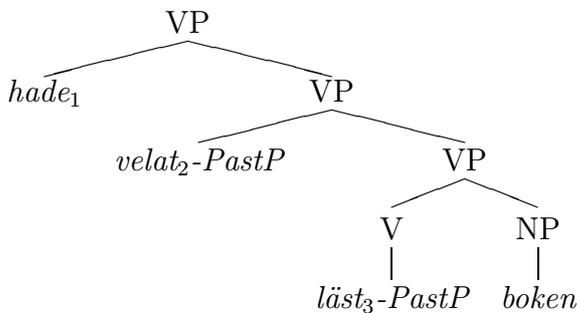
⁸⁵I always use the label ‘PastP’ in the Swedish and Faroese examples. This form, however, is often called ‘supine’ in the literature on Swedish and Faroese. The supine is an invariant form that fulfills the grammatical function of a past participle in certain contexts without being part of the participial paradigm. For more on the status of the Swedish supine, see, e.g., the appendix in Vikner and Sprouse (1988).

(200) Frisian

- a. Hy soe it *dien* wollen ha (PPI)
 He would it do-PastP want-PastP have-Inf
- b. Hy soe it *dwaan* wollen ha (bare inf., as expected)
 He would it do-Inf want-PastP have-Inf
 ‘He would have liked to do it’

As already shown in chapter 1 for the IPP construction, the relations between the verbs remain the same here as well, no matter what the morphology is on the most deeply embedded verb. This is shown for Swedish in (201):

(201)



In (202) some similarities and differences between the IPP-construction and the PPI-construction are listed:

(202) IPP vs. PPI

	IPP	PPI
morphological changes on	V ₂	V ₃
change in semantic relations of the verbs?	no	no
context	pastp selects an inf	pastp selects an inf
change from to	pastp to bare inf	bare inf to pastp

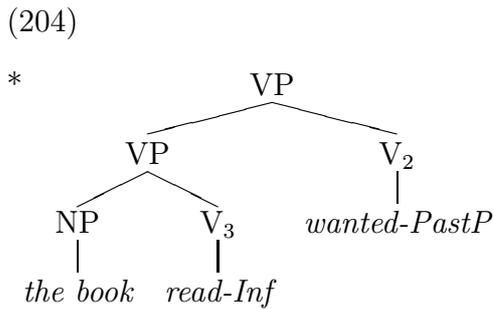
The most striking similarity between IPP-constructions and PPI-constructions is the context that seems to act as a trigger for the change in the verb form. I will come to that in the following section.

6.4 Speculations on an ‘unwanted’ configuration: a trigger constraint for non-finite last resort cases

The IPP-construction and the PPI-construction both avoid a certain configuration. This is a configuration in which a morphological past participle selects an infinitival complement (or, more exactly, in which the head of the verbal complement is morphologically an infinitive, see (203-a) for German and (197) for Swedish:

- (203) The ungrammatical configuration (marked by brackets)
- a. * Ich habe₁ [[das Buch lesen₃] gewollt₂]
 I have the book read-Inf wanted-PastP
- b. *Jag hade₁ [velat₂ [läsa₃ boken]]
 I have-finite wanted-PastP read-Inf book-the
 ‘I have wanted to read the book’

I assume that this configuration functions as a trigger for IPP/PPI. The configuration is given as a tree structure in (204):⁸⁶



As stated in (202) above, only a configuration in which V_2 , i.e. the verb that is both a selected element and a selector, occurs as a past participle and selects a bare infinitival complement gives rise to the IPP-construction. The ‘reverse’ configuration, however, in which a bare infinitival selects a past participle is grammatical in German, see the (a)-example in (205). In this configuration, the IPP-construction is ungrammatical, see the (b)-example in (205):⁸⁷

⁸⁶As I give (part of) the German example (with English vocabulary, however) I expect the tree-structure to be right-branching. For, e.g., Swedish it would be left-branching. The linear order of the elements, however, does not affect the relevant configurational properties that trigger the unexpected forms: In both cases, a past participle embeds a bare infinitive.

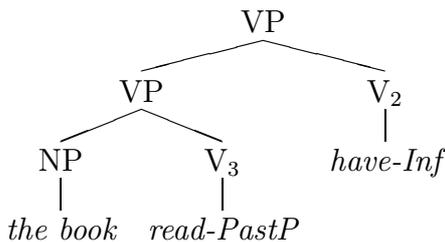
⁸⁷Note, however, that in Frisian PPI is possible in a configuration like this. The example is taken from den Dikken and Hoekstra (1997)[1070]:

- (i) a. Hy soe it dien ha *wollen* (PPI)
 He would it done-PastP have-Inf wanted-PastP
- b. Hy soe it dien ha *wolle* (bare inf., as expected)
 He would it done-PastP have-Inf want-Inf

- (205) a. ... , dass sie [[das Buch *gelesen*₃] haben₂] soll₁ (PastP)
 ... , that she the book read-PastP have-Inf shall-V_{fin}
 b. *... , dass sie [[das Buch *lesen*₃] haben₂] soll₁ (IPP)
 ... , that she the book read-Inf have-Inf shall-V_{fin}

The tree in (206) makes clear the differences from the IPP-configuration in (204). Again, only the relevant part is given. This time, however, V₂ is a bare infinitive and V₃ a past participle:

- (206) The grammatical configuration:



I conclude from the asymmetry of these data that a potential solution for the IPP (and PPI) puzzle in terms of assimilation is not sufficient. I will propose a ban on configurations like (204) instead and assume that both IPP and PPI-constructions are two different repair strategies (last resort cases) to avoid the violation of a constraint like (207):

- (207) *PastP/+Inf (*infinitival complement of a past participle): A verb which is a past participle must not be the sister of a VP whose head is an infinitive.

Note that whenever the most deeply embedded verb in a 3-verb cluster is no longer adjacent to its selecting verb V₂ but removed from it, the past participle on V₃ becomes better again, at least for some speakers: see, e.g., cases of topicalisation of VP₃ as given in (208) for German, and in (210) for Dutch where the judgements are even clearer (see, e.g., Den Besten and Edmondson 1983:187, who state that the infinitive may not be derived in such cases).

- (208) Topicalisation in German (V₂ a modal)
 a. [Das Buch lesen] hat er gewollt
 b. ??[Das Buch lesen] hat er wollen
 The book read has he wanted-PastP(a)/want-Inf(b)

‘He would like to have done it’

Here, the past participle does not embed a bare infinitival complement but is the most deeply embedded verbal complement itself. Nevertheless, a PPI-construction as in (a) is possible.

Further research is needed to give a detailed overview of the occurrences of PPI in Frisian and to account for a case like this.

- (209) Topicalisation in German (V_2 a perception verb) (data taken from Hinterhölzl 1999:10)
- a. [Kommen] hat sie Hans nicht gesehen
 - b. *[Kommen] hat sie Hans nicht sehen
Come has she Hans not seen-PastP(a)/see-Inf(b)
- (210) Topicalisation in Dutch (data from Hoeksema 1988:159):
- a. [Stelen] heeft ze nooit gewild
 - b. *[Stelen] heeft ze nooit willen
To-steal has she not wanted-PastP(a)/want-Inf(b)

Another case where VP_3 is no longer adjacent to its selecting verb is ellipsis in coordination as shown for German in (211):

- (211) a. Maria hat das Buch lesen wollen-Inf, aber Peter hat es
Maria has the book read want-Inf but Peter has it
leider gemusst
unfortunately must-PastP
- b. ??Maria hat das Buch lesen wollen-Inf, aber Peter hat es
Maria has the book read want-Inf but Peter has it
leider müssen
unfortunately must-Inf

The most deeply embedded VP *das Buch lesen* is not phonetically realised in the second part of the conjunct. In this case, V_2 in the past participle (*gemusst*) is (slightly) preferred to V_2 in the bare infinitive (*müssen*). From these data it may be concluded that the constraint ‘*PastP/+Inf’ holds only in the verb cluster, and refers to phonetically realised VPs, i.e., traces of VPs may well be sisters of a past participle. More data work apart from German and Dutch is needed to come to a final conclusion here.

IPP-constructions respect (207) because the modal does not occur as a past participle and PPI-constructions respect (207) because the VP does not have an infinitival head. The head is marked as past participle instead.⁸⁸

⁸⁸Note that PPI-constructions are incompatible with local optimisation (as, e.g., in Heck and Müller (2000)), a cyclic optimisation process. The idea behind local optimisation applied to the verb cluster data is that each VP will be optimised separately, bottom-up. The candidate with the lexical verb V_3 as a bare infinitive will be optimal in the optimisation in which the modal verb V_2 is added that selects a bare infinitive. This verbal form (bare infinitive on V_3), once optimal, cannot be redone in the next optimisation step. In IPP-constructions it is indeed the case that the status of V_3 does not change any more. In the next optimisation step the auxiliary V_1 is added. Due to the constraint ranking in IPP-languages the optimal candidate in this step will be one in which the modal appears as a bare infinitive, i.e., IPP may be derived by local optimisation. The PPI-data, however, pose a problem for local optimisation. When the auxiliary V_1 is added, the constraint ranking forces the embedded V_3 to change to a past participle. As the bare infinitive on V_3 has been evaluated as optimal in a former optimisation

In both IPP-type languages and PPI-type languages, the ban on a certain configuration as formulated in (207) outranks the desire to always get the selected morphology, i.e.:

(212) *PastP/+Inf \gg MORPH

In this section, we have so far discussed PPI-cases in some detail. I will come back to them below in this chapter. Now, however, I will leave them aside for the time being and look more closely at the IPP cases again, more specifically, at the role of the verb classes in IPP-constructions.⁸⁹

Remember from chapter 2 (and from (172) above) that it is important which verb class the potential IPP-verb, V_2 , belongs to. An implicational hierarchy of verb classes was set up, and ordered according to the decreasing semantic content of the verbs. This was due to the observation that whenever a language shows obligatory IPP with duratives, it also shows obligatory IPP with perception verbs, modals, and causatives. Speaking more abstractly, the prediction seemed to be borne out that whenever a language shows obligatory IPP with one verb class in the hierarchy then it also shows obligatory IPP with all verb classes above.

The verb class hierarchy from (172) is repeated in (213):

(213) causatives < modals < perception verbs < benefactives < duratives < inchoatives < control verbs

I assume that the inherently ordered elements of this markedness scale are conjoined with the markedness constraint in (207) to form a markedness subhierarchy.⁹⁰ A markedness subhierarchy is a whole family of markedness constraints the order of which is fixed against each other. All constraints of the subhierarchy are instantiations of a general schema (the ban on verbal complements of past participles, in this case). Although the constraints that are part of a markedness subhierarchy cannot be reranked with respect to each other, variation is possible nevertheless. This is due to the fact that other constraints may be inserted into this markedness subhierarchy in language-particular positions – this will become relevant in the following. The markedness subhierarchy is given in (214):

(214) *PastP/ + Inf – Subhierarchy:
 *PastP/+Inf-CAUSATIVES (CAUSV) \gg
 *PastP/+Inf-MODALS (MV) \gg
 *PastP/+Inf-PERCEPTION VERBS (PV) \gg

step, however, V_3 is not accessible any more. The grammatical PPI-candidate with V_3 as a past participle cannot be derived by local optimisation.

⁸⁹For the role of verb classes in Scandinavian PPI-constructions, see Wiklund, 2001:22ff on PPI and ‘restructuring verbs’.

⁹⁰See, e.g., Legendre *et al.* (1995) for a markedness subhierarchy in syntax sensitive to the number of crossed barriers in long distance *wh*-movement, and Baković, 1998:4f for a markedness subhierarchy concerning different types of operators.

- *PastP/+Inf-BENEFACTIVES(BV) >>
- *PastP/+Inf-DURATIVES (DV) >>
- *PastP/+Inf-INCHOATIVES (IV) >>
- *PastP/+Inf-CONTROL VERBS (CV)

The above is an abbreviation for the more detailed formulation of the PastP/+Inf-SUBHIERARCHY that is given in (215) for modals. To get the full specification for the whole *PastP/+Inf-SUBHIERARCHY, the term ‘modal verb’ is simply to be replaced by any other of the above verb classes. The order of the constraints relative to each other is fixed.

- (215) *PastP/+Inf-MODALS (*infinitival complement of a modal verb in the past participle): A modal verb which is a past participle must not be a sister of a VP whose head is an infinitive.

The leading idea of the account is that obligatory IPP (as well as PPI) occurs as a last resort strategy to avoid a violation of (the relevant parts of) the *PastP/+Inf-SUBHIERARCHY. To do so does not come for free, however, but induces a violation of morphological selection (MORPH). The relative ranking of MORPH in between the constraints of the subhierarchy regulates for which verb classes IPP is obligatory or impossible: With the verb classes that are part of the subhierarchy ranked above MORPH, a violation of MORPH gives rise to obligatory IPP as a last resort. With the verb classes that are connected to constraints ranked below MORPH, however, IPP does not occur. In this case, it is more important to fulfill the higher ranked constraint on morphological selection. Note that constraint violation is minimal and occurs only when a higher ranked constraint may thus be fulfilled.

The (relevant part) of the constraint ranking for German is given in (216),⁹¹ see chapter 9 for the other West Germanic languages in question.

- (216) Partial constraint ranking for German:
- *PastP/+Inf-CAUSATIVES (CV) >>
 - *PastP/+Inf-MODALS (MV) >>
 - MORPH >> *PastP/+Inf-BENEFACTIVES(BV) >>
 - *PastP/+Inf-DURATIVES (DV) >>
 - *PastP/+Inf-INCHOATIVES (IV) >>
 - *PastP/+Inf-CONTROL VERBS (CV)

For the sake of exposition, I will simplify the partial constraint ranking for German from above and pick out only two of the *PastP/+Inf-constraints. One

⁹¹I will pretend for the time being that optionality does not exist and pick out only those constraints of the subhierarchy that refer to verb classes with obligatory IPP (causatives and modals) and to verb classes where IPP is impossible (benefactives, duratives, inchoatives, control verbs).

constraint, *PastP/+Inf-MODALS, is ranked above MORPH, and the other, PastP/+Inf-DURATIVES, below. This simplified (partial) constraint ranking is given in (217):

(217) *PastP/+Inf-MODALS \gg MORPH \gg *PastP/+Inf-DURATIVES

Both of the following tableaux in (219) and (221) show four candidates each: In (a), the expected past participle is given, in (b) the IPP-case, candidate (c) shows the PPI-case, and candidate (d) both a switch from the past participle to the bare infinitive with the modal and vice versa from the bare infinitive to the past participle with the lexical verb. These are the candidates that are repeated in the tableaux throughout this chapter.

Table (219) shows how the impossibility of IPP with duratives in German (even in a typical IPP-context) follows from the ranking of the constraints introduced so far. The crucial data are repeated in (218):

(218) No IPP with duratives:

- a. Die Leute sind stehen geblieben (PastP, as expected)
The people are stand-Inf remained-PastP
- b. *Die Leute sind stehen bleiben (IPP)
The people are stand-Inf remain-Inf
'The people have remained standing'

In (219), candidate (a) is the optimal candidate. It fulfills MORPH, the highest ranked constraint on which the candidates differ. It does not matter that candidate (a) is also the only candidate that violates *PastP/+Inf-DV – it shows the ‘typical IPP-configuration’ that this constraint punishes – because this constraint is ranked below MORPH.

(219) No IPP with duratives:

Die Leute sind ...

		*PastP/ +Inf-MV	MORPH	*PastP/ +Inf-DV
☞ a.	[[stehen _{Inf}] geblieben _{PastP}]			*
b.*	[[stehen _{Inf}] bleiben _{Inf}]		*!	
c.*	[[gestanden _{PastP}] geblieben _{PastP}]		*!	
d.*	[[gestanden _{PastP}] bleiben _{Inf}]		*!*	

The system functions nicely for cases like this. But a look at (221), a tableau of obligatory IPP with modals, reveals that the constraints introduced so far are not sufficient yet: The relative order of *PastP/+Inf-MODALS above MORPH triggers a violation of MORPH in order to avoid the banned configuration. There is so far nothing, however, to promote one verbal form over the other, i.e. nothing to

make a distinction between the IPP-case, (b), and the PPI-case, (c). Both will come out as optimal. Before this is shown in (221), the relevant data are repeated in (220):

(220) Obligatory IPP with modals:

- a. *Ich habe das Buch lesen gewollt (PastP, as expected)
I have the book read-Inf wanted-PastP
- b. Ich habe das Buch lesen wollen (IPP)
I have the book read-Inf want-Inf

(221) The wrong result:

Ich habe das Buch ...

		*PastP/ +Inf-MV	MORPH	*PastP/ +Inf-DV
a.*	[[lesen _{Inf}] gewollt _{PastP}]	*!		
☞ b.	[[lesen _{Inf}] wollen _{Inf}]		*	
☞ c.*	[[gelesen _{PastP}] gewollt _{PastP}]		*	
d.*	[[gelesen _{PastP}] wollen _{Inf}]		**!	

Note that candidate (c) is only used here to exemplify the problem but the issue is even bigger: Other candidates that avoid the marked configuration by replacing the selected past participle by, e.g., a *zu*-infinitive, or even a finite verb will also come out as optimal.

To sum up so far: A ban on a configuration in which a past participle embeds a bare infinitive seems to be at work in several languages. This is captured by the constraint formulated in (207) – or in its verb class sensitive variant in the markedness subhierarchy in (214). To avoid this configuration, morphological selection is violated both in IPP-type languages and in PPI-type languages. These language types, however, use different strategies to avoid the marked configuration: They induce different kinds of MORPH-violations by falling back to different verbal forms. Although I restrict the set of possible alternatives to non-finite forms (the insertion of a finite verb is excluded by the impossibility of having two finite verbs in the same clause)⁹² the different (non-finite) repair forms cannot be accounted for. No non-finite form (bare infinitive, past participle, or even *to*-infinitive) is favoured or excluded by the theory so far with the result that optionality is wrongly predicted to occur. In the next section, I will look at several possible means to differentiate between non-finite verbal forms.

⁹²But see Wiklund 2001:221 for cases of tensed parasitic complements in so-called ‘pseudo-coordinations’ in Scandinavian. As the status of these constructions is not clear, however, I will ignore them here and leave them to further research, see, e.g., Wiklund (prep).

6.5 The form of the repair

The question I want to pursue in this section is how to account for the fact that in IPP-constructions the bare infinitive is the last resort verbal form whereas in PPI-constructions the past participle is, and in both constructions other verbal forms like *to*-infinitive are excluded.

IPP-constructions seem to suggest that the bare infinitive is the least marked verbal form and therefore functions as a default – at least in German. It is questionable, however, whether this is the case in general, given the existence of the PPI-construction, or the ‘Imperativus pro Infinitivo’, see section 6.3.2. In any case, a means of differentiation between verbal forms is needed that, e.g., favours the bare infinitive in IPP-constructions and the past participle in PPI-constructions. Before coming to this, however, I will first argue briefly that *zu*-infinitives cannot be used as repair forms for independent reasons.

6.5.1 Why *zu*-infinitives are different

So far, I have mostly ignored candidates that show a *zu*-infinitive instead of the past participle as a repair strategy. In this section, I will argue that the *zu*-infinitive is an unattractive last resort option for independent reasons: Compared to the other non-finite verbal forms (bare infinitive and past participle) it always violates one constraint more.

In contrast to bare infinitives and past participles the occurrence of the *zu*-infinitive always blocks the assignment of the subject theta-role of the *zu*-verb to an overt subject. This is due to the inherent property of *zu* to ‘deactivate’ the potential external argument of the verb it is connected to (see, e.g., Haider 1993:268f).⁹³

To avoid a violation of the theta-criterion (see Chomsky 1981:36,335) it is generally assumed that the subject theta-role of the *zu*-infinitive is related to the phonetically empty pronoun PRO. PRO is then related to the external argument

⁹³The example in (i) is used by Haider to illustrate this property of *zu* (following Haider 1993:269). The external argument of *würdigen* ‘appreciate’ – in this example *Grammatiker* ‘grammarian’ – appears overtly only in the (present participle) construction without *zu*, (a). When *zu* is added to the verb, however, the external argument may not occur overtly, see example (b). In this case, only example (c) is possible in which the external argument is not expressed overtly and the internal argument (*Unterschied* ‘difference’) appears in subject position instead.

- (i) a. ein den Unterschied sicherlich würdigender Grammatiker
a the difference certainly appreciating grammarian
b. *ein den Unterschied sicherlich zu würdigender Grammatiker
a the difference certainly to appreciate grammarian
c. ein sicherlich *zu* würdigender Unterschied
a certainly to appreciate difference

of the main verb by the mechanism of control. I therefore assume that whenever a *zu*-infinitive is inserted, a PRO is inserted as well.⁹⁴

The example in (222) shows that ungrammaticality arises when a *zu*-infinitive is inserted instead of the bare infinitive in an IPP-configuration:

- (222) a. Maria_{+θ_{Subj}} hat das Buch lesen *wollen*-IPP
 Maria has the book read-Inf want-Inf
 b. *Maria_{-θ_{Subj}} hat das Buch lesen [PRO_{+θ_{Subj}}] *zu wollen*
 Maria has the book read to want

What causes this ungrammaticality?

I assume that the verbal complex *lesen zu wollen*, ‘read to want’, has one subject theta-role to assign. As *zu* deactivates the external argument, the subject theta-role may not be assigned to an overt NP but only to the phonetically empty PRO. When this is the case, however, the overt subject *Maria* does not receive a theta-role since the auxiliary *hat*, ‘has’, does not assign a theta-role but contributes only functional information. Therefore, a construction like (222-b) violates the theta-criterion – at least when *haben*, ‘have’, appears as an auxiliary. Note that there is also a non-auxiliary verb *haben* ‘have’. This *haben* assigns a subject theta-role, selects a *zu*-infinitive, and expresses an obligation. With the non-auxiliary verb *haben* the example in (222-b) does not violate the theta-criterion as *Maria* is assigned a subject theta-role by *hat*, see (223):

- (223) Maria_{+θ_{Subj}} hat das Buch (gefälligst) lesen [PRO_{+θ_{Subj}}] zu wollen
 Maria must the book (‘focus-particle’) read to want
 ‘Maria has to be willing to read the book!’

In the grammatical IPP-construction (222-a) no *zu* deactivates the external argument and the subject theta-role of *lesen wollen* is assigned to the overt NP ‘*Maria*’, in accordance with the theta-criterion.⁹⁵

Having excluded *zu*-infinitives as repair forms, I will now come back to the

⁹⁴Note that this is not the case with all *zu*-infinitives in German. Apart from raising verbs like *scheinen*, there are also *zu*-infinitives selected by a certain class of control verbs that may come without PRO when constructed coherently. In these cases, Haider assumes the formation of a ‘complex projection base’ in which the argument structures of the control verb and the selected *zu*-infinitive are merged so that the theta-criterion is not violated either. To ensure that the deactivated argument of the *zu*-infinitive and the subject argument of the selecting verb fit together, a mechanism is needed that equals the control mechanism in incoherent constructions. Haider assumes this mechanism to be ‘status government’, i.e., verbal selection (Haider 1993:272.)

The formation of a complex projection base, however, is not an option in the case at hand. A *zu*-infinitive that is used as a ‘repair strategy’ instead of an expected past participle is not status governed. Therefore, the formation of a complex projection base is not possible, and the ‘repair *zu*-infinitive’ does not have the option to come without PRO.

⁹⁵For expository reasons, I will leave the theta-criterion out of the tableaux and assume that it is located in GEN instead. Note, however, that this assumption is not crucial.

remaining infinitival verb forms and to the question of when a bare infinitive is selected and when a past participle is.

Three alternative lines of reasoning will be pursued. A first account splits the constraint on morphological selection into (at least) two parts, a second one makes use of freely rerankable markedness constraints on verbal forms, and a third one tries to integrate the morphological differences between past participles in IPP-type languages and in PPI-type languages (remember the correlation between *ge-* and IPP from chapter 4). I will favour the last account in the end. Although it may be the ‘least OT-like’, it can at least derive the relevant part of the correlation. Let us, however, begin with the first account.

6.5.2 Splitting up morphological selection

Under the assumptions that, first, the constraint MORPH is in fact a cover term for several constraints and that, second, these constraints may be reranked freely, both the IPP and PPI data in question can be accounted for. The requirements of morphological selection are as manifold as the selecting lexical items. Even when the focus is narrowed to the selection of infinitival verbal forms only there are, e.g., elements (like the perfective auxiliary *have*) that select the past participle, and others (like modals) that select bare infinitives. So far, both kinds of selection fall under the same general constraint, MORPH. Now I will assume, however, that each kind of selection is regulated by a specific constraint. The two constraints that are relevant for the case at hand are singled out of the general MORPH constraint. They are formulated as in (224):⁹⁶

- (224) The parts of MORPH
- a. MORPH-INF: (morphological selection of infinitives):
Morphological selectional properties of lexical items must be observed if the selected element is a bare infinitive.
 - b. MORPH-PASTP: (morphological selection of past participles):
Morphological selectional properties of lexical items must be observed if the selected element is a past participle.

In IPP-type languages, MORPH-INF is crucially ranked above MORPH-PASTP as shown in (225):

- (225) IPP-type languages: *PastP/+Inf-MODALS (MV), MORPH-INF ≫ MORPH-PASTP

⁹⁶Another example of the selection of verbal forms is the selection of *to*-infinitives. The corresponding constraint would be MORPH-*to*-infinitives (morphological selection of *to*-infinitives). The fact that this constraint is missing here is due to expository reasons as I am concentrating on the differences between IPP constructions and PPI-constructions. It would be unproblematic, however, to include a constraint like this into the overall picture.

The tableau in (226) shows the effects of this ranking for the German case of obligatory IPP with modals that was problematic before.⁹⁷

- (226) Obligatory IPP with modals :
Ich habe das Buch... (I have the book ...)

		*PastP/ +Inf-MV	MORPH- INF	MORPH- PASTP
a.	* [[lesen _{Inf}] gewollt _{PastP}]	*!		
☞ b.	[[lesen _{Inf}] wollen _{Inf}]			*
c.	* [[gelesen _{PastP}] gewollt _{PastP}]		*!	
d.	* [[gelesen _{PastP}] wollen _{Inf}]		*!	*

Now, only the grammatical IPP-candidate (b) comes out as optimal. The competing PPI-candidate (c) violates MORPH-INF which crucially outranks MORPH-PASTP, the constraint violated by the optimal candidate.

In PPI-type languages, MORPH-PASTP outranks MORPH-INF. The tableau in (227) shows the corresponding competition in PPI-type languages (abstracting away from the concrete lexical items, only the general terms auxiliary (AUX), modal (MV), and lexical verb (LV) are used):

- (227) PPI-type languages: *PastP/+Inf-MODALS (MV), MORPH-PASTP ≫ MORPH-INF⁹⁸

		*PastP/ +Inf-MV	MORPH- PASTP	MORPH- INF
a.	* AUX _{Fin} -MV _{PastP} -LV _{Inf}	*!		
b.	* AUX _{Fin} -MV _{Inf} -LV _{Inf}		*!	
☞ c.	AUX _{Fin} -MV _{PastP} -LV _{PastP}			*
d.	* AUX _{Fin} -MV _{Inf} -LV _{PastP}		*!	*

The split of MORPH into two constraints and the suggested rankings in (225) and (227) above, account for the fact that in IPP-type languages it is more important to keep the selected bare infinitive than to keep the selected past participle when one must be abandoned in order to fulfill *PastP/+Inf-MODALS (MV). In PPI-type languages it is the other way around. This means, however, that there is no language-independent default verbal case (like the bare infinitive) but that the default varies from language to language due to the respective constraint

⁹⁷*PastP/+Inf-MODALS (MV) is the only constraint out of the markedness subhierarchy that is active here. Therefore only this markedness constraint is included in the tableau.

⁹⁸If it is true that PPI-constructions are optional, that can be achieved by a tie between *PastP/+Inf-MODALS (MV) and MORPH-INF. To do so, *PastP/+Inf-MODALS (MV) must be ranked below MORPH-PASTP, i.e., adjacent to MORPH-INF. This is, however, not relevant for the differences between IPP and PPI that I am interested in here.

rankings.

To sum up: The split of MORPH allows the determination of the verbal form that undergoes a change, and, excluding other verbal forms like the *zu*-infinitive or a finite form for independent reasons, this suffices for IPP-cases as well as PPI-cases.

What does it mean, however, to split a constraint on morphological selection? The promotion of one kind of selection over another in a language specific way does not seem to be well motivated. A violation of morphological selection should have the same price no matter what morphological form is concerned as the mechanism of selection is always the same. When a distinction is to be made this should concern the result of selection, i.e., the respective morphological form, and not the mechanism of selection itself. I will therefore introduce a second possible account that makes use of markedness constraints.

6.5.3 A markedness solution prohibiting certain verb forms

In the following I will give an alternative account of the different repair strategies in IPP and PPI-type languages that does not imply a split of the selectional constraint MORPH. The ranking of verb-form sensitive markedness constraints determines instead which form is chosen as a repair form. To illustrate an account in terms of markedness constraints, two quite descriptive constraints are used that prohibit a special verbal form:

(228) *INF: Avoid bare infinitives.

(229) *PASTP: Avoid past participles.

Given these constraints, the split of MORPH is no longer necessary but the result is the same:⁹⁹ The bare infinitive is less costly in IPP-type languages and will therefore be used as a repair form as illustrated for obligatory IPP with modals in German in (231). The past participle is less costly in PPI-type languages as illustrated in (231):

⁹⁹Note, however, that MORPH itself is still necessary. It must be ranked above *PastP and *INF as under the opposite ranking, no past participle form would ever appear.

(230) Crucial ranking in IPP-type languages: *PASTP \gg INF

(231) Obligatory IPP with modals:
Ich habe das Buch ... (I have the book ...)

		*PastP Inf-MV	*MORPH	*PASTP	*INF
a.*	[[lesen _{Inf}] gewollt _{PastP}]	*!		*	*
☞ b.	[[lesen _{Inf}] wollen _{Inf}]		*		**
c.*	[[gelesen _{PastP}] gewollt _{PastP}]		*	*!*	
d.*	[[gelesen _{PastP}] wollen _{Inf}]		**!	*	*

(232) PPI-type languages:
 Crucial ranking: INF \gg *PASTP

		*PastP +Inf-MV	MORPH	*INF	*PASTP
a.*	AUX _{Fin} -MV _{PastP} -LV _{Inf}	*!		*	*
b.*	AUX _{Fin} -MV _{Inf} -LV _{Inf}		*	*!*	
☞ c.	AUX _{Fin} -MV _{PastP} -LV _{PastP}		*		**
d.*	AUX _{Fin} -MV _{Inf} -LV _{PastP}		**!	*	*

To sum up: The approach in terms of markedness constraints may also account for the verb form in both IPP-languages and PPI-languages. Depending on the language specific ranking of these constraints, either the bare infinitive or the past participle occurs as a default verbal form in last resort cases.¹⁰⁰ In attributing differences between languages solely to differences in the constraint ranking, the account presents an inherent OT-solution (just as the split-MORPH-account before): In IPP-type languages *PASTP outranks *INF, and in PPI-type languages *INF outranks *PASTP. This is also what may count as a disadvantage of the account, however, apart from its descriptive nature: It has problems deriving typological predictions like the correlation between *ge-* and IPP introduced in chapter 4. Under both accounts discussed so far, nothing refers to the *ge-* prefix and the correlation between the past participle prefix *ge-* and the IPP-construction would be a mere coincidence. In the next section, I will take a closer look at this correlation, and give a third (and last) approach that refers to it.

¹⁰⁰Note, however, that it is always the bare infinitive and not the past participle that functions as default verbal form as can, e.g., be seen in child language, see Wexler (1994). Therefore, a more elaborate account may be thought of that ‘narrows the context’ and bans a sequence of either two past participles or two bare infinitives in a row but not a bare infinitive in general. This modification might allow the bare infinitive to still be the overall default form, even in PPI-type languages. I will keep the simpler account for the purpose of illustration.

6.5.4 A connection between *ge-* and IPP?

The observation that languages that show the IPP-effect also show a complex past participle including the prefix *ge-* has, e.g., been made by Lange (1981), Hoeksema (1988), Vanden Wyngaerd (1994). Remember from chapter 4 that these authors assume a(n exact) correlation between the occurrence of the past participle prefix *ge-* and the occurrence of the IPP-construction. The idea is that whenever a language shows the past participle prefix *ge-* it also shows the IPP-effect and vice versa.

Some examples of the past participle with *ge-* in IPP-type languages are given in (233):

- (233) Past Participle with *ge-* prefix
- a. German: *ge·kauft* ‘bought-PastP’, *ge·wollt* ‘wanted-PastP’
 - b. Afrikaans: *ge·koop* ‘bought-PastP’, *ge·wil* ‘wanted-PastP’
 - c. Dutch: *ge·kocht* ‘bought-PastP’, *ge·wild* ‘wanted-PastP’
 - d. West Flemish: *g’·kocht* ‘bought-PastP’, *ge·wild* ‘wanted-PastP’

This is different in PPI-type languages. These languages do not form their past participle with the *ge-* prefix. Some examples of prefixless past participles are given in (234):

- (234) Past Participle without *ge-* prefix
- a. Swedish (variant): *köpt* ‘bought-PastP’, *velat* ‘wanted-PastP’
 - b. Norwegian (variant): *kjøpt* ‘bought-PastP’, *villet* ‘wanted-PastP’
 - c. Faroese: *keypt* ‘bought-PastP’, *viljað* ‘wanted-PastP’
 - d. Frisian: *kocht* ‘bought-PastP’, *wollen* ‘wanted-PastP’

In the following, I will make use of this distinction in the morphology of IPP and PPI-type languages. As I do not have an explanation for these differences, I assume that it is not determined by UG whether the past participle of a language is formed with the *ge-* prefix or not. I take the form of the past participle – language specifically with or without *ge-* for whatever reason – to be stored in the lexicon and not changeable by the evaluation process of the OT grammar. This point of view presupposes that morphology (in this case the existence or non-existence of *ge-* in the lexicon) feeds syntax (the constraint component) and not the other way round.¹⁰¹

To sum up so far: When morphological selection is violated in order to fulfill the higher ranked ‘trigger constraint’ (*PastP/+Inf) this either results in a

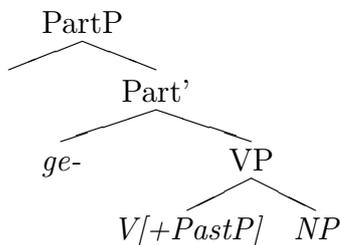
¹⁰¹See Vikner (2001) for a similar assumption. For the opposite and strict OT-assumption – that morphology is determined by the constraint component – see, e.g., Müller (2001) who argues his case very convincingly for nominal inflection in German. This is not an option in the IPP-case, however, as it is hard to see how *ge-* may be derived as the reflex of a constraint ranking that also derives IPP.

sequence of two bare infinitives (IPP, see (235-a)) when the language in question forms the past participle with *ge-*, or in a sequence of two past participles (PPI, see (235-b)) when the language in question does not form its past participle with *ge-*. It is never the case, however, that it results in a sequence of two past participles with *ge-*, see (235-c). The examples show the sequence ‘read wanted’ in German (a), in a Swedish dialect, (b), and in a non-existing language with German vocabulary but PPI (with *ge-*), (c).

- (235) *I have the book ...*
- a. Ge: [[lesen-Inf] wollen-Inf(IPP)]
 - b. Sw: [velat-Past(PPI) [läst-PastP]]
 - c. PPI + *ge-*: *[[ge·lesen] ge·wollt]

I deduce from these examples that there is a structural difference between past participles formed with the prefix *ge-* and both past participles without *ge-* and bare infinitives, and furthermore that this difference is crucial for an account of the correlation between *ge-* and IPP. I assume that the past participle prefix *ge-* adds syntactic structure to a verb. It is a functional head that takes a verbal complement and forms a phrase that I will call participial phrase in the following.¹⁰² The structure of a past participle with *ge-*-prefix is exemplified in (236):

- (236) Past participle XP with *ge-*-prefix (e.g., in German¹⁰³)

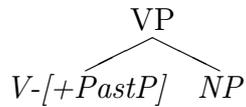


I further assume that the syntactic structure of a past participle without a prefix is the same as for a bare infinitive. The only difference is the feature structure on the verbal head that gives rise to a different morphology. This is exemplified in (237) for a past participle and in (238) for a bare infinitive:

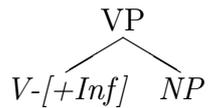
¹⁰²Nothing hinges on the label of the phrase, however. And nothing hinges on the XP-status that I assign to the past participle. In an alternative account that assumes a head adjunction structure for the past participle (see, e.g., Vanden Wyngaerd (1994)) the past participle prefix *ge-* would also contribute one more head to the complex structure.

¹⁰³Notice, however, that even in languages that form their past participle with the *ge-* prefix in general, there are exceptions without *ge-*. In Standard German, these are all verbs with an unstressed first syllable (verbs with an unstressed prefix or verbs ending in *-ieren*) like *ra'sieren* ‘shave’ – *ra'siert* and not *(*ge.)rasiert*. I will assume that even in these cases *ge-* is present in the input. It is phonetically empty in the optimal output, however, for phonological reasons. See Geilfuß-Wolfgang (1998) for an OT-analysis along these lines. I have to assume, however, that a phonetically empty *ge-* still adds structure to the verb.

(237) Past participle VP without *ge*-prefix (e.g., in Swedish)



(238) Bare infinitive VP



Given these structural differences I will now make use of a constraint that bans structure (on ‘structural economy’ see, e.g., Grimshaw (1997), Grimshaw (2001), Haider (1997), Rizzi 1997:314, Aissen (2001)) and formulate it in a very general way in (239):

(239) *STRUC (‘*Structure’): Avoid (syntactic) structure.

I will neither elaborate on the status of the constraint (i.e, whether its effects may be derived by other constraints) nor on the exact procedure of what counts as a violation. What is important here, however, is merely that a past participle with the *ge*-prefix violates this constraint more often than a bare infinitive or a prefixless past participle. Therefore, a more specific formulation of the *STRUC-constraint is given in (240):

(240) **ge*-: Avoid the past participle prefix (*ge*-).

The effects of this constraint on German are again shown for obligatory IPP with modals, see the tableau in (241). When a violation of MORPH is forced by the highly ranked *PastP/+Inf-MV the IPP-candidate (b) wins the competition against the PPI-candidate (c) as the past participle (with *ge*- in German) violates *STRUC (**ge*-) more often:

(241) Obligatory IPP with modals in German:
Ich habe das Buch ... (I have the book ...)

		*PastP +Inf -MV	*MORPH	* <i>ge</i> -
a.*	[[lesen _{Inf}] gewollt _{PastP}]	*!		*
 b.	[[lesen _{Inf}] wollen _{Inf}]		*	
c.*	[[gelesen _{PastP}] gewollt _{PastP}]		*	*!*
d.*	[[gelesen _{PastP}] wollen _{Inf}]		**!	*

Note that **ge*- is crucially outranked by MORPH: Under the opposite ranking the past participle would not be expected to show up at all, contrary to fact. German

is a language that forms the past participle with the *ge*-prefix. Forms like *lesen* or *wollt* ('read-PastP, wanted-PastP', both past participles without *ge*-) are not stored in the German lexicon. Therefore, a candidate like *lesen wollt* is not even among the possible competitors.¹⁰⁴ What may be deduced from this account is the following: A language like German that forms its past participle with *ge*- will not choose the past participle as a last resort form but the bare infinitive instead when a non-finite form is needed.

Let us now see what happens in languages that do not form their past participle with *ge*-. In these languages, a candidate with a *ge*- prefix on the past participle is not possible as this form is not stored in the lexicon. An example of a competition is given in (242) for a Swedish PPI-variant. **ge*- does not differentiate between the IPP-candidate (b) and the PPI-candidate (c). Given the constraints so far, both should come out as optimal. But only the PPI-candidate (c) is indeed grammatical.

- (242) PPI in Swedish dialects:
Jag hade ... boken ('I have ... the book')

	*PastP+ Inf -MV	MORPH	* <i>ge</i> -
a.* [velat _{PastP} [läsa _{Inf}]]	*!		
☞ b.* [vilja _{Inf} [läsa _{Inf}]]		*	
☞ c. [velat _{PastP} [läst _{PastP}]]		*	
d.* [vilja _{Inf} [läst _{PastP}]]		**!	

What do we learn from this tableau? The use of **ge*- is not sufficient to deduce the correlation of *ge*- and IPP. When a language does not show *ge*- the constraint **ge*- alone cannot prevent the bare infinitive (i.e., an IPP-construction) to occur. In a last attempt to derive the unexpected past participle in PPI-constructions I will refer to a specialised version of morphological selection. Looking again at tableau (242) we see that the IPP-candidate and the (grammatical) PPI-candidate both violate MORPH once. They differ, however, in which element violates MORPH. In candidate (b), the IPP-candidate, the morphological selectional properties of the highest verb are not observed: The finite auxiliary selects a past participle but the embedded modal appears as a bare infinitive and therefore violates MORPH. In the PPI-construction (c), however, the morphological selectional properties of the second verb in the cluster are not observed: The non-finite modal selects a bare infinitive but the embedded lexical verb appears as a past participle and therefore violates MORPH. Hence I conclude that in PPI-constructions it is more important to observe the morphological selectional properties of the highest em-

¹⁰⁴Note that the *-en*-suffix in *lesen* 'read' is meant as a past participle suffix and not as the infinitival suffix here. *Lesen* belongs to the class of 'strong verbs' that form their past participle with *ge*- and *-en* in German.

bedding verb, i.e., the finite auxiliary ‘have’ in the case at hand than to observe the morphological selectional properties of the embedded verb(s).

In addition to the general constraint on morphological selection (MORPH) I therefore suggest a more specific, i.e. more ‘stringent’, constraint that refers to the selectional properties of the highest verb in a verb cluster. This constraint is given in (243):

- (243) MORPH_{V1}: (morphological selection of the highest verb V₁):
Morphological selectional properties of the highest verb in a verb cluster, i.e., V₁, must be observed.¹⁰⁵

Note that MORPH_{V1} and MORPH stand in a special to general relation that is called ‘stringency relation’ in Baković (1995) following a suggestion by Alan Prince:

- (244) *Stringency relation* (Baković 1995:28):
Let S and G be two constraints. S stands to G as special to general in a stringency relation if, for any input i to which S applies non-vacuously, any parse of i which violates S also violates G.

Contrary to Pāninian relations (see, e.g., Prince and Smolensky 1993:81) the effect of the specific constraint in a stringency relation is not automatically overridden when it is outranked by the general constraint. In (245), the effect of MORPH_{V1} is shown for Swedish dialects (the constraint profile of the candidates is the same for all PPI-type languages):

- (245) PPI in Swedish dialects:
Jag hade ... (I had ...)

		*PastP+ Inf -MV	MORPH	*ge-	MORPH _{V1}
a.*	[velat _{PastP} [läsa _{Inf}]]	*!			
b.*	[vilja _{Inf} [läsa _{Inf}]]		*		*!
☞ c.	[velat _{PastP} [läst _{PastP}]]		*		
d.*	[vilja _{Inf} [läst _{PastP}]]		**!		*

The grammatical PPI-candidate (c) is now the single optimal output of the competition.¹⁰⁶ The IPP-candidate (b) fatally violates the specific version of MORPH,

¹⁰⁵Note that it is not surprising that a constraint refers to the highest verb in a cluster particularly as this verb also behaves exceptionally in other respects: It is, e.g., the only verb in a verb cluster that is not selected itself and it is the only verb that may bear finite morphology.

¹⁰⁶Note, however, that candidate (a) is optimal in Standard Swedish and that optionality between candidate (a) and (c) may arise in the PPI-dialects due to an interference with Standard Swedish. See footnote 98 on the sketch of an analysis. As I am mainly interested in the differences between PPI- and IPP-candidates I will not go into the issue of optionality any

i.e., MORPH_{V1}.

To sum up: The ranking of **ge-* above MORPH_{V1} is responsible for the choice of the bare infinitive as a last resort form in IPP-languages. Due to the lack of *ge-* in the lexicon of PPI languages, the constraint **ge-* is not active there. Therefore, MORPH_{V1} makes the decision and chooses the past participle as the last resort form in the PPI-examples in question.¹⁰⁷

6.5.5 Typological consequences of the account

In this section I will come back to the correlation between the *ge-* prefix and the occurrence of the IPP-construction in a language and see whether it can be derived under the present account.

Remember from chapter 4 that the correlation between *ge-* and IPP is assumed to be a one to one relation by, e.g., Lange (1981), Lange (1982), Hoeksema (1988), i.e. a language shows IPP iff it also forms the past participle with the prefix *ge-*. The exact correlation is repeated in (246):

- (246) IPP \Leftrightarrow *ge-*
a. If \neg *ge-* then \neg IPP
b. If *ge-* then IPP

First, I look at what happens in the case of a [\neg *ge-*] input, i.e., in languages that do not form their past past participle with *ge-*. All possible rankings of the relevant constraints are given in (247).¹⁰⁸ On the right hand side of the arrows the candidate that is optimal under the respective ranking is given. The notation of the candidates is the same as in the tableaux before: candidate (a) is the

further here but see chapter 8.

¹⁰⁷ The same result could be achieved under a markedness account, assuming a gradient nature of *STRUC and splitting it into three constraints: **ge*-PARTICIPLE, *INF, and *PARTICIPLE. Under the assumption of a fixed ranking between these constraints, we get the right results for both IPP- and PPI-type languages. The ranking must be as follows:

- (i) **ge*-PARTICIPLE \gg *INF \gg *PARTICIPLE

The problem with this fixed hierarchy is that it is a mere stipulation. Whereas the ranking of **ge*-PARTICIPLE above *PARTICIPLE can be motivated by a higher morphological (and syntactical) complexity of a past participle with *ge*-prefix, I do not see how it can be argued for that a (bare) infinitive has a higher complexity than a past participle universally.

This is the reason why I will not follow this account further. Note, however, that it may handle the typological problems discussed in the next section, namely that under the present account it is not excluded that PPI appears in a language that forms its past participle with the *ge*-prefix. With the fixed hierarchy, the following is predicted: If a language has IPP then it also has the *ge*-prefix. If a language has the *ge*- prefix then it has either IPP or no change. Although the fixed hierarchy fares better with respect to these questions I will nevertheless go on with the account that includes MORPH_{V1}. In my view, a stipulated ranking ‘*INF \gg *PARTICIPLE’ would raise even more questions.

¹⁰⁸**ge-* is not active here and therefore left out.

‘expected’, i.e., MORPH-respecting candidate, candidate (b) is the IPP-candidate, and candidate (c) is the PPI-candidate. Candidate (d) is harmonically bounded by the IPP-candidate and therefore never occurs as optimal.

- (247) a. *PastP/+Inf \gg MORPH \gg MORPH_{V1} \Rightarrow (c), PPI
 b. *PastP/+Inf \gg MORPH_{V1} \gg MORPH \Rightarrow (c), PPI
 c. MORPH \gg *PastP/+Inf \gg MORPH_{V1} \Rightarrow (a)
 d. MORPH \gg MORPH_{V1} \gg *PastP/+Inf \Rightarrow (a)
 e. MORPH_{V1} \gg MORPH \gg *PastP/+Inf \Rightarrow (a)
 f. MORPH_{V1} \gg *PastP/+Inf \gg MORPH \Rightarrow (c), PPI

When the input does not contain *ge-* then the optimal output is indeed either the ‘expected’ candidate (a) or the PPI-candidate (c) but never the IPP-candidate (b). This is in accordance with the part of the correlation that states that if \neg *ge-* then \neg IPP.

Second, let us see what happens in the case of a [+*ge-*] input. Again, all possible rankings of the relevant constraints are given as shown in (248) to (253). This time, however, **ge-* is included as it is relevant in [+*ge-*] languages:

- (248) a. *PastP/+Inf \gg MORPH \gg MORPH_{V1} \gg **ge-* \Rightarrow (c), PPI
 b. *PastP/+Inf \gg MORPH \gg **ge-* \gg MORPH_{V1} \Rightarrow (b), **IPP**
 c. *PastP/+Inf \gg **ge-* \gg MORPH \gg MORPH_{V1} \Rightarrow (b), **IPP**
 d. **ge-* \gg *PastP/+Inf \gg MORPH \gg MORPH_{V1} \Rightarrow (b), **IPP**
- (249) a. *PastP/+Inf \gg MORPH_{V1} \gg MORPH \gg **ge-* \Rightarrow (c), PPI
 b. *PastP/+Inf \gg MORPH_{V1} \gg **ge-* \gg MORPH \Rightarrow (c), PPI
 c. *PastP/+Inf \gg **ge-* \gg MORPH_{V1} \gg MORPH \Rightarrow (b), **IPP**
 d. **ge-* \gg *PastP/+Inf \gg MORPH_{V1} \gg MORPH \Rightarrow (b), **IPP**
- (250) a. MORPH \gg *PastP/+Inf \gg MORPH_{V1} \gg **ge-* \Rightarrow (a)
 b. MORPH \gg *PastP/+Inf \gg **ge-* \gg MORPH_{V1} \Rightarrow (a)
 c. MORPH \gg **ge-* \gg *PastP/+Inf \gg MORPH_{V1} \Rightarrow (a)
 d. **ge-* \gg MORPH \gg *PastP/+Inf \gg MORPH_{V1} \Rightarrow (b), **IPP**
- (251) a. MORPH \gg MORPH_{V1} \gg *PastP/+Inf \gg **ge-* \Rightarrow (a)
 b. MORPH \gg MORPH_{V1} \gg **ge-* \gg *PastP/+Inf \Rightarrow (a)
 c. MORPH \gg **ge-* \gg MORPH_{V1} \gg *PastP/+Inf \Rightarrow (a)
 d. **ge-* \gg MORPH \gg MORPH_{V1} \gg *PastP/+Inf \Rightarrow (b), **IPP**
- (252) a. MORPH_{V1} \gg MORPH \gg *PastP/+Inf \gg **ge-* \Rightarrow (a)
 b. MORPH_{V1} \gg MORPH \gg **ge-* \gg *PastP/+Inf \Rightarrow (a)
 c. MORPH_{V1} \gg **ge-* \gg MORPH \gg *PastP/+Inf \Rightarrow (a)
 d. **ge-* \gg MORPH_{V1} \gg MORPH \gg *PastP/+Inf \Rightarrow (b), **IPP**
- (253) a. MORPH_{V1} \gg *PastP/+Inf \gg MORPH \gg **ge-* \Rightarrow (c), PPI
 b. MORPH_{V1} \gg *PastP/+Inf \gg **ge-* \gg MORPH \Rightarrow (c), PPI
 c. MORPH_{V1} \gg **ge-* \gg *PastP/+Inf \gg MORPH \Rightarrow (a)
 d. **ge-* \gg MORPH_{V1} \gg *PastP/+Inf \gg MORPH \Rightarrow (b), **IPP**

When the input contains *ge-* then the IPP-candidate is indeed optimal under some rankings – as marked in bold face – but not under all of them: Other candidates, i.e., candidate (a) and the PPI-candidate (c) may be optimal as well. At least concerning the PPI-candidate this may pose a problem as it is not attested in languages that form the past participle prefix with *ge-*.

To sum up so far: The correlation in (246) can only partly be deduced by the present account. ‘If IPP then *ge-*’, (246-a), can be deduced but ‘If *ge-* then IPP’, (246-b), cannot be deduced.

In the remaining part of this section I will see whether the correlation in its strict form as given in (246) can be upheld at all. Let us therefore look again at the second part of the correlation, (246-b), as repeated in (254):

(254) *Part two of the correlation:*
If *ge-* then IPP

As briefly mentioned in chapter 4 above, Yiddish is problematic for this correlation. It has a past participle prefix *ge-* but no IPP as shown in (255) (following Lockwood 1995:82):

(255) a. Zey hobn *gemuzt* zikh farteydikn
They have must-PastP themselves defend
b. *Zey hobn *muzn* zikh farteydikn
They have must-Inf themselves defend

Given a language like Yiddish, it may not be desirable to keep part two, (246-b), of the correlation as strict as in (254).¹⁰⁹

Is there also empirical counter-evidence to the first part, (246-a), of the correlation that is repeated in (256) and that could in fact be deduced by the present account?

(256) *Part one of the correlation:*
If IPP then *ge-*

There is indeed a dialect that seems to go against this part of the correlation: West Frisian Dutch, a dialect of Dutch spoken in the province of North Holland. This dialect shows IPP with some verbs but does not form its past participle with the prefix *ge-*. The IPP-properties of West Frisian Dutch are reported in Hoekstra and Taanman (1996). The authors remark that West Frisian Dutch seems to go against the correlation of IPP and *ge-* but attribute the special behaviour of West Frisian Dutch to the Dutch/West Frisian Dutch bilingualism. I therefore conclude that West Frisian is at least not such a clear example against the correlation as

¹⁰⁹Note that it would still be desirable to keep at least ‘if *ge-* then \neg PPI’. This cannot be derived by the accounts as it stands. In footnote 107, an alternative account is sketched that could derive this correlation. As it has other shortcomings, however, I will not follow it here.

Yiddish (this is marked by putting West Frisian Dutch in brackets in the table in (257)).

Table (257) summarises the section on the (non-)correlation of IPP and *ge-*. If the correlation held in its strict form then only two cells of the table should be filled, namely the field ‘+IPP, +*ge-*’ that shows the IPP-languages with *ge-* such as German and Dutch, and the field ‘-IPP, - *ge-*’ that shows both the languages without IPP and without PPI such as Swedish, Danish, the Romance languages, etc., and the PPI-languages such as the Swedish and Norwegian dialects, etc. We see, however, that all four fields are filled as Yiddish and (maybe) West Frisian Dutch go against the correlation:

(257) The (non-)correlation of IPP and *ge-*:

	- <i>ge-</i>	+ <i>ge-</i>
+ IPP	(West Frisian Dutch)	German, Dutch, ...
- IPP	Swedish, Swedish dialects (PPI)	Yiddish

There are three possible conclusions that may result from these observations: First, when there are counter-examples the correlation is not valid at all. In this case, an account that does not refer to the past participle prefix *ge-* would suffice as, e.g., given in section 6.5.2 or 6.5.3. Second, under the assumption that West Frisian Dutch is an exception anyway at least one part of the correlation may be upheld. This is in line with the presented analysis that refers to the *ge-* prefix.¹¹⁰ Third, the correlation exists in a less direct way and shows only a tendency, i.e., the true picture may not be as in (258) but more as in (259): Instead of a strict correlation between IPP and *ge-* (i.e., a direct link between the two) there may be a factor ‘x’ instead that favours both phenomena:

(258) a. +*ge-* → IPP
 b. IPP → +*ge-*

(259) ‘X’ $\begin{matrix} \nearrow \\ \searrow \end{matrix}$ $\begin{matrix} ge- \\ IPP \end{matrix}$

As the connection between IPP and *ge-* is still striking enough – although at least Yiddish is a serious counter-example – I will not follow the former conclusion. And although the third conclusion may turn out to be most plausible in the end it is not clear to me what ‘factor x’ may be. I therefore agree with the second conclusion and keep the final account that makes use of the morphological

¹¹⁰Note that Yiddish can simply be accounted for by the ranking of MORPH above the triggering constraint, i.e., the whole *PastP/+Inf-SUBHIERARCHY.

differences between IPP-languages and PPI languages.¹¹¹

After the discussion of PPI-languages in connection with the correlation between IPP and *ge-* I now come back to the main topic of this chapter, i.e., obligatory and impossible cases of IPP in German.

6.6 The account of the verb form

In this section, the final account of obligatory and impossible IPP in Standard German is exemplified in three tableaux: The first tableau shows obligatory IPP with modals, the second one impossible IPP with duratives, and the third one impossible IPP (with modals) in a 2-verb cluster.¹¹² For expository reasons, only the two constraints of the markedness subhierarchy that are active here are also given in the tableaux. These are *PastP/+Inf-MODALS(MV) and *PastP/+Inf-DURATIVES(DV). Remember that MORPH is crucially ranked between them, that **ge-* outranks MORPH_{V1}, and that both constraints are ranked below MORPH. The relevant ranking for the verb form is given in (260):

(260) Partial ranking for German:

*PastP/+Inf-MODALS(MV) \gg MORPH
 \gg { *PastP/+Inf-DURATIVES(DV), **ge-* } \gg MORPH_{V1}

6.6.1 Obligatory IPP

As already shown in (241), candidate (a) – even if it respects MORPH – crucially violates the higher ranked *PastP/Inf/MV. Of the remaining candidates that all violate MORPH, the IPP-candidate (b) has the best constraint profile and is therefore optimal.

- (261) Obligatory IPP with modals (3-verb cluster)
- a. *Ich habe das Buch lesen gewollt
 - b. Ich habe das Buch lesen wollen
 I have the book read wanted-PastP(a)/want-Inf(b)

¹¹¹Note, however, that this way PPI-constructions cannot be excluded per se in languages with *ge-* prefix. It is therefore crucial that **ge-* outranks MORPH_{V1} in IPP-languages.

¹¹²*zu*-infinitives and finite verbs have been independently excluded as last resort form. A candidate like *lesen zu wollen* ‘read to want’ with a non-selected *zu*-infinitive instead of the past participle is, e.g., harmonically bounded by the IPP-candidate. Just as the IPP-candidate, it violates both MORPH and MORPH_{V1}, but also the theta-criterion additionally (see section 6.5.1). Therefore, these candidates are left out in the tableaux.

(262) *Ich habe das Buch ...*

		*PastP Inf-MV	MORPH	*PastP Inf-DV	*ge-	MORPH _{V1}
a.*	[[lesen _{Inf}] gewollt _{PastP}]	*!			*	
☞ b.	[[lesen _{Inf}] wollen _{Inf}]		*			*
c.*	[[gelesen _{PastP}] gewollt _{PastP}]		*		*!	
d.*	[[gelesen _{PastP}] wollen _{Inf}]		**!		*	*

6.6.2 Impossible IPP

As summarised in (187), obligatory IPP is much less common than impossible IPP in German. Two cases of impossible IPP have been distinguished: First, the impossibility of having IPP with certain verb classes like duratives even in a typical IPP context and second, the impossibility of IPP in simple 2-verb clusters, i.e., in cases where a potential IPP-verb does not select a verbal complement. Both cases will be dealt with in the following.

In the case of duratives in a 3-verb cluster it is crucial that MORPH outranks the constraint out of the markedness subhierarchy that is sensitive to duratives: *PastP/+Inf-DV. This ranking ensures that candidate (a) with the durative as a past participle is optimal here due to MORPH, the highest ranking constraint at which the candidates differ.

(263) Impossible IPP with duratives (3-verb cluster)

a. Die Leute sind stehen geblieben

b. *Die Leute sind stehen bleiben

The people are stand remained-PastP(a)/remain-Inf(b)

(264) *Die Leute sind ...*

		*PastP Inf-MV	MORPH	*PastP Inf-DV	*ge-	MORPH _{V1}
☞ a.	[[stehen _{Inf}] geblieben _{PastP}]			*	*	
b.*	[[stehen _{Inf}] bleiben _{Inf}]		*!			*
c.*	[[gestanden _{PastP}] geblieben _{PastP}]		*!		*	
d.*	[[gestanden _{PastP}] bleiben _{Inf}]		*!*	*		*

In the case of 2-verb clusters, a context in which a past participle embeds an infinitive is never given. Therefore, the markedness subhierarchy is not active at all and the decision is made by MORPH again, i.e., candidate (a) with the modal as a past participle is optimal.

- (265) Impossible IPP in 2-verb clusters (V_2 a modal)
- a. Ich habe das immer gewollt
 - b. *Ich habe das immer wollen
I have that always wanted-PastP(a)/want-Inf(b)

(266)

	*PastP Inf-MV	MORPH	*PastP Inf-DV	*ge-	MORPH _{V1}
☞ a. Ich habe das gewollt _{PastP}				*	
b.* Ich habe das wollen _{Inf}		*!			

6.7 Summary

In this section, I will sum up the results of the OT-account with respect to the verb form in IPP-constructions. I will thereby follow the questions that arose in chapter 2:

- How can the verb form in IPP-constructions be accounted for?
The unexpected bare infinitive in IPP-constructions (as well as the unexpected past participle in PPI-constructions) are analysed as last resort strategies: They are normally excluded by MORPH, a constraint on morphological selection and occur only when necessary, i.e., when forced by a higher ranked constraint that is violated by the MORPH-respecting candidates.
- How is the special context that forces IPP (and PPI) integrated into the account?
This special context, namely a past participle with an infinitival complement, functions as a ‘trigger’ for the violation of MORPH. It is formalised as a markedness constraint that punishes verbal complements of past participles.
- IPP is verb class sensitive: How is the implicational hierarchy of verb classes taken into account?
The implicational hierarchy of verb classes together with the markedness constraint that ‘triggers’ IPP (and PPI) form a markedness subhierarchy, i.e., the constraints stand in a universally fixed order with respect to each other.
- How can the differences in the obligatoriness or impossibility of IPP be accounted for both inside a language and across languages?
Whether IPP is obligatory or impossible depends on where MORPH is inserted into the markedness subhierarchy: All verb classes connected to constraints out of the markedness subhierarchy ranked above MORPH show

IPP obligatorily and all verb classes connected to constraints out of the markedness subhierarchy ranked below MORPH do not show IPP. The point at which MORPH is inserted differs from language to language (see chapter 9). In German, MORPH is inserted in between *PastP/+Inf-MODALS and *PastP/+Inf-DURATIVES (ignoring cases of optional IPP with perception verbs and benefactives here – they will be discussed in chapter 8.)

- Which verb form is chosen as a last resort?
Languages differ in whether they choose the bare infinitive (IPP) or the past participle (PPI). The differences in the last resort forms were (partly) connected to the morphology of the past participles in IPP-type languages and PPI-type languages and a constraint (**ge-*) that is sensitive to these differences. The unexpected past participle in PPI-languages was favoured by a special version of MORPH in combination with the non-activity of **ge-* in these languages. This way it could be derived that languages without *ge-* prefix do not show IPP. One issue remains, however: A language with *ge-* and PPI – that is not attested – cannot be excluded by the account.

So far, I have given accounts of obligatory IPP (with modals) and of impossible IPP (with duratives in 3-verb clusters and in 2-verb clusters in general) for German. Before these accounts will be applied to the other West Germanic languages in chapter 9, I will deal with the verb order in German IPP-constructions in chapter 7, and with optionality of IPP in chapter 8.

6.8 Appendix: A reconstruction of the IPP-trigger in terms of harmonic alignment

Before I will deal with the exceptional verb order in German IPP-constructions I would like to reconsider the complex markedness subhierarchy given in (214) and see whether it can be derived by adopting prominence scales.

6.8.1 The scales

The complex *PastP/+Inf constraint subhierarchy may be seen as the (simplified) outcome of an underlying general mechanism that has already been introduced in chapter 5, namely the mechanism of harmonic alignment. This mechanism that systematically generates new constraints from underlying prominence scales has not only been applied to phonology but to syntax as well, see, e.g., Aissen (1999), Aissen (2001), and Artstein (1999). In this section, I will give a reconstruction of the markedness subhierarchy in terms of harmonic alignment. First, I repeat the definition of harmonic alignment given in (166):

- (267) Harmonic alignment:
 Suppose given a binary dimension D_1 with a scale $X > Y$ on its elements $\{X, Y\}$, and another dimension D_2 with a scale $a > b \dots > z$ on its elements. The *harmonic alignment* of D_1 and D_2 is the pair of Harmony scales:
 $H_X: X/a \succ X/b \succ \dots \succ X/z$
 $H_Y: Y/z \succ \dots \succ Y/b \succ Y/a$
 The *constraint alignment* is the pair of constraint hierarchies:
 $C_X: *X/z \gg \dots \gg *X/b \gg *X/a$
 $C_Y: *Y/a \gg *Y/b \gg \dots \gg *Y/z$

The question is now which (independently motivated) prominence scales are systematically combined with each other in order to form the complex constraint subhierarchy in (214). Elements that come to mind as parts of scales are, in the binary dimension, the following (not ordered yet):

- (268) Past Participle (PastP), bare infinitive (Inf)

Candidates for elements of the second scale are the verb classes of potential IPP-verbs repeated in (269):

- (269) control verbs, inchoatives, duratives, benefactives, perception verbs, modals, causatives

The goal is clear, namely to arrive at the markedness subhierarchy in (214). A first step in this direction is to derive constraint hierarchies from harmony scales which are derived from prominence scales themselves. The desired constraint hierarchies – according to the evidence from the IPP-constructions across languages – are given in (270):

- (270) Desired constraint hierarchies:
- a. C_{PastP} :
 $*PastP/causative \gg *PastP/modals \gg$
 $*PastP/perception\ verbs \gg *PastP/benefactives \gg$
 $*PastP/duratives \gg *PastP/inchoatives \gg$
 $*PastP/control\ verbs$
 - b. C_{Inf} :
 $*Inf/control\ verbs \gg$
 $*Inf/inchoatives \gg *Inf/duratives \gg$
 $*Inf/benefactives \gg *Inf/perception\ verbs \gg$
 $*Inf/modals \gg *Inf/causatives$

These constraint hierarchies imply on the one hand (C_{PastP}) that a causative or a modal as a past participle is worse than, e.g., a perception verb or a benefactive that in turn are worse than duratives, inchoatives, and so on. On the other hand

(C_{Inf}), a raising verb or a control verb in the bare infinitive are worse than, e.g., inchoatives which in turn are worse infinitives than modals and causatives. Both hierarchies are in accordance with the evidence suggested by IPP-constructions. To derive these hierarchies, combinations of different scales are technically possible. A first possibility makes use of the following scales:

- (271) Prominence scales (first possibility):
- a. past participle (PastP) > infinitive (Inf)
 - b. control verbs > inchoatives > duratives > benefactives > perception verbs > modals > causatives.

Under this assumption, the past participle is ‘more prominent’ than the bare infinitive which under this point of view functions as a general default verbal form and, e.g., control verbs are ‘more prominent’ than modals or causatives. This may be supported by saying that control verbs have more semantic content, i.e. more ‘meaning of their own’ than modals or causatives.

Harmonic alignment of these prominence scales results in a pair of harmony scales. The harmony scale of the past participle as given in (272-a) shows that the past participle of control verbs is more harmonic than the past participle of inchoatives which in turn is more harmonic than the past participle of duratives and so on to the least harmonic past participle of causatives. The harmony scale for the (bare) infinitive goes the other way round: The (bare) infinitive of causatives is most harmonic and the (bare) infinitive of control verbs is least harmonic. This is shown in (272):

- (272) Harmony scales
- a. H_{PastP} : PastP/control verbs \succ
 PastP/inchoatives \succ PastP/duratives \succ PastP/benefactives \succ
 PastP/perception verbs \succ PastP/modals \succ PastP/causatives
 - b. H_{Inf} : Inf/causative \succ Inf/modals \succ Inf/perception verbs \succ
 Inf/benefactives \succ Inf/duratives \succ Inf/inchoatives \succ
 Inf/control verbs

These harmony scales then result in the desired constraint hierarchies as given above in (270).

A second possibility that also leads to the constraint hierarchies in (270) makes use of the inverse prominence scales. These are given in (273):

- (273) Prominence scales (second possibility):
- a. infinitive (Inf) > past participle (PastP)
 - b. causatives > modals > perception verbs > benefactives > duratives > inchoatives > control verbs

Under this assumption, the bare infinitive is seen as more prominent than the past participle and causatives and modals are seen as more prominent than, e.g., control verbs. An exact definition of prominence is needed for these cases but the mere statement should suffice here to exemplify the theory. The harmonic alignment of these prominence scales results in the same pair of harmony scales as before in (272). They are repeated in (274):

- (274) Harmonic alignment
- a. H_{Inf} : Inf/causative \succ Inf/modals \succ Inf/perception verbs \succ
 Inf/benefactives \succ Inf/duratives \succ Inf/inchoatives \succ
 Inf/control verbs \succ Inf/‘main verbs’
 - b. H_{PastP} : PastP/‘main verbs’ \succ PastP/control verbs \succ
 PastP/inchoatives \succ PastP/duratives \succ PastP/benefactives \succ
 PastP/perception verbs \succ PastP/modals \succ PastP/causatives

Again, the desired constraint hierarchies can be obtained.¹¹³

Which scales mirror the real prominence relations should be determined on the basis of independent evidence. I will not decide between the different scales here – either one of the above solutions results in the markedness hierarchies in (270).

If the assumed prominence scales prove to be ‘real’ – i.e., if other effects of these prominence relations are visible somewhere else – deducing constraints via harmonic alignment will in fact be explanatorily more satisfactory than just a stipulated constraint subhierarchy.¹¹⁴ The constraint hierarchies in (270), however, are still only part of the complex constraint subhierarchy in (214) that was formulated as context sensitive. To include context sensitivity into the constraints so far derived by harmonic alignment another mechanism is needed. I will follow Aissen (1999), Aissen (2001), in using constraint conjunction to achieve the desired result.

6.8.2 Constraint conjunction

As we know from the IPP-data, it is not the case that a past participle of a certain verb class is ungrammatical in general – as suggested by the general formulation of the constraint hierarchies in (270). Even what I called obligatory IPP with, e.g., modals, only occurs in a certain context. The ban on this context is repeated from (207) in (275):

¹¹³Note that the harmonic alignment of the scales ‘causatives \succ modals \succ perception verbs \succ ... \succ causatives’ and ‘past participle (PastP) \succ infinitive (Inf)’ does not result in the desired constraint ranking.

¹¹⁴This is not to say, however, that constraints should be motivated extralinguistically in a functionalist way. For a whole debate on functionalism and OT compare, e.g., Haspelmath (2000) and the comments of several authors in the same volume of the *Zeitschrift für Sprachwissenschaft* as well as Newmeyer (2002b), Newmeyer (2002a) versus Aissen and Bresnan (2002).

- (275) *PastP/+Inf (*infinitival complement of a participle): A verb which is a past participle must not be a sister of a VP whose head is an infinitive.

I assume that this constraint is conjoined with the markedness subhierarchy concerning past participles via the mechanism of ‘local conjunction’ (Smolensky (1995), Smolensky (1997)). The relevant markedness subhierarchy is repeated in (276):¹¹⁵

- (276) C_{PastP}
 *PastP/causative \gg *PastP/modals \gg
 *PastP/perception verbs \gg *PastP/benefactives \gg
 *PastP/duratives \gg *PastP/inchoatives \gg
 *PastP/control verbs

Local conjunction is yet another mechanism to systematically derive constraints. It is ‘an operation in UG by which two constraints governing substructures of a given local domain are conjoined into a higher-ranked constraint’ (Smolensky 1995:2). The constraints that are locally conjoined are part of the universal set of constraints.¹¹⁶

A definition of local conjunction is given in (277), taken from Legendre et al., 1998:262:

- (277) Local conjunction:
 a. Given two constraints C_1 and C_2 , their local conjunction (w.r.t. a domain type D), $C_1 \&_D C_2$ is a new constraint which is violated when two distinct violations of C_1 and C_2 occur within a single domain of type D .
 b. Universal ranking: $C_1 \&_D C_2 \gg \{C_1, C_2\}$.

The local conjunction of the (past participle-) subhierarchy derived via harmonic alignment and the markedness constraint in (275) is given in (278). The relevant domain is the IP.

- (278) Local conjunction subhierarchy *PastP/+Inf $\&_{IP} C_{PastP}$:
 *PastP/+Inf $\&_{IP}$ *PastP/causatives \gg
 *PastP/+Inf $\&_{IP}$ *PastP/modals \gg
 *PastP/+Inf $\&_{IP}$ *PastP/perception verbs \gg
 *PastP/+Inf $\&_{IP}$ *PastP/benefactives \gg
 *PastP/+Inf $\&_{IP}$ *PastP/duratives \gg

¹¹⁵As the infinitive hierarchy does not play a role for the IPP-cases, I will ignore it in the following.

¹¹⁶Whether the conjoined constraints are universal too, i.e., the same in all languages or not is an open question. In the second case, only the parts of the conjoined constraints are assumed to be universal. The complex constraints may be derived language-specifically by the general (UG-) mechanism of Local Conjunction.

*PastP/+Inf &_{IP} *PastP/inchoatives >>
 *PastP/+Inf &_{IP} *PastP/control verbs

This constraint hierarchy derived by local conjunction has the same effects as the markedness subhierarchy in (214) above: It is worse for a causative which is a past participle to select an infinitival complement (i.e., a VP whose head is a bare infinitive) than for a modal for which in turn it is worse than for a perception verb and so on.

6.8.3 The interaction with morphological selection

To determine whether IPP is obligatory or impossible with a given verb class depends on where the constraint on morphological selection (MORPH) is inserted into the universal subhierarchy in (278). As before in (216), it is crucial that MORPH is ranked below the constraints that refer to verb classes which show obligatory IPP (causatives, modals)¹¹⁷ and above constraints that refer to verb classes which do not show IPP at all (duratives, inchoatives, control verbs).

(279) Partial constraint ranking for Standard German:
 *PastP/+Inf &_{IP} *PastP/causatives >>
 *PastP/+Inf &_{IP} *PastP/modals >> MORPH >>
 *PastP/+Inf &_{IP} *PastP/duratives >>
 *PastP/+Inf &_{IP} *PastP/inchoatives >>
 *PastP/+Inf &_{IP} *PastP/control verbs

With this constraint ranking in mind, the cases of obligatory and impossible IPP will be revisited in the next section.

6.8.4 Obligatory IPP revisited

As in section 6.6, I still concentrate on the form of the potential IPP-verbs and not on the verb order in the verbal cluster. For expository reasons, I only give the relevant candidates together with the relevant constraints out of the Local Conjunction subhierarchy. As I look at modals and duratives, this will be *PastP/+Inf &_{IP} *PastP/modals (MV) and *PastP/+Inf &_{IP} *PastP/duratives (DV) here.¹¹⁸ Also for expository reasons, I leave out the markedness constraints that predict the bare infinitive to be the last resort verbal form in these cases together with the ungrammatical PPI-type candidate. The more detailed tableaux containing these were given before in section 6.6.

¹¹⁷Again, I will ignore the ‘optional IPP-verbs’, i.e., perception verbs and benefactives. They will be discussed in some detail in the next chapter.

¹¹⁸I also leave out the other constraint hierarchies generated by harmonic alignment as they do not play a role here. Note, however, that the *PastP-hierarchy and the *Inf-hierarchy must be ranked below MORPH.

- (280) Obligatory IPP revisited:
- *Ich habe das Buch lesen gewollt
 - Ich habe das Buch lesen wollen
I have the book read wanted-PastP(a)/want-Inf(b)
- (281) *Ich habe das Buch ...*

	*PastP +Inf & IP *PastP/MV	MORPH	*PastP +Inf & IP *PastP/DV
a.* [[lesen $_{Inf}$] gewollt $_{PastP}$]	*!		
☞ b. [[lesen $_{Inf}$] wollen $_{Inf}$]		*	
c.* [[gelesen $_{PastP}$] wollen $_{Inf}$]		**!	

As expected, the IPP-candidate (b) is optimal.

6.8.5 Impossible IPP revisited

First, a tableau for a 3-verb cluster with V_2 a durative is given. As expected, candidate (a), that obeys MORPH, is grammatical.

- (282) Impossible IPP with duratives revisited:
- Die Leute sind stehen geblieben
 - *Die Leute sind stehen bleiben
The people are stand remained-PastP(a)/remain-Inf(b)
- (283) *Die Leute sind ...*

	*PastP +Inf & IP *PastP/MV	MORPH	*PastP +Inf & IP *PastP/DV
☞ a. [[stehen $_{Inf}$] geblieben $_{PastP}$]			*
b.* [[stehen $_{Inf}$] bleiben $_{Inf}$]		*!	
c.* [[gestanden $_{PastP}$] bleiben $_{Inf}$]		*!*	*

The next tableau shows a 2-verb cluster with V_2 as a modal. Again as expected, candidate (a) with the past participle is optimal, this time because it does not violate MORPH, the highest ranking constraint at which the candidates differ.¹¹⁹

¹¹⁹Naturally, it is not the case that the optimal candidate (b) does not violate any constraint at all. It is only that these constraints (like *ge-) are ranked below MORPH and excluded in the tableau.

- (284) 2-verb clusters revisited:
- a. *... , dass sie es so wollen hat
 - b. ... , dass sie es so gewollt hat
 ... , that she it so *want(a)/wanted(b) has

	*PastP +Inf & _{IP} *PastP/MV	MORPH	*PastP +Inf & _{IP} *PastP/DV
a. * wollen _{Inf} hat		*!	
☞ b. gewollt _{Inf} hat			

One issue that may arise with respect to harmonic alignment is that not all constraint hierarchies that are generated also seem to be active. In the IPP-case for example, only the local conjunction subhierarchy *PastP/+Inf &_{IP} C_{PastP} is needed – the other hierarchies (*PastP/+Inf &_{IP} Inf, C_{Inf}, and C_{PastP}) were not relevant so far. The question is then if both (or at least one of them) can be shown to be active somewhere?¹²⁰

6.8.6 A note on Swabian

In this section I will show a case where at least C_{PastP} is presumably active indeed.

In Swabian, IPP occurs in 3-verb clusters as in Standard German. Different from Standard German, however, is that modals do not even occur as past participles in 2-verb clusters. Instead, the bare infinitive appears (see, e.g., Ammon and Loewer (1977), i.e. Swabian does not only show obligatory IPP (with modals) in an IPP-context but even when there is no verbal complement of the modal at all, see the example in (285).¹²¹ This is not the case with other verbs as demonstrated for a perception verb in (286).¹²²

- (285) a. ... , des sie des het *welle*
 ... , that she that has want-Inf
 b. *... , des sie des *gwellt* het
 ... , that she that wanted-PastP has

¹²⁰One could indeed use both hierarchies to account for the fact that the bare infinitive occurs in IPP-constructions and the past participle occurs in PPI-constructions. In the IPP-case, all constraints of C_{PastP} would outrank all constraints of C_{Inf} and in the PPI-case the other way round. As this solution cannot account for the correlation of *ge-* and IPP, however, I will not follow this path here any further.

¹²¹This is not only the case in Swabian, however, but also in Bavarian (see Plank 2000:26), and Southern German dialects in general (see Meurers 2000:69).

¹²²The different verb forms are given with their respective verb order: The bare infinitive follows the perfective auxiliary and the past participle precedes it. As I concentrate on the verb form in this section, I ignore these differences here. For an account of the verb order see chapter 7.

- (286) a. *... , des sie des het *here*
 ... , that she that has hear-Inf
 b. ... , des sie des *ghert* het
 ... , that she that heard-PastP has

Examples like these were problematic so far. With only the context sensitive constraint subhierarchy at hand, modals were predicted to occur only in the past participle in cases like (285). The tableau in (287) gives the two relevant candidates. It is shown that the grammatical candidate (a) with the modal as a bare infinitive is harmonically bounded by the ungrammatical candidate (b) with the modal in the past participle: candidate (a) crucially violates MORPH.

- (287) The wrong result:
 ... , *des sie des*

	*PastP +Inf & _{IP} *PastP/MV	MORPH
a. het welle _{Inf}		*!
 b.* gwellt _{PastP} het		

In cases like these, the (non-conjoined) constraint subhierarchy C_{PastP} becomes relevant. The ranking of the constraints that are sensitive to modals and perception verbs (*PastP/MV and *PastP/PV) with respect to MORPH is given in (288). It is crucial that *PastP/MV is ranked above MORPH and *PastP/PV is ranked below MORPH in Swabian (as opposed to Standard German where both constraints are ranked below MORPH).¹²³

- (288) Ranking for Swabian:
 { *PastP/+Inf &_{IP} *PastP/MV, *PastP/MV } \gg MORPH
 \gg *PastP/PV

The effects of this ranking are shown in (289), for modals in the upper part of the tableau and for perception verbs in the lower part. I concentrate on the relevant constraints out of the *PastP-subhierarchy and on MORPH and leave out the respective constraints of the conjoined constraint subhierarchy as they are not active in 2-verb clusters (as already shown in (287) for modals).

¹²³Note that all other constraints of the *PastP-subhierarchy must be ranked below MORPH as well. For expository reasons I focus on perception verbs.

(289) The right result
 ..., *des sie des*

		*PastP/MV	MORPH	*PastP/PV
☞	a. het welle _{Inf}		*	
	b. * gwellt _{PastP} het	*!		
	a'. * het here _{Inf}		*!	*
☞	b'. ghert _{PastP} het			*

The ranking of *PastP/MV and *PastP/PV with respect to MORPH accounts for the grammaticality of the bare infinitive of modals, candidate (a),¹²⁴ and the grammaticality of the past participle of perception verbs, candidate (b').

6.8.7 Summary

As shown in this section, it is indeed possible to derive the *PastP/+Inf-SUB-HIERARCHY by the mechanism of harmonic alignment in combination with the mechanism of local conjunction. If there are independent motivations for universal scales of verb classes and the binary scale of verb forms – and at least it looks promising given the IPP-data – the mechanism of harmonic alignment allows for a systematic creation of constraints that stand in a fixed order to each other. Implicational generalisations (see, e.g., the verb classes that allow for IPP) can be expressed via harmonic alignment in a transparent and explicite way.

Harmonic alignment as such always results in two hierarchies. For the IPP-examples at hand, however, even more hierarchies arise by local conjunction. On the one hand, more constraint hierarchies allow for a higher flexibility (see, e.g., the account of Swabian 2-verb clusters). On the other hand, it is not immediately clear that each hierarchy has different effects from all other hierarchies (see, e.g., C_{Inf}). Nevertheless, I conclude that harmonic alignment provides a useful mechanism to deduce implicational generalisations in OT. For the IPP-case at hand, however, simple harmonic alignment alone is not enough: Constraint conjunction is needed additionally to get a constraint hierarchy that has the same effect as the markedness subhierarchy. As said before, harmonic alignment is a way (i) to deduce the markedness subhierarchy (in combination with local conjunction) and to make it thereby more transparent, and (ii) a mechanism to systematically generate new constraints. That proved to be useful, e.g., in the case of Swabian.

As I am only concerned with Standard German here, however, and as the results are the same otherwise, I will keep the simpler markedness subhierarchy ‘*PastP-Inf’ in the following chapters and end the appendix here.

¹²⁴Note that the past participle is still possible in attributive use: *a gwellts Kend* ‘a wanted child’. I assume, however, that the properties are different here anyway.

7 A case study of German II: The verb order

In this chapter, I will look at the verb order in German IPP-constructions in some more detail, and compare it to the verb order in constructions without IPP. Remember that I focus on 3-verb clusters throughout the whole dissertation. In this chapter, I primarily discuss two verb orders that are predominant in Standard German 3-verb clusters: order 321 and order 132.¹²⁵

As already mentioned before and shown in chapter 3, not only the verb form is unexpected in IPP-constructions but also the verb order that differs from the corresponding ‘expected’ construction with past participle, at least in some languages, among them Standard German. It shows a clear correlation between the (non-) occurrence of the IPP and the verb order: A 3-verb cluster with V₂ as a past participle always shows the descending order 321, and a verb cluster including an IPP-construction always shows the order 132.¹²⁶ This is illustrated in (290) (repeated from (177) and (174) above) for a 3-verb cluster without IPP (impossible IPP with duratives) and in (291) for a verb cluster with IPP (obligatory IPP with modals):

(290) No IPP (Past participle): 321

- a. 321: ..., dass sie liegen₃ geblieben₂ ist₁
..., that she lie remained-PastP is
- b. 132:* ..., dass sie ist₁ liegen₃ bleiben₂
..., that she is lie remain-Inf

(291) IPP: 132

- a. 321:* ..., dass ich das immer machen₃ gewollt₂ habe₁
..., that I that always do wanted-PastP have
- b. 132: ..., dass ich das immer habe₁ machen₃ wollen₂
..., that I that always have do want-Inf

The fact that the descending verb order 321 and not the ‘IPP-order’ 132 is predominant in Standard German is shown with different 3-verb constructions below. In (292) a 3-verb cluster in the future tense is given (V₃ is a bare infinitive, V₂ a durative¹²⁷, and V₁ the future auxiliary *werden* ‘will’), and in (293) a modal

¹²⁵As discussed in chapter 3, also order 213 is possible in Standard German. This verb order occurs only with a restricted class and form of verbs, however, (inchoatives and control verbs in the past participle). As order 213 is often argued to be an instance of extraposition and behaves differently from ‘pure verb cluster constructions’ (see, e.g., Rutten (1991), Robbers (1997), Wurmbrand (2001)) it will be put aside here. I will come back to pattern 213 in chapter 9.

¹²⁶Note that this is only true for Standard German (that I concentrate on here). It is different in (e.g., Austrian) dialects of German in which the order 321 also appears in IPP-constructions, see, e.g., Wurmbrand 1998:321.

¹²⁷It is crucial that V₂ is not, e.g., a modal or a perception verb. With one of these verb classes the order 132 would be possible as well. I will come back to the importance of the verb

construction (with V_3 a past participle, V_2 the perfect auxiliary *haben* ‘have’, and V_1 a modal).

(292) Future tense:

- a. 321: ... , dass die Leute stehen₃ bleiben₂ werden₁
 ... , that the people stand remain will
- b. 132:* ... , dass die Leute werden₁ stehen₃ bleiben₂
 ... , that the people will stand remain
 both: ‘that the people will remain standing’

(293) Modal construction:

- a. 321: ... , dass Maria den Brief geschrieben₃ haben₂ will₁, bevor ...
 ... , that Maria the letter written-PastP have-Inf will, before ...
- b. 132:* ... , dass Maria den Brief will₁ geschrieben₃ haben₂, bevor ...
 ... , that Maria the letter will written-PastP have-Inf, before ...
 both: ‘that Maria will have written the letter before ...’

In 2-verb clusters the descending verb order is obligatory in all constructions. This is shown in (294) for the perfect tense (PastP₂ – Aux₁) and in (295) for the future tense (Inf₂ – Aux₁):

(294) 2-verb clusters, perfect tense:

- a. ... , dass Maria das Buch gelesen₂ hat₁
- b. *... , dass Maria das Buch hat₁ gelesen₂
 ... , that Maria the book has read-PastP
 both: ‘that Maria has read the book’

(295) 2-verb clusters, future tense:

- a. ... , dass Maria das Buch lesen₂ will₁
- b. *... , dass Maria das Buch will₁ lesen₂
 ... , that Maria the book will read-Inf
 both: ‘that Maria will read the book’

The examples above are summarised in the table in (296). The table shows the predominant verb orders for the given constructions. It becomes clear that the predominant, i.e., the default verb order in Standard German is strictly descending:¹²⁸

class of V_2 later in this chapter. Note, however, that the most common order, i.e, the default order in 3-verb clusters in the future tense is still 321.

¹²⁸The table slightly simplifies the facts as it does not include the different verb classes of V_2 although they are relevant for the verb order 3-verb clusters in the future tense. I will come back to this at the end of this chapter.

(296) Summary of the verb orders in 2- and 3-verb clusters:

	2-verb cluster	3-verb cluster
Perfect tense: Inf-IPP-Fin _{Aux}	–	132
Perfect tense: (Inf-)PastP-Fin _{Aux}	21	321
Future tense: (Inf-)Inf-Fin _{Aux}	21	321
Modal construction: (PastP)-Inf-Fin _{MV}	21	321

It is standardly assumed that German is an OV-language (see Bach (1962), Bierwisch (1963), and more recently Haider (1993), Haider (2000) among many others).¹²⁹ Under this assumption the verb order one would expect to be least marked is the strictly descending order (3)21.

The fact that the complement of a verb precedes the head itself in German in general can be seen in embedded clauses. Some more examples for the order ‘complement before verbal head’ are listed in (297) for different types of complements:

- (297) a. NP-compl.: ..., dass Gunnar [[isländische Zeitungen]_{NP} liest]
 ..., that Gunnar Icelandic newspapers reads
 b. PP-compl.: ..., dass Peter [[auf Knottel]_{PP} wartet]
 ..., that Peter for Knottel waits

The examples show that the default order for verbal heads and their complements is complement before head in German, independent of the category of the complement. A first approximation of a constraint that demands such an order is given in (298) (for similar proposals see Grimshaw (1997), Grimshaw (1998), Grimshaw (2001), Schmid (2001)):

- (298) HD-RT (head right):
 The base position of a head is immediately to the right of its complement.

We have already seen in chapter 3 that the default orders of other languages are the reverse: In, e.g., Bernese German and in Dutch the default verb orders (in 3-verb clusters) are strictly ascending, i.e., 123, even in IPP constructions.¹³⁰ Some Bernese German examples with both V_2 as a past participle and as IPP are repeated from chapter 3 in (299):

¹²⁹Against, e.g., Hinterhölzl (1999), Zwart (1997). Note also that the question whether a language is an OV-language or an VO-language is not easily answered in an OT-system. It depends on the ranking of constraints, whether a strict OV-system, a strict VO-system or a system with ‘mixed’ properties is derived.

¹³⁰Remember that we get more possible verb orders in Dutch when the most deeply embedded verb is a past participle, however.

(299) Bernese German: 123:

- a. PastP: ..., das er se het₁ ghöört₂ rüeffe₃
..., that he her call heard-PastP has
- b. IPP: ..., das er se het₁ ghöre₂ rüeffe₃
..., that he her has hear-Inf call

Given these examples, and under the assumption that the orders are not derived via movement operations, a constraint like HD-RT is clearly not the only constraint on linear order in UG. The counterpart of HD-RT is given in (300):

(300) HD-LFT (head left):

The base position of a head is immediately to the left of its complement.

The constraints HD-RT and HD-LFT in (298) and in (300) can be seen as implementations of the head parameter. Depending on the ranking of the two constraints the order is either head final or head initial.

Let us now take a closer look at the constraints as they are formulated here: On the one hand, they make use of notions like head and complement that refer to semantic and structural relations between elements. On the other hand, they make use of notions like left and right that refer to a linear order of elements. To make the connection between fixed structural relations and linear order more explicit I will follow a proposal by Schmid and Vogel (2002) (see also Vogel (2002)) where a mapping relation between different levels of representation is assumed that is regulated by violable constraints. The leading question will then be: Which linear order encodes the semantic and structural relations best? In Schmid and Vogel (2002) we call the level of abstract syntactic structure LF. This might be a bit misleading because we do not have in mind the structural level that is specifically designed to be an input to the semantic component of the grammar but rather a level where invariant embedding relations are represented. I will keep the term LF as opposed to the PF-level of linear order as a convenient abbreviation to facilitate presentation.

The constraints that replace HD-RT and HD-LFT in the following are given in (301) and (302), see also Vogel (2002):

(301) **MAP(complement before head)** (MAPch):

If A and B are sister nodes at LF, and A is a head and B is a complement, then the correspondent of B precedes the one of A at PF.¹³¹

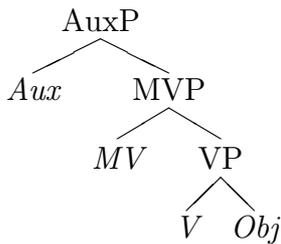
¹³¹It may well be the case that the constraint MAPch is sensitive to the category of the head (i.e., verb, noun, adjective) or to features like [+V] (shared by verbs and adjectives, see, e.g., Chomsky 1981:48) as it is clearly not true that all complements precede their heads in German, see, e.g. the NP [die Zerstörung [der Stadt]] ‘the destruction of the city’ where the complement [der Stadt] follows the head *Zerstörung* (see, e.g., Haider 1993:34, Vikner 2001:144f). A further refinement of the constraint along these lines is not necessary for the restricted data set dealt

(302) **MAP(head before complement)** (MAPhc):

If A and B are sister nodes at LF, and A is a head and B is a complement, then the correspondent of A precedes the one of B at PF.

Let us now have a look at the different levels and see what they look like. The structure of a typical IPP-configuration in which a (perfect tense) auxiliary (Aux) embeds a modal (MV) that in turn embeds a (lexical) verb (V) is shown in (303). Note that this already gives the right scope relations between the verbs:

(303)



What we observe in the domain of verb clusters is that the same structural relations between verbs may be represented by different linear orders. The relations in (303) are e.g. represented by the linear order Aux-Mod-V (123) in Bernese German and Dutch, and by the linear order Aux-V-MV (132) in Standard German to name only a few examples. In chapter 3 we have seen that all six logically possible linearisations of 3-verbs in an IPP-construction indeed occur in the languages discussed. Even order 213 that is often claimed to be impossible when V_2 is a bare infinitive and not a past participle was found grammatical in some cases.

At the level of linear order (PF) we therefore get the following possibilities for a 3-verb cluster as (303):¹³²

- (304)
- a. V-MV-Aux: 321
 - b. MV-V-Aux: 231
 - c. Aux-MV-V: 123
 - d. Aux-V-MV: 132
 - e. V-Aux-MV: 312
 - f. MV-Aux-V: 213

with here. I will therefore leave the constraint as it stands. Later on, however, a constraint will be introduced that explicitly refers to past participle complements. These have a strong tendency to precede their selecting head in West Germanic languages.

¹³²Note that the position of the object, i.e., a potential complement of the most deeply embedded verb is left out in the following as I only concentrate on the order of the verbs here. Languages differ according to which degree they allow non-verbal elements inside the verb cluster. In Standard German the most common position is to the left of the whole verb cluster, however.

The structure in (303) is now mapped to the level of linear order whereby the mapping is regulated by violable constraints like MAPch and MAPhc. The huge variation of verb orders in 3-verb cluster seems to favour a PF-oriented account as suggested here (see also Haegeman and van Riemsdijk (1986), Wurmbrand (2000)) over purely structural accounts (as, e.g., Zwart (1996), Koopman and Szabolcsi (2000)). In these accounts a number of (strictly mechanical) movement operations must be assumed that are often complicated (because not uniformly in one direction) and hard to restrict (see Wurmbrand (2002) for a good overview). It is not relevant whether the underlying structure is head final or head initial, and whether head movement or XP movement or both is made use of. In the PF-oriented account advocated here, movement operations are replaced by an evaluation of the ‘best match’ between an abstract syntactic constituent structure and its (logically possible) linearisations. For reasons of presentation I will assume that the input for the OT-competition is the abstract syntactic structure that reflects the scope relations between the verbs (LF), and that the candidates are PF-representations, i.e. linearisations of terminal elements of syntactic structures.¹³³

In (305) it is shown for an abstract 3-verb cluster that the candidate with the purely descending verb order (321, (a)) is optimal when the constraint MAPch is decisive, i.e., under the order MAPch \gg MAPhc as assumed for, e.g., German:

(305)

[1[2[3]]]		MAPch	MAPhc
a.	321		**
b.	231	*!	*
c.	123	*!*	
d.	132	*!	*
e.	312	*!	**
f.	213	*!*	*

Under the opposite constraint order the candidate with the purely descending order (123, (c)) would be optimal.

Having established the default verb order in (Standard) German verb clusters I will now deal with the verb order in IPP-constructions like (291) again, compare them with constructions of strictly descending verb order, and see what might be responsible for the differences.

¹³³Note, however, that under this assumption the input is already structured. Then the question arises where this structure comes from. Given that GEN (the part of the grammar that normally assigns structure to an input) applies later on, another component of the grammar must be assumed that even applies before GEN. It could, however, also well be the case that the candidates are LF-PF pairs freely generated by GEN. All information on semantic relations may be read off the candidates, i.e., the outputs directly. Such a view would be in line with the assumption that the notion of an explicit input is superfluous in syntax (see Heck et al. 2002).

Several parameters have an influence on the verb order. To facilitate the comparison (and in order to extract the relevant factors), the differences between the constructions with strictly descending verb order and the IPP-constructions will be kept as minimal as possible. I start by comparing two constructions in the perfect tense with a cluster of three verbs each, only differing in whether V_2 is a bare infinitive (IPP-construction) or a past participle. As the connection between construction type and verb order becomes most obvious with optional IPP, an example of optional IPP with perception verbs is given in (306) (with V_2 a past participle), and in (307) (with V_2 a bare infinitive) although optional IPP will be looked at in detail not before chapter 8.

- (306) V_2 : Past participle
- a. 321: ... , dass sie ihn singen gehört hat
 ... , that she him sing heard-PastP has
 - b. 132:* ... , dass sie ihn hat singen gehört
 ... , that she him has sing heard-PastP
 both: 'that she has heard him sing'
- (307) V_2 : IPP
- a. 321:* ... , dass sie ihn singen hören hat
 ... , that she him sing hear-Inf has
 - b. 132: ... , dass sie ihn hat singen hören
 ... , that she him sing has sing hear-Inf
 both: 'that she has heard him sing'

We see that only the descending verb order 321 is grammatical when V_2 is a past participle as in (306). The past participle is expected because it is selected by the finite auxiliary *hat* 'has'. This means that the constraint on morphological selection MORPH that was crucially violated in the account of the IPP-form is not violated here.

Looking at the IPP-data now in (307) and leaving the verb order aside for the moment, we see that the only difference compared to the data in (306) is, not surprisingly, the form of the IPP-verb that appears as a bare infinitive instead of as a past participle. This naturally means that MORPH is violated here.

The fact that the verb order patterns are connected to the construction type and to the (morphological) form of the verbs has already been shown in chapter 3 for all languages under consideration. In (Standard) German this connection is especially striking, however: In IPP-constructions the finite auxiliary *hat* 'has' obligatorily precedes the infinitives. The 'expected' 321 order is not grammatical as schematically shown in (308):

- (308) *Inf – IPP – Finite Auxiliary

The connection between the verb order in IPP-constructions and the IPP-form

is often stated in the IPP-literature, at least for German (see, e.g. Den Besten and Edmondson 1983:171). I will include this connection into the account by linking constraints on morphological selection and verb order that are already introduced.¹³⁴

The generalisation deduced by the data is the following: The descending verb order pattern 321 is ungrammatical when V_2 is an IPP-form. More generally, purely descending verb order is excluded in a verb cluster if morphological selection is violated in the same domain. This is expressed by a conjoined constraint that partly refers to verb form (MORPH) and partly to verb order (MAPhc) as shown in (309):

- (309) MAPhc &_D MORPH: MAPhc and MORPH may not be violated in the same domain D. MAPhc &_D MORPH is violated iff MAPhc is violated \wedge MORPH is violated inside the same domain.¹³⁵

The domain D is here defined as a verbal head and its complement.¹³⁶

Remember that ‘local conjunction’ is a recursive mechanism that could in principle lead to an infinite number of constraints, which I do not consider desirable. For my purposes here, however, it would suffice to see (309) as one complex universal constraint. The reason why I have formulated it as a conjunction of two simplex constraints rather than one complex constraint is that it becomes more transparent this way.

The ranking of the verb order constraints that applies in German is given in (310):

- (310) MAPhc &_D MORPH \gg MAPch \gg MAPhc

The tableau in (311) shows how the order 312 in IPP-constructions is achieved

¹³⁴Note that I do not claim a direct causal relation between the IPP-effect and verb clustering in the sense of ‘IPP iff reordering of verbs in a verb cluster’ (see, e.g., den Dikken (1989)). Such a relation would be too strict. There are cases of IPP without visible verb cluster formation. For example Dutch is always head initial (i.e., no reordering applies) in IPP-constructions as shown in chapter 3. On the other hand, there are cases of verb cluster formation without IPP. German 3-verb clusters in future tense with V_2 a modal show order 132, i.e., visible verb cluster formation without IPP. See also IJbema (1997) and Wurmbrand (2002) for a critical discussion of a causal relation. Although an OT-system of general but violable constraints is restricted enough to state a connection between IPP-form and verb order, a direct causal relation is rejected nevertheless.

¹³⁵ $C_1 \&_D C_2$ is equivalent to a logical disjunction ($C_1 \vee C_2$ in a given domain D) which is to be read as: $C_1 \vee C_2$ is not violated iff C_1 is not violated $\vee C_2$ is not violated in D.

¹³⁶Apart from the question, which elements the domain includes, another question may be asked as well, namely at which level the domain is located (LF, PF, ...). To decide whether the mapping constraint MAPhc is violated, both LF and PF must be taken into account. In the way MORPH has been formulated here, its violations may be read off at either level. Note, however, that MORPH can be formulated as a mapping constraint as well: Abstract features like [+PastP] that are present at the level of abstract syntax (LF) must have a morphologically realised counterpart at PF.

by the constraints introduced so far. I will only look at candidates with the grammatical (IPP-)form here to allow a better concentration on verb order. All candidates with V_2 as a past participle are excluded by the constraints on verb form that were introduced in chapter 6:

- (311) 312 order with IPP (V_2 a modal):
 ..., *dass ich das immer* ‘that I that always ...’ – do₃ want₂ have₁

	MAPhc & _D MORPH	MAPch	MAPhc
a. * 321: machen wollen habe	*!		**
b. * 231: wollen machen habe	*!	*	*
c. * 123: habe wollen machen		**!	
☞ d. 132: habe machen wollen		*	*
e. * 312: machen habe wollen	*!	*	**
f. * 213: wollen habe machen		**!	*

The candidates 123 (c), 132 (d), and 213 (f) pass the conjoint constraint. The decision in favour of candidate 132 (d) is then made by MAPch.

In the next tableau in (312) it is shown that candidate (a) with the purely descending order 321 is optimal when V_2 appears as a past participle (and V_3 as a bare infinitive). In this case the conjoined constraint is never violated because MORPH is not violated in any of the candidates. The decision which candidate is optimal is therefore made by MAPch. Again all constraints on verb form are left out here to facilitate the concentration on the verb order. This time, however, only candidates with V_2 as a past participle are shown:

- (312) 312 order with past participle (V_2 a durative):
 ..., *dass die Leute* ‘that the people ...’ – stand₃ remained-PastP₂ are₁

	MAPhc & _D MORPH	MAPch	MAPhc
☞ a. 321: stehen geblieben sind			**
b. * 231: geblieben stehen sind		*!	*
c. * 123: sind geblieben stehen		*!*	
d. * 132: sind stehen geblieben		*!	*
e. * 312: stehen sind geblieben		*!	**
f. * 213: geblieben sind stehen		*!*	*

So far, the 312-order in IPP-constructions as well as the 321-order in the perfect tense with V_2 as a past participle have been accounted for. We have seen that the form of V_2 (IPP versus expected past participle in the perfect tense) plays a role in determining the verb order. There are more factors that influence verb order, however. One of these factors is the verb class of the highest verb

V₁ (see also Behagel 1932:110f, Den Besten and Edmondson 1983:179). If V₁ is the auxiliary verb *haben* that embeds an IPP-complement then it obligatorily appears at the left side of the cluster as repeated in (313):

- (313) LV – MV(IPP) – AUX (perfect tense):
- a. 321:* lesen können hat
 - b. 231:* können lesen hat
 - c. 123:* hat können lesen
 - d. 132: hat lesen können
 - e. 312:* lesen hat können
 - f. 213:* können hat lesen
can-Inf has read
- all: ‘has been able to read’

If the finite verb is the future tense auxiliary *werden* ‘will’, however, then it optionally appears at the left edge of the verb cluster. The future tense auxiliary preferably appears at the left when it governs a modal verb as shown in (314).¹³⁷

- (314) LV – MV(IPP) – AUX (future tense):
- a. 321:? lesen können wird
 - b. 231:* können lesen wird
 - c. 123:* wird können lesen
 - d. 132: wird lesen können
 - e. 312:* lesen wird können
 - f. 213:* können wird lesen
can will read
- all: ‘will be able to read’

The verb order 132 is also (optionally) possible when V₁ is a modal verb. This is shown in (315) for the modal verb *will* ‘want’:

- (315) LV – MV – MV
- a. 321: lesen können will
 - b. 231:* können lesen will
 - c. 123:* will können lesen
 - d. 132:? will lesen können
 - e. 312:* lesen will können
 - f. 213:* können will lesen
can wants-to read
- all: ‘wants to be able to read’

Whereas inversion of the future tense auxiliary is grammatical for speakers of

¹³⁷See also Behagel 1932:110f and Den Besten and Edmondson 1983:179 who state that there is no inversion when the governed verb is not a modal. That this is not quite true is shown at the end of this chapter, however, where an example for inversion is given where the governed verb is a perception verb.

Standard German, judgements differ for modals. Different modals are judged differently. Inversion of the finite *will* ‘want’ as in (315), however, is often judged as possible in colloquial German, see also Meier 1994:6.

To sum up: Order 132 does not only appear in IPP-constructions but also in the future tense and in modal constructions. The process that demands V_1 at the left edge of the verb cluster is of a ‘gradient nature’ (see Den Besten and Edmondson 1983:180, 207; Askedal 1991:5). The data suggest that the ‘amount of functionality’ that a verb shows is important here. The more functional features a verb has, i.e., the more ‘auxiliary-like’ it is, the more it prefers to appear at the lefthand edge of a verb cluster. The perfect tense auxiliary *haben* ‘have’ obligatorily precedes the other verbs (when V_2 is a bare infinitive, i.e., in IPP-constructions). Precedence is optional, however, for the future tense auxiliary *werden* ‘will’ and for (some) modals.

In the following, I will introduce constraints that refer to this gradient nature, and that can capture the data in (313) to (315). They even eventually make superfluous the quite language specific conjoined constraint in (309).

A constraint that maps syntactic constituent structure to linear order with special respect to functional verbs (or verbs with functional features) is given in (316), see also Vogel (2002):

(316) $\text{MAPIr}(V_{func}^0)$:

If A is a functional verb (or a verb containing functional features) that asymmetrically c-commands at LF another verb B that belongs to the same extended projection, then the correspondent of A precedes that of B at PF.

Remember from the examples in (313) to (315) that different V_1 show different behaviour with respect to the verb order, and that this was attributed to how ‘functional’ they are. A modal shows fewer functional properties, i.e., it behaves more like a lexical verb than both perfect tense and future tense auxiliaries. Instead of lexical meaning, auxiliaries primarily add grammatical information to a verb cluster.

To include the different ‘functionality’ of the verbs into the account two possibilities arise. Either we assume that it is a lexical property which verbs count as ‘functional’ in a given language – and to which degree – or we assume a hierarchy of ‘functionality’ that is implemented as a fixed subhierarchy of constraints in the grammar. Such a hierarchy of (decreasing) functionality is given in (317):

(317) Fixed hierarchy of ‘decreasing functionality’, ‘ \succ ’ here means ‘more functional than’:
 perfect tense auxiliary (e.g., *have*) \succ future tense auxiliary (e.g., *will*) \succ
 modals \succ (all potential IPP-verbs)¹³⁸

¹³⁸ Although the grouping is sufficient to account for the Standard German examples, it may well be the case that a finer grained distinction is necessary in general, like ordering the perfect

For reasons of presentation the more explicit method is chosen here that attributes the different behaviour of the verbs to different constraints. Three constraints out of the $\text{MAPlr}(V_{func})$ -subhierarchy are given below:

- (318) $\text{MAPlr}(V_{have})$:
 If A is a perfect tense auxiliary (e.g., *have*) that asymmetrically c-commands at LF another verb B that belongs to the same extended projection, then the correspondent of A precedes that of B at PF.
- (319) $\text{MAPlr}(V_{will})$:
 If A is a future tense auxiliary (e.g., *will*) that asymmetrically c-commands at LF another verb B that belongs to the same extended projection, then the correspondent of A precedes that of B at PF.
- (320) $\text{MAPlr}(V_{modal})$:
 If A is a modal verb that asymmetrically c-commands at LF another verb B that belongs to the same extended projection, then the correspondent of A precedes that of B at PF.

The constraints of the $\text{MAPlr}(V_{func})$ -subhierarchy stand in a fixed order towards each other that is given in (321). Note that the fixed hierarchy predicts that there is no language in which, e.g., modals appear at the left side of a verb cluster but an auxiliary like *have* does not.

$$(321) \quad \text{MAPlr}(V_{have}) \gg \text{MAPlr}(V_{will}) \gg \text{MAPlr}(V_{modal})$$

The constraints $\text{MAPlr}(V_{have})$ and $\text{MAPlr}(V_{will})$ will be exemplified below. I will leave out the constraint on modals, $\text{MAPlr}(V_{modal})$, in the following as the data judgements are not as clearcut as for the auxiliaries. For speakers that allow optional inversion of modals, $\text{MAPlr}(V_{modal})$ behaves just like $\text{MAPlr}(V_{will})$. For speakers that only judge the descending 321 order as grammatical with V_1 a modal, the constraint $\text{MAPlr}(V_{modal})$ is ranked below MAPch .

The table in (322) shows a competition which is connected to the data in (313). In the optimal candidate, the auxiliary *have* precedes the other verbs. Only candidate 123, (c), and 132, (d), obey the highly ranked constraint $\text{MAPlr}(V_{have})$. The decision between these two is then made by MAPch . Only the constraints that refer to verb order are considered here. It is assumed that the optimal IPP-form has already been evaluated independently. Note that only the specialised version of $\text{MAPlr}(V_{func}^0)$ is given that is relevant for the data.

tense auxiliary *have* above the perfect tense auxiliary *be*, or putting the modals in an order. I will not propose an exhaustive ranking here. To give a finer grained distinction, more data need to be taken into consideration.

- (322) 312 order with IPP (V_2 a modal):
 ..., *dass sie das Buch ...* ‘that she the book ...’ – read₃ can₂ has₁

	MAPlr(V_{have})	MAPch	MAPhc
a. * 321: lesen können hat	*!*		**
b. * 231: können lesen hat	*!*	*	*
c. * 123: hat können lesen		**!	
☞ d. 132: hat lesen können		*	*
e. * 312: lesen hat können	*!	*	**
f. * 213: können hat lesen	*!	**	*

To account for the optional placement of the future auxiliary *werden* that either precedes the other verbs or follows them I anticipate the concept of ‘global ties’ that will be introduced in detail in the next chapter. When two constraints X and Y are globally tied ($X \langle \rangle Y$) then they do not stand in a fixed ranking towards each other. Instead two orders are possible, i.e., we get two different grammars. In one grammar constraint X outranks constraint Y, and in the other grammar constraint Y outranks constraint X. In the case at hand, the two constraints that are globally tied are MAPlr(V_{will}) and MAPch. The underspecified ranking of the verb order constraints including the global tie is given in (323):

- (323) MAPlr(V_{have}) \gg MAPlr(V_{will}) $\langle \rangle$ MAPch \gg MAPhc

In the two following tableaux the underspecified global tie is resolved. We get two competitions with different winners.

- (324) First competition: MAPlr(V_{will}) \gg MAPch

- (325) 312 order:
 ..., *dass sie das Buch* ‘that she the book’ – read₃ can₂ will₁

	MAPlr(V_{will})	MAPch	MAPhc
a. 321: lesen können wird	*!*		**
b. * 231: können lesen wird	*!*	*	*
c. * 123: wird können lesen		**!	
☞ d. 132: wird lesen können		*	*
e. * 312: lesen wird können	*!	*	**
f. * 213: können wird lesen	*!	**	*

Under the ranking ‘MAPlr(V_{will}) \gg MAPch’ candidate 132 (d) is optimal just as in tableau (322) above.

- (326) Second competition: MAPch \gg MAPlr(V_{will})

(327) 321 order: ..., *dass sie das Buch* ‘that she the book’

	MAPch	MAPlr(V_{will})	MAPhc
☞ a. 321: lesen können wird		**	**
b. * 231: können lesen wird	*!	**	*
c. * 123: wird können lesen	*!*		
d. 132: wird lesen können	*!		*
e. * 312: lesen wird können	*!	*	**
f. * 213: können wird lesen	*!*	*	*

Under the ranking ‘MAPch \gg MAPlr(V_{will})’, candidate 321 (a) is optimal. This is exactly the desired result.

Remember from examples like (294) above, however, that the number of verbs in a cluster is relevant for verb order as well. In 2-verb clusters in Standard German the auxiliary verb/finite verb never precedes the verb it is embedding, independently of the verb class it belongs to. This is shown by the examples in (328) which are repeated from (294) and (295):

(328) 2-verb clusters, perfect tense:

- a. ..., *dass Maria das Buch gelesen₂ hat₁*
- b. *..., *dass Maria das Buch hat₁ gelesen₂*
 ..., *that Maria the book has read-PastP*
 both: ‘that Maria has read the book’

(329) 2-verb clusters, future tense:

- a. ..., *dass Maria das Buch lesen₂ will₁*
- b. *..., *dass Maria das Buch will₁ lesen₂*
 ..., *that Maria the book will read-Inf*
 both: ‘that Maria will read the book’

The constraints on verb order given so far, together with their ranking in Standard German, wrongly predict that in 2-verb clusters as in (328) and (329) the perfect tense auxiliary *haben* ‘have’ obligatorily precedes the verb it embeds, and the future tense auxiliary *werden* ‘will’ at least optionally. The wrong outcomes are shown for *hat* ‘has’ in (330) and for *wird* ‘will’ in (331):

(330) Wrong result (order 12 instead of 21):

- ..., *dass Maria das Buch ...* ‘that Maria the book’ – read-PastP₂ has₁
- ...

	MAPlr(V_{have})	MAPch	MAPhc
a. 21: gelesen hat	*!		*
☞ b. * 12: hat gelesen		*	

- (331) Wrong result (both order 12 and 21 instead of 21 only):
 ..., *dass Maria das Buch* ‘that Maria the book’

	MAPlr(V_{have})	MAPch	MAPhc
☞ a. 21: lesen will	*		*
☞ b.* 12: will lesen		*	

What is crucial, it seems, is not a single violation of the MAPlr-constraints but a double one. This may again be expressed by constraint conjunction. Here, the conjoined constraints are sensitive to double violations of either MAPlr(V_{have}) or MAPlr(V_{will}). When a constraint is locally conjoined with itself we speak of local self conjunction (see, e.g. (Legendre *et al.*, 1998, 262)).¹³⁹

- (332) (MAPlr(V_{have}))²: (MAPlr(V_{have})) &_D (MAPlr(V_{have})):
 No double violation of MAPlr(V_{have}) in D.
- (333) (MAPlr(V_{will}))²: (MAPlr(V_{will})) &_D (MAPlr(V_{will})):
 No double violation of MAPlr(V_{will}) in D.

In both cases the verbal extended projection counts as domain D.

Naturally, the effect of MAPlr(V_{have}) and its self-conjunction(s) is also visible in verb clusters consisting of more than three verbs. The (strictly descending) default order is given up in order to position functional verbs before their verbal complements. The larger a verb cluster is, the stronger is the pressure to give up the default order. This is shown for a 4-verb cluster in (334).¹⁴⁰

- (334) a. 4321:* ..., *dass er sie unbedingt singen hören wollen hat*
 b. 1432: ..., *dass er sie unbedingt hat singen hören wollen*
 ..., that he her absolutely has sing hear want

The clause is grammatical when the auxiliary *hat* ‘has’ precedes the other verbs. For speakers of varieties that optionally allow modals to precede their verbal complements, a sentence as in (335) will also be possible:

- (335) 1243:? ..., *dass er sie unbedingt hat wollen singen hören*
 ..., that he her absolutely has want sing hear

Interestingly, however, it is never grammatical to have a strictly ascending order

¹³⁹(Legendre *et al.*, 1998, 263) assume that by recursion of the process of local conjunction a power hierarchy arises with a fixed ranking between the constraints: ... >> C^k >> C³ >> C² >> C. Although I concentrate on MAPlr(V_{func}) and (MAPlr(V_{func}))² here, I assume a power hierarchy of MAPlr(V_{func}) as well. To account for the obligatory fronting of *wird* ‘will’ in a sentence like ..., *weil sie es wird haben beenden wollen* ‘..., because she it will have to end want’, e.g., a constraint like (MAPlr(V_{will}))³ becomes crucial.

¹⁴⁰Languages like Dutch and Swiss German do not show the tendency to give up the default order in larger clusters. In these languages, however, the default order is already in accord with MAPlr(V_{func}).

in Standard German. Or, as Gunnar Bech already noted in 1983:63 at least two verbs remain in the so-called ‘Unterfeld’ (‘lower-field’). These two verbs are always in descending order (see also Askedal 1991:3). This observation is easily captured by ranking MAPch above all simplex constraints of the MAPlr(V_{func})-family and below all self-conjoined constraints. Under this ranking it is always better for a verb that c-commands only one other verbal head to follow it and so to obey MAPch.

The table in (336) lists for V_1 , an abstract functional verb (V_{func}), all violations of MAPlr(V_{func}) and of the conjoined constraint (MAPlr(V_{func}))² for the six possible verb orders in a 3-verb cluster:¹⁴¹

(336) Violations of MAPlr(V_{func}) and (MAPlr(V_{func}))²:

	MAPlr(V_{func})	(MAPlr(V_{func})) ²
a. 321	**	*
b. 231	**	*
c. 123		
d. 132		
e. 312	*	
f. 213	*	

Only verb order 321 (a) and verb order 231 (b) violate MAPlr(V_{func}) twice due to the final placement of V_{func} . Therefore these are the only orders that also violate (MAPlr(V_{func}))². The complex constraint, local self conjunction, is ranked above the simplex constraint. A partial ranking including all MAPlr(V_{func}) constraints that are sensitive to *have*, *will*, and modals is given in (337). It is crucial at which point in the hierarchy MAPch is inserted, i.e., the constraint that demands the strictly descending default order. I assume for Standard German that MAPch outranks (MAPlr(V_{modal}))². Remember, however, that there are varieties of German in which modals as V_1 optionally precede the other verbs in 3-verb clusters. This can be achieved by a tie (<>) between (MAPlr(V_{modal}))² and MAPch in these varieties.

As in the case of the simplex constraints, the ranking of (MAPlr(V_{have}))² above MAPlr(V_{will})² is fixed. Note that it is now (MAPlr(V_{will}))² that is globally tied to MAPch.

(337) (MAPlr(V_{have}))² \gg (MAPlr(V_{will}))² <> MAPch \gg (MAPlr(V_{modal}))²,
MAPhc, MAPlr(V_{have}) \gg MAPlr(V_{will}) \gg MAPlr(V_{modal})

I will exemplify the working of the self conjunction with (MAPlr(V_{have}))². The constraint (MAPlr(V_{will}))² works analogously. The tableau in (338) shows the same competition as in (331) above. This time, however, the conjoined constraint

¹⁴¹Note that for presentational reasons I am assuming that V_2 which is a modal does not count as functional here.

(MAPlr(V_{have}))² is included, and only the candidate that is indeed grammatical is also the winner of the competition due to the low ranking of the simplex constraint MAPlr(V_{have}). As I am only interested in the behaviour of *haben* ‘have’ here, I will leave out the constraints that are sensitive to the future tense auxiliary *will*. Note that also MAPhc will be left out as it does not play a decisive role in the following competitions:

- (338) Right result (order 21 only):
 ..., *dass Maria das Buch ...* ‘that Maria the book ...’ – read-PastP₂
 has₁

	(MAPlr(V_{have})) ²	MAPch	MAPlr(V_{have})
☞ a. 21: gelesen hat			*
b. * 12: hat gelesen		*!	

None of the candidates violates MAPlr(V_{have}) twice, i.e., the self conjunction (MAPlr(V_{have}))² is not active here – and in general in 2-verb clusters. The decision is made by MAPch that favours candidate (a) with the descending order 21. In contrast to the tableau in (330) this is the right result.

In the competition of 3-verb clusters, the optimal candidate remains the same as before in tableau (322). (MAPlr(V_{have}))² is active now and punishes the candidates that show *hat* ‘has’ at the right edge of the verb cluster, 321 (a) and 231 (b). MAPch and MAPlr(V_{have}) in conspiracy then favour the candidate that observes the descending order as much as possible, and that shows *hat* ‘has’ at the left side of the verb cluster. The optimal candidate is 132 (d). The competition is given in (339):

- (339) 312 order with IPP (V_2 a modal):
 ..., *dass sie das Buch ...* ‘that she the book ...’ – read₃ can₂ has₁

	(MAPlr(V_{have})) ²	MAPch	MAPlr(V_{have})
a. * 321: lesen können hat	*!		**
b. * 231: können lesen hat	*!	*	**
c. * 123: hat können lesen		**!	
☞ d. 132: hat lesen können		*	
e. * 312: lesen hat können		*	*!
f. * 213: können hat lesen		**!	*

So far we have seen that the verb order in 3-verb clusters either in the future tense or in the perfect tense with IPP can be accounted for under special consideration of the differences between the perfect tense auxiliary and the future tense auxiliary. These are subject to different constraints of a power hierarchy derived by self conjunction of MAPlr(V_{func}).

The account also carried over to the verb order in 2-verb clusters that is

independent of verb classes and construction type in Standard German. As the conjoined constraints are not active here, MAPch makes the decision in favour of the descending order 21.

One case has been left out, however, namely the case of 3-verb clusters in the perfect tense that are not IPP-constructions but ‘behave like expected’ with respect to the verb form (i.e., V_2 a past participle). An example with V_2 a perception verb is given in (340) (repeated from (306)).¹⁴²

- (340) Perfect tense, V_2 : Past participle
- a. 321: ... , dass sie ihn singen gehört hat
 ..., that she him sing heard-PastP has
 - b. 132:* ... , dass sie ihn hat singen gehört
 ..., that she him has sing heard-PastP
 both: ‘that she has heard him sing’

Given only the mapping constraints introduced so far, candidate 132 (d) is wrongly predicted to be optimal and therefore grammatical. The highly ranked constraint $(\text{MAPlr}(V_{\text{have}}))^2$ punishes the grammatical candidate 321 (a) because *hat* ‘has’ does not precede the verbs it c-commands. The competition that yields the wrong winner is given in (341):

- (341) Wrong result (order 132 instead of 321):
 ..., *dass sie ihn ...* ‘that she him ...’ – sing_3 heard-PastP₂ has₁

	$(\text{MAPlr}(V_{\text{have}}))^2$	MAPch	$\text{MAPlr}(V_{\text{have}})$
a. 321: singen gehört hat	*!		**
b. * 231: gehört singen hat	*!	*	**
c. * 123: hat gehört singen		**!	
☞ d. * 132: hat singen gehört		*	
e. * 312: singen hat gehört		*	*!
f. * 213: gehört hat singen		**!	*

The emergence of the wrong winner is connected to the ‘blindness’ of the verb order constraints towards the form of the verbs (past participle versus bare infinitive).

In the conjoined constraint in (309), $(\text{MAPhc} \ \&_D \ \text{MORPH})$, restrictions on verb form and verb order were put together to yield the observed connection between verb form and verb order in Standard German. Only in the case of IPP the conjoined constraint was active and favoured the IPP-order 132 (d) above the ‘default’ order 321 (a).

Let us take a step back and have another look at the other languages described

¹⁴²Note that perception verbs show optional IPP. I will concentrate on the past participle case here and come back to optionality in chapter 8.

in chapter 3. The table in (342) summarises the most common verb orders of 3-verb clusters in the perfect tense when V_2 is a past participle:

(342) The predominant verb orders in 3-verb clusters in the perfect tense

Language	Perfect tense, V_2 : PastP
BG	123
Ge	321
SG	213
Zü	321
Du	123
WF	231,213
Af	231

With the exception of Bernese German and Dutch that keep the strictly ascending order 123 throughout,¹⁴³ all other languages require that the past participle precedes its selecting verb in 3-verb clusters, see also Wurmbrand (2002). This observation will be taken up by a mapping constraint that is a stringent version of MAPch. Whereas MAPch refers to complements in general, this constraint refers only to past participle complements. The constraint is formulated in (343):¹⁴⁴

(343) MAP(past participle before head) (MAPpastph):

If A and B are sister nodes at LF, and A is a head that requires its complement to be a past participle and B is a complement with past participle morphology at PF, then the correspondent of B precedes the one of A at PF.

Another constraint will become relevant as well. Let us assume that all logically possible verb order patterns in a verb cluster are base-generated as linear PF-orders, corresponding each to the same abstract syntactic structure that represents the selectional properties ('LF'). We see that orders 123 (a), 231 (b), 123 (c), and 132 (d) differ from orders 312 (e) and 213 (f): In the first four verb orders, (a)-(d), the immediate constituents of VP_2 , V_2 and VP_3 , are adjacent to each other at the level of linear order, PF. This is not the case in orders (e)

¹⁴³This is the case in the 3-verb clusters discussed here, in which the most deeply embedded verb is always an infinitive. Remember, however, that the picture is different – at least in Dutch – when the most deeply embedded verb is a past participle.

¹⁴⁴Interestingly, in all languages discussed here that prefer the past participle to precede its selecting head, the past participle shows the prefix *ge-*. To formulate this informally, the past participle prefix *ge-* that mainly appears in languages traditionally seen as OV-languages shows a strong interest in being governed from the right. I cannot see, however, how to include this observation into the analysis at the moment – or whether there really is a strong enough correlation between the two phenomena at all, given that Dutch and Bernese German keep the strict 123 order in 3-verb clusters with V_2 a past participle (although in 2-verb clusters the past participle is free to precede its selecting verb in both languages).

and (f), however. Here the finite auxiliary V_1 ‘interrupts’ a constituent (VP_2). Intuitively, this could be seen as worse than leaving constituents intact.¹⁴⁵

A mapping constraint that is connected to the basic notion of constituency is given in (344):

(344) *Constituent Split (*CONST SPLIT):

If A and B are sister nodes at LF (i.e., immediate constituents of a larger constituent C), then the phonetically realised correspondent of A is adjacent to the phonetically realised correspondent of B at PF.¹⁴⁶

We have seen in the definitions of all constraints of the MAPlr-family (see, e.g., (316) above) that asymmetric c-command at LF translates into precedence at PF. As shown in (344), another structural relation can be expressed in terms of linear order as well: sisterhood at LF translates into adjacency at PF.

Both MAP(pastph) and *CONST SPLIT crucially outrank (MAPlr(V_{have}))² in Standard German. A competition including these constraints yields the right verb order for 3-verb clusters with V_2 as a past participle. This competition is given in (345). The same sentence is evaluated as in (341) above:

¹⁴⁵Note that I abstract away from non-verbal complements here.

¹⁴⁶It is stated explicitly in the definition that only phonetically realised elements can fulfill this constraint, i.e., traces do not count (as in the other mapping constraints introduced in this thesis). It has (implicitly) been assumed so far that all possible verb orders in a verb cluster are base-generated PF-strings. These are subject to mapping constraints which relate them to the same abstract syntactic structure. All orders could in principle also be derived by movement operations (either by movement of V^0 or of VP). Candidates derived by movement, however, always violate a constraint that prohibits movement, (‘STAY’), in addition to the violations that their base-generated counterparts show, i.e, they are harmonically bounded by these. For this reason, all ‘movement candidates’ have been left out in the tableaux. It may well be the case, however, that a constraint like *CONST SPLIT is so basic that it is located in GEN. In this case, orders 312 (e) and 213 (f) could not be base generated but only derived from one of the other patterns by movement operations. It then depends on the relative ranking of (a V-related version of) STAY whether the derived versions 312 and 213 are grammatical or not. For presentational reasons, however, I will refrain from this scenario and keep the initial assumption that all linear verb order patterns can be base-generated, i.e., that *CONST SPLIT is not part of GEN. For a better overview, I will continue leaving out the movement candidates and the constraint STAY in the tableaux.

- (345) Right result
 ..., *dass sie ihn ...* ‘that she him ...’ – sing₃ heard-PastP₂ has₁

	MAP (pastph)	*CONST SPLIT	(MAPlr (V _{have})) ²	MAP ch	MAPlr (V _{have})
☞ a. 321: singen gehört hat			*		**
b.* 231: gehört singen hat			*	*!	**
c.* 123: hat gehört singen	*!			**	
d.* 132: hat singen gehört	*!			*	
e.* 312: singen hat gehört	*!	*		*	*
f.* 213: gehört hat singen		*!		**	*

The optimal candidate 321 (a) is indeed grammatical. Although it violates (MAPlr(V_{have}))², and also the non-conjoined version MAPlr(V_{have}), it nevertheless fares better than its competitors. Note especially that candidate 132 (d) which was wrongly predicted to be optimal in (341) above, is excluded by MAP(pastph) now. Candidate 213 (f) fatally violates *CONST SPLIT,¹⁴⁷ and candidate 231 (b) crucially violates MAPch. The optimal candidate is therefore candidate 321 (a), although it violates (MAPlr (V_{have}))² once and MAPlr (V_{have}) twice.

To sum up: At the beginning of this chapter two mapping constraints were introduced that specify different linear orders for a given syntactic structure. The constraints MAPch and MAPhc are in conflict with each other and can be seen as instantiations of the head parameter. The order MAPch above MAPhc is responsible for the default (3)21 order in Standard German verb clusters.

The order 132 in IPP-constructions has first been accounted for by the conjoined constraint MAPhc &_D MORPH introduced in (309). This constraint combines requirements on verb form and verb order in a given domain.

Although the verb order in IPP-constructions could be accounted for this way, some problems would remain nevertheless: (i) The conjoined constraint is a specific constraint that shows its effects especially in German. In no other language dealt with is the verb order 132 predominant in IPP-constructions. (ii) The fact that verb order 132 does not only appear in IPP-constructions in Standard German but also (optionally) in the future tense could not be captured at all.

To account for the second issue, yet another mapping constraint (MAPlr(V_{func})) was introduced that demands functional verbs to precede the verbs they c-command. The pressure to fulfill this constraint rises with a rising ‘grade of

¹⁴⁷*CONST SPLIT is clearly violated once by candidates 312 and 213: The sister nodes V₂ and VP₃ are not adjacent at PF but separated by V₁ in both patterns. It may well be the case, however, that *CONST SPLIT is even violated twice: V₁ is not adjacent to its sister node VP₂ but only to parts of it which are separated from each other. In the following, I assign one ‘*’ when *CONST SPLIT is violated by the candidate at least once.

functionality' that the verbs show, as well as with the number of verbs in a cluster. The resulting constraint family together with a stringent version of MAPch referring to past participles, and the constraint *CONST SPLIT makes the special conjoined constraint MAPhc &_D MORPH superfluous, and also covers a broader set of verb cluster data. The main results of the revised analysis are repeated below:

- The verb order 132 is not special for IPP-constructions. It also appears in the future tense. The order is accounted for by the general requirement that functional verbs precede the verbs they c-command.
- The order 132 is obligatory in IPP-constructions but optional in the future tense. This is connected to differences of the perfect tense auxiliary and the future tense auxiliary. It is assumed that the perfect tense auxiliary is more functional than the future tense auxiliary and that therefore the pressure to precede the verbs it c-commands is higher. This is implemented by the fixed hierarchy MAPlr(V_{have}) ≫ MAPlr(V_{will}).
- The observed connection between verb form and verb order in IPP-constructions is captured as follows: The absence of the past participle in IPP-constructions renders MAP(pastph) inactive. The effects of (MAPlr(V_{have}))² become visible now. As this constraint outranks MAPch, the order 132 (d) is obligatory. The final decision in favour of order 132 (d) is made by the low ranked constraint MAPlr(V_{have}).
- The optionality between order 321 and order 132 in the future tense is derived by a tie between (MAPlr(V_{will}))² and MAPch.
- The observation that the pressure on 'reordering' is higher when there are more verbs in a cluster is captured by a power hierarchy of recursively derived self conjunctions of MAPlr(V_{func}).

Having summarised the analysis, I will now add a last parameter that also influences the verb order in 3-verb clusters, namely the verb class of V₂. This is well known for the perfect tense where the verb class of V₂ is crucially connected to presence versus absence of the IPP-effect (see the data in chapter 2 and the account in chapter 6). It also plays a role, however, in the future tense as shown in the examples below (see also the data in chapter 3, and Askedal 1991:6 and literature cited there):

- (346) a. ?... , dass sie ihn sehen können wird
 b. ... , dass sie ihn wird sehen können
 ... , that she him will see can
 both: 'that she will be able to see him'

- (347) a. ... , dass sie ihn malen sehen wird
 b. ... , dass sie ihn wird malen sehen
 ... , that she him will paint see
 both: ‘that she will see him paint’
- (348) a. ... , dass sie stehen bleiben wird
 b. *... , dass sie wird stehen bleiben
 ... , that she will stand remain
 both: ‘that she will remain standing’
- (349) a. ... , dass sie bald zu singen anfangen wird
 b. *... , dass sie bald wird zu singen anfangen
 ... , that she soon will to sing begin
 both: ‘that she will start singing soon’
- (350) a. ... , dass sie das Auto zu reparieren versuchen wird
 b. *... , dass sie das Auto wird zu reparieren versuchen
 ... , that she the car will to repair try
 both: ‘that she will try to repair the car’

Interestingly, the same verb class hierarchy that already has been crucial for the IPP-form seems to play a role again: When V_2 is a modal, order 132 is preferred, when V_2 is a perception verb both order 321 and order 132 are possible, and when V_2 is, e.g., a durative, an inchoative, or a control verb only order 321 is grammatical.

Table (351) repeats the behaviour of these verb classes with respect to IPP (‘+’ means that V_2 shows IPP in a typical IPP-context, and ‘-’ means that it does not). Table (352) summarises the examples above in (346) to (350):¹⁴⁸

(351) IPP and verb class of V_2

	IPP	PastP
MV	+	-
PV	+	+
DV	-	+

¹⁴⁸Duratives are taken as an example of verbs that neither show IPP nor appear in the order 132 when they are V_2 in a cluster. As shown in (349) and (350) above, however, other verb classes behave the same. Note that they appear below duratives in the implicational hierarchy introduced in chapter 2.

(352) Verb order and verb class of V₂

	132	321
MV	+	?
PV	+	+
DV	-	+

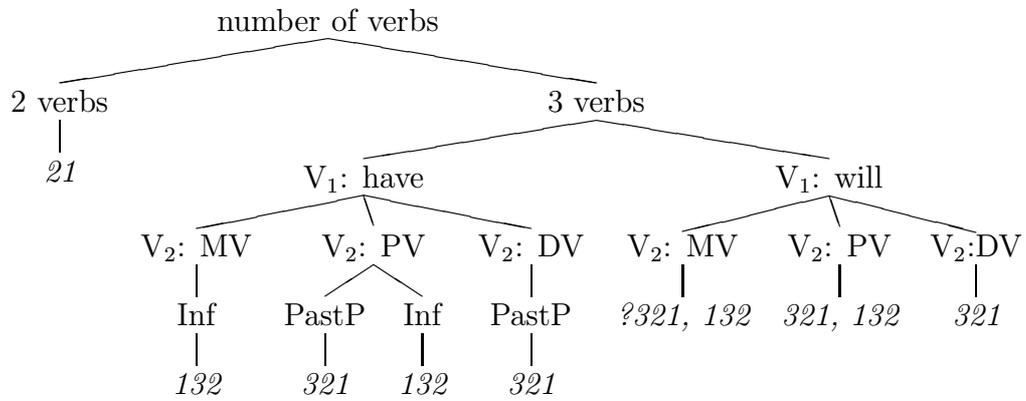
Modals as an example for verb classes with obligatory IPP prefer the IPP-order 132 also in the future tense (the same is true for causatives). Perception verbs as an example for verb classes with optional IPP also allow for both order 321 and order 132 in the future tense. Finally duratives as an example for verb classes that do not show IPP only allow order 321 in the future tense. This is to say that not only the verb class of V₁ is relevant for the verb order (the future tense auxiliary ‘will’ can in principle precede the verbs it c-commands) but also the verb class of V₂. Precedence of V₁ ‘will’ is best when V₂ is an obligatory IPP-verb, it is one possibility when V₂ is an optional IPP-verb, and it is impossible when V₂ does not appear with IPP. As I do not see at the moment how to include this observation into the account, I will leave it as a description of the data.

To sum up: As has been shown in this chapter many different factors have an influence on verb order. A first factor is the number of verbs in a cluster. In 2-verb clusters only the descending order 21 is grammatical. In 3-verb clusters, however, apart from the descending order 321, the order 132 is grammatical as well. In IPP-constructions this is even the only possible order, i.e., the type of construction also influences verb order. It depends on two other factors, namely the verb class of V₁ and the verb class of V₂. In the future tense, i.e., with the future auxiliary *werden* ‘will’ as V₁, both order 321 and order 132 appear optionally under certain circumstances (depending partly on the verb class of V₂). In the perfect tense, however, (with the perfect tense auxiliary *hat* ‘has’ as V₁) order 321 obligatorily appears with V₂ as a past participle, and order 132 obligatorily appears with V₂ a bare infinitive, i.e., in the IPP-construction.¹⁴⁹

I will conclude this chapter by summarising the different factors that influence verb order in the tree diagramme in (353).

¹⁴⁹I focused on these three constructions here, but see also Wurmbrand (2002) who shows for (partly) different constructions that the construction type indeed plays a role in determining the verb order.

(353) Factors that influence verb order



In the following chapter I will discuss optional IPP-constructions in German before I apply the proposed OT-account to the other languages in chapter 9.

8 Optional IPP in German

8.1 Introduction and overview

So far, optionality was left aside. In this section, however, I will look in some detail at ways to handle optionality in OT. An example for optional IPP with perception verbs in German is repeated in (354):

- (354) a. Sie hat ihn singen hören
 She has him sing hear-Inf
 b. Sie hat ihn singen gehört
 She has him sing heard-PastP

Both sentences are grammatical and both have the same meaning,¹⁵⁰ i.e., they are different options to say the same (see also Aldenhoff (1962) and Askedal (1991)).

At first sight optionality poses a problem for all theories that assume a competition between candidates (e.g. transderivational Minimalism and to a much larger extent Optimality Theory (OT)). The optimal (or the most economical) candidate blocks the non-optimal (less economical) candidates in a given candidate set (reference set). Only the optimal candidate is grammatical.

In this chapter I will introduce and compare two accounts of optionality in OT. One account, the global tie approach (see e.g. Ackema and Neeleman (1995), Ackema and Neeleman (1998)), involves constraint ties and the other account, the neutralization approach (see Legendre *et al.* (1995), Legendre *et al.* (1998); Baković and Keer (2001)), makes use of the normal OT interaction of faithfulness and markedness constraints. It will be checked whether one approach is superior to the other by applying them to the IPP data. We will see that in fact both approaches can be used to account for the same kind of data and that the opting for one account and against the other is motivated more theoretically than empirically.

I will begin by discussing different OT approaches of optionality, and I will justify the focus on the global tie approach and the neutralization approach by briefly mentioning their advantages compared to other OT accounts of optionality.

¹⁵⁰Both express a direct perception only (as in ‘she has heard him singing - she could not sleep because of that noise’) in contrast to, e.g., a sentence like the following in which the perception verb has a clausal complement:

- (i) Sie hat gehört, dass er singt
 She has heard-PastP that he sings

In this case both direct perception and indirect perception are possible (as in: ‘she has heard from his mother that he sings - but she could not go to his concert’).

8.2 OT accounts of optionality

The following statement was given in the general introduction to OT in chapter 5:

- (355) An optimal candidate in a candidate set is grammatical, all non-optimal candidates are ungrammatical.

This statement is problematic for optionality: The optimal candidate should block all other candidates. How can optionality be achieved when only the optimal candidate in a competition is grammatical?

Despite – or maybe just because – optionality poses a problem for OT there is a lot of work on optionality in the OT-literature. Several proposals have been made, some of which will be introduced in the next sections (see Müller (1999) for an overview). At this point it should suffice to give a definition of optionality that allows for the possibility of more than one optimal candidate in one and the same competition. Such a definition is given in (356):

- (356) *Optimality* (following Müller 1999:3):
A candidate C_i is optimal with respect to a constraint ranking $\langle \text{CON}_1 \gg \dots \text{CON}_i \dots \gg \text{CON}_n \rangle$ iff there is no candidate C_j in the same candidate set such that:
- There is a constraint CON_k that C_j satisfies better than C_i ; and
 - CON_k is the highest ranking constraint on which C_i and C_j differ.

The above definition of optimality is compatible with more than one optimal candidate in one and the same competition. This is exactly how I will define optionality from a theoretical point of view:

- (357) *Optionality*: Two (or more) different candidates are optimal, i.e. grammatical, though they are (or seem to be) in the same competition.

In OT, optionality is possible but only under certain conditions. In OT-literature, it is highly debated what these conditions should be (see Müller (1999), Müller 2000b:ch.5 for an overview). In this section, three different OT approaches towards optionality are introduced: In the first one, *identity of constraint profile* is the only condition that allows for optionality of two candidates, in the second one, *constraint ties* (local or global) are needed in addition, and in the third one, the so-called *neutralization approach*, the crucial condition for optionality of two candidates is their optimality in different competitions which arise from slightly different inputs.

The introduction and discussion of several approaches of optionality will be motivation to focus on the global tie approach as well as the neutralization approach in the remainder of this chapter. It will be shown that only these two approaches allow the optimal candidates to have a quite different constraint profile as it is the case with optional IPP.

8.2.1 Identity of constraint profile

The obvious way of allowing for optionality in OT is that the winning candidates in one and the same competition have the same constraint profile (Grimshaw 1997:410ff uses identity of constraint profile to account for complementiser optionality). The condition for the optimality of two (or more) competing candidates under this point of view is an absolute identity of the optimal constraint profile. Identity of constraint profile is an intrinsic part of the theory that results directly from the basic mechanisms of OT. Regardless of additional mechanisms and assumptions, identity of constraint profile can never be excluded.

Only if the identity of the constraint profile is used as the only way to account for optionality, and nothing else is stipulated, will I speak of an ‘approach’ to optionality along these lines. Then, however, the question arises as to whether this is sufficient to account for all cases of optionality. To illustrate the idea of identity of constraint profile, a very simplified example is given below:

(358) Abstract example of identity of constraint profile:

	A	B	C
☞ a. C ₁	*		**
☞ b. C ₂	*		**
c. C ₃	**!		

The tableau above shows one single competition with three candidates C₁, C₂ and C₃, and an extremely small grammar consisting of only three constraints, A, B, C with the ranking A ≫ B ≫ C. Candidate C₃ fatally violates the highest ranking constraint A. As both remaining candidates C₁ and C₂ have exactly the same constraint profile (they both violate constraint A once, constraint B not at all, and constraint C twice), and as this constraint profile is optimal (they fare better than C₃ on the highest constraint on which they differ) both C₁ and C₂ are grammatical.

This approach is quite plausible for a small grammar as in (358), but with a larger number of constraints it is unlikely that the optimal candidates are not distinguished by any constraint at all.

It is extremely difficult to keep an identical constraint profile of two (or more) candidates. For this reason, identity of constraint profile should not be seen as an independent approach to account for all cases of optionality, but merely as a theoretical possibility that is not sufficient on its own for most cases.

8.2.2 Constraint ties

One additional assumption that is made in the literature to account for optionality is the possibility of constraint ties. Constraints that are tied are equally important, i.e. two (or more) competing candidates may differ with respect to

the tied constraints but can nevertheless both (all) be optimal.

The notion of ‘constraint tie’ is not used uniformly: At least five different concepts of tie can be found in the literature (see Müller 1999 for an overview). Prince and Smolensky 1993:51, fn 31 briefly mention the possibility of constraint ties and open the door to different interpretations:

- (359) ‘It is entirely conceivable that the grammar should recognize nonranking of pairs of constraints, but this opens up the possibility of crucial non-ranking (neither can dominate the other; both rankings are allowed), for which we have not yet found evidence.’

I will continue by concentrating on two quite common notions of tie that are in accordance with Prince and Smolensky’s considerations. I will call them local ties and global ties. Local ties can be seen as special types of constraints and global ties as underspecifications of different constraint rankings, i.e. in a language with a global tie, multiple constraint rankings co-exist.¹⁵¹

8.2.3 Local ties

Local ties follow one of the concepts mentioned in Prince and Smolensky 1993:51, namely the ‘crucial nonranking’ of constraints.

The type of local tie I will introduce (see Müller 1997 for an application) is one that counts tied constraints as a single constraint, i.e. ‘a candidate violates a tie if it violates a constraint that is part of this tie, and multiple violations add up’ (Müller 1999:6). A simplified abstract example is given in (360):

- (360) Abstract example of a local tie

	A	B	C
☞ a. C ₁	*	*	**
☞ b. C ₂	**		**
c. C ₃	***!		

As before, the candidates C₁ and C₂ are both grammatical in their competition. In contrast to table (5), the simplified grammar this time includes a local tie of the constraints A and B (A <> B). Candidate C₁ violates both part A and part B of the tied constraint once, and candidate C₂ violates part A twice but part B not at all. Added up, both candidates violate the tied constraint A <> B twice. On the lowest ranked constraint C, the candidates C₁ and C₂ behave

¹⁵¹‘Local’ and ‘global’ are the main criteria that Müller 1999:5ff uses to classify the different concepts of a tie. What I call a local tie is named ‘conjunctive local tie’ in his overview and what I call a global tie is named ‘ordered global tie’. As I concentrate on the local-global distinction here, and for reasons of simplicity I pick out only one member of each set, leaving aside other distinctions.

alike. They both violate it twice. Although the sole competing candidate C_3 does not violate constraint C, it is nevertheless suboptimal as it fares the worst on the highest ranking constraint on which the candidates differ, i.e., the tied constraint, which it violates three times.

In the local tie approach, the optimal candidates may differ, contrary to the ‘identity of constraint profile’ approach. But even here, they differ only to a certain extent, namely on the tied constraint itself. The optionality would break down if the optimal candidates differed on constraint C or any other constraint below the tie.

Both accounts introduced so far have in common that they allow for optionality only if the constraint profile of the candidates in question is exactly (or nearly) the same. Apart from the improbability of this, cases can be found in which the optimal candidates look much more different than would be expected under such accounts. Examples like, e.g., optional IPP in German suggest a necessity for other accounts of optionality.

8.2.4 Global ties

The concept of global ties follows another consideration in Prince and Smolensky 1993:51, namely that ‘... both rankings are allowed’ (see e.g. Ackema and Neeleman (1995), and Sells *et al.* (1996) for applications).

As mentioned above, a constraint ranking with a global tie $A \langle \rangle B$ is an underspecification and stands for two rankings: The constraint hierarchy splits into two rankings from the constraint tie $A \langle \rangle B$ onwards. Under one ranking, constraint A dominates constraint B, and under the opposite ranking, constraint B dominates constraint A (for a formal definition of global tie see Müller 1999:5).

Two (or more) competing candidates are grammatical if they are optimal under one possible resolution of the tie. This means, contrary to local ties, that the optimal candidates may show a different constraint profile below the tied constraint.

In (361) I give an abstract example for a global tie in the underspecified form. The resolutions of the tie are given in (362) and (362) below.

(361) Abstract example for global ties (underspecified)

	A	B	C
☞ a. C_1	**		**
☞ b. C_2		*	*
c. C_3	*(!)**(!)		

The global tie $A \langle \rangle B$ above is not yet explicitly resolved. It is shown, however, that again both candidate C_1 and candidate C_2 are optimal. Notice that this result could not be achieved under the assumption of identity of constraint

profile or local ties alone as C_1 and C_2 differ in the number of violations both on the tied constraint and on constraint C below the tie.

Candidate C_3 is suboptimal under any resolution of the tie. This is expressed by the two marks of fatal violation in brackets (!). Why these marks are fatal will become clearer below where the global tie is resolved into the two possible total orders $A \gg B \gg C$ (362) and $B \gg A \gg C$ (363):

(362) Global ties resolved: $A \gg B \gg C$

	A	B	C
a. C_1	*!*		**
☞ b. C_2		*	*
c. C_3	*!***		

Under this resolution of the tie, candidate C_2 is optimal as it fares best on the highest constraint on which the candidates differ (i.e. constraint A). What happens under the opposite total order is shown in (363):

(363) Global ties resolved: $B \gg A \gg C$

	B	A	C
☞ a. C_1		**	**
b. C_2	*!		*
c. C_3		***!	

Under this resolution of the tie, candidate C_1 is optimal. Candidate C_2 fatally violates the highest ranking constraint, B, and candidate C_3 fatally violates constraint A and thus differs in this respect from candidate C_1 . It does not matter that the optimal candidate C_1 violates the constraints A and C more often than C_2 .

Global ties allow for a greater number of differences in the constraint profiles of optimal candidates than the two other approaches introduced so far. Compared to the local tie approach, the optimal candidates may differ not only on the tied constraint itself, but even on constraints below the tie. This is necessary to account for optional IPP in German.

The global tie approach, however, is not the only one that allows a greater number of differences in the constraint profile of two optimal candidates. Another approach with the same effect is introduced below, the so-called neutralization approach (see Legendre *et al.* (1995), Legendre *et al.* (1998), and Keer and Baković (1999), Baković and Keer (2001)).

8.2.5 Neutralization

All accounts of optionality that I have introduced so far assume that two (or more) grammatical candidates are optimal in one and the same competition. The main idea of the neutralization account, however, is that the optionally optimal candidates win different competitions, i.e., that they are not built from the same input (although they may be included in each other's candidate sets by GEN).

A crucial assumption for the neutralization approach to optionality is that the relevant inputs differ only minimally with respect to, e.g., functional features (see Keer and Baković (1999)); otherwise, they are identical. The contrasts in the input are either preserved in the output (apparent optionality) or neutralized depending on the constraint ranking of the language.

Neutralization equals a 'breakdown' of optionality: A candidate is optimal not only in a candidate set in which it is faithful to the input, but also in a candidate set in which it is unfaithful. This is the case when the unfaithful candidate blocks the faithful one due to a higher ranked (markedness) constraint, i.e., a difference in the input is neutralized in the output; hence the name 'neutralization' for the whole approach.

An abstract example of both (apparent) optionality and neutralization is given in (364). The table is taken from Keer and Baković 1999 (figure 1):

(364) Abstract example of neutralization

FAITH >> MARKEDNESS		MARKEDNESS >> FAITH	
INPUTS	OUTPUTS	INPUTS	OUTPUTS
I ₁ →	O ₁	I ₁ →	O ₁
I ₂ →	O ₂	I ₂ ↗	

Assume an abstract example in which the faithfulness constraint (FAITH) requires faithfulness to the input, and in which the markedness constraint does not allow for the occurrence of a feature X in the output: '* feature X'. Assume further that input I₂ differs from input I₁ only in that it contains a feature X. When the faithfulness constraint is ranked above the markedness constraint (see the lefthand side of the table) it is more important to be faithful to the input than to obey the markedness requirements. In this case, feature X of input I₂ would occur in output O₂ in the second competition. In the first, separate competition (with the input I₁), output O₁ is optimal (without feature X which was not specified in I₁). As feature X is the only difference between O₁ and O₂, (apparent) optionality occurs, although O₁ and O₂ are optimal in different competitions.

The righthand side of the table shows the mechanism of neutralization. Here, the markedness constraint is ranked higher than the faithfulness constraint. Under the assumption that everything else remains equal, it is now more important to fulfill the markedness requirements than to be faithful to the input. In the

case at hand, the marked feature X that was present in I_2 does not show up in the output. But now the output of I_2 equals the output of a different competition, namely that of I_1 , which was not specified for feature X from the beginning. In this case, feature specifications in the input are neutralized in the output.¹⁵²

In the following I will concentrate on global ties and neutralization. Of all the approaches that I have introduced in this section, these two are similar enough to account for the same type of data, namely data where the two optimal candidates differ greatly as in cases of optional IPP in German.

8.3 Global ties and neutralization applied to IPP

It has often been mentioned above that in the case of optional IPP in German the two optimal candidates differ greatly, and that the above mentioned accounts of optionality in OT (identity of constraint profile and local ties) do not suffice because of this data profile. To see the whole range of differences, however, a look at embedded clauses is necessary. Only here can it be shown that in addition to the verb form differences (bare infinitive versus past participle) the verb order also differs in the two optimal candidates.

The connection between verb form and verb order is shown in (365) for the perception verb *hören* ('hear'). When the perception verb occurs as a bare infinitive the finite auxiliary *hat* ('has') precedes the other verbs (b), when it occurs as a past participle the 'normal' verb order appears with the finite auxiliary at the end (c):

- (365) a. *... , dass sie ihn singen hören hat
 that she him sing hear-Inf has
 b. ... , dass sie ihn hat singen hören
 that she him has sing hear-Inf
 c. ... , dass sie ihn singen gehört hat
 that she him sing heard-PastP has
 d. *... , dass sie ihn hat singen gehört
 that she him has sing heard-PastP

The following table gives examples for constraint violations of the two grammatical candidates C_1 and C_2 .¹⁵³

¹⁵²Neutralization is also used to account for ineffability, another potential problem for an OT analysis, see Legendre *et al.* (1998), and Keer and Baković (1999).

¹⁵³Note that there are even more constraints at which the candidates differ (as, e.g., MAP-pastph). For presentational reasons I will state the point with these few examples here.

(366) Different constraint profiles

	MORPH	*PastP/ +Inf-PV	MAPch	MAPhc
C ₁ : dass sie ihn hat singen hören _{Inf}	*		*	*
C ₂ : dass sie ihn singen gehört _{PastP} hat		*		**

The two candidates clearly differ a lot: At none of the constraints given here they behave the same. In the following, I will show that these data can be captured, however, both by the global tie approach and by the neutralization approach.

8.3.1 The global tie approach

One possibility to account for the data given above is in terms of the global tie approach (see also Schmid (1999).) Under one ranking of the constraints, i.e., in one grammar, the optimal candidate shows the past participle, and under the other ranking of the constraints the optimal candidate shows the IPP. This is achieved by a tie between the constraint that demands the occurrence of a selected past participle (MORPH) and the respective constraint(s) of the subhierarchy triggering the replacement of a past participle under certain conditions (*PASTP/+INF). In Standard German, perception verbs display a clear case of optional IPP. In chapter 2 and chapter 3 above, benefactives were mentioned as optional IPP-verbs as well but it was also mentioned that the intuitions are not as clear cut in these cases. I will concentrate on the clear cases of optional IPP in Standard German, i.e., on perception verbs. The relevant constraint to be tied with MORPH is therefore the constraint *PastP/+Inf-PV which is sensitive to perception verbs. We get the global tie ‘MORPH <> *PastP/+Inf-PV’. At the end of this section I will come back to optional IPP with benefactives and to the question of how to tie more than two constraints. The other constraints of the markedness subhierarchy are left out in the following as I only look at perception verbs here. However, their order with respect to MORPH remains the same as before (in chapter 6).

A (still underspecified) grammar that includes the global tie and other relevant constraints and that is compatible with the crucial rankings of the constraints is given in (367).¹⁵⁴

Note that I come back to the first alternative introduced in chapter 7 that makes use of the conjoined constraint MAPhc &_D MORPH to account for verb order in IPP-constructions. Although it has been shown in chapter 7 that an account along these lines is not quite sufficient empirically, and that the conjoined

¹⁵⁴Note that I presuppose here that the last resort form in German is the bare infinitive and not the past participle, cf. chapter 6. In order to simplify the exposition here, the constraints on the verb form (i.e., *ge-) are left out together with all candidates that expose another last resort form than the IPP.

constraint is better replaced by pure mapping constraints, I will refer to it for presentational reasons here.¹⁵⁵

The two different grammars that result when the global tie is resolved are given in (368):

(367) The underspecified grammar:
 MAPhc &_D MORPH ≫ MORPH <> *PastP/+Inf-PV ≫ MAPch ≫ MAPhc

(368) The global tie resolved:
 a. MAPhc &_D MORPH ≫ MORPH ≫ *PastP/+Inf-PV ≫ MAPch ≫ MAPhc
 b. MAPhc &_D MORPH ≫ *PastP/+Inf-PV ≫ MORPH ≫ MAPch ≫ MAPhc

A competition with the (underspecified) constraint ranking above and the relevant candidates is shown in (369). The constraint MAPhc will be left out in the following for reasons of simplicity as it is not decisive for the competitions. As part of the conjoined constraint, however, it is still part of the tableaux.

(369) ... *dass sie ihn* ('that she him') ...

	MAPhc & _D MORPH	MORPH *PastP/ +Inf -PV	MAPch
a.* singen hören _{Inf} hat	*!	*	
☞ b. hat singen hören _{Inf}		*	*
☞ c. singen gehört _{PastP} hat		*	
d.* hat singen gehört _{PastP}		*	*!

Under one resolution of the tie (MORPH ≫ *PastP/+Inf-PV), it is more important to observe the morphological selectional properties of the temporal auxiliary *hat* 'has' than to obey the constraint against past participles in a certain context. Therefore, under this ranking candidate (c) with the perception verb in the past participle is optimal ((d), the other candidate with past participle fatally violates MAPch). This is shown in (370):

¹⁵⁵The alternative ranking without conjoined constraint but interacting mapping constraints is shown below.

(i) MORPH <> *PastP/+Inf-PV ≫ MAP(pastph) ≫ *CONST-SPLIT ≫ (MAPlr(V_{have}))² ≫ MAPch ≫ MAPhc ≫ MAPlr(V_{have})

As it does not make any difference for the main point of this chapter (i.e., optionality in OT), for reasons of simplicity, I will keep the first alternative with the conjoined constraint.

(370) MORPH \gg *PastP/+Inf-PV
 ... *dass sie ihn* ('that she him') ...

	MAPhc & _D MORPH	MORPH	*PastP/ +Inf -PV	MAPch
a.* singen hören _{Inf} hat	*!	*		
b.* hat singen hören _{Inf}		*!		*
☞ c. singen gehört _{PastP} hat			*	
d.* hat singen gehört _{PastP}			*	*!

Under the opposite resolution of the tie (*PastP/+Inf-PV \gg MORPH) a candidate with the perception verb as a bare infinitive (i.e. IPP) is optimal as it does not violate the highly ranked *PastP/+Inf-PV. Of the two candidates with IPP, candidate (b) is optimal. Its competitor (a) fatally violates the conjoined constraint (*hat* 'has' is on the right side of its complement, i.e., it violates MAPhc, and its complement *hören* 'hear' occurs in the bare infinitive, i.e. it violates MORPH). Candidate (b), however, only violates one part of the conjoined constraint (MORPH), which is not enough to violate it as a whole. The competition is shown in (371):

(371) *PastP/+Inf-PV \gg MORPH
 ... *dass sie ihn* ('that she him') ...

	MAPhc & _D MORPH	*PastP/ +Inf -PV	MORPH	MAPch
a.* singen hören _{Inf} hat	*!		*	
☞ b. hat singen hören _{Inf}			*	*
c.* singen gehört _{PastP} hat		*!		
d.* hat singen gehört _{PastP}		*!		*

Note again that the two optimal candidates differ in their constraint profile below the tie. It is therefore crucial that the tie is global and not local.

The global tie approach is also compatible with the fact that the IPP-construction is not always optional: Depending on the verb class of the potential IPP verb either the bare infinitive or the past participle is obligatory. Müller (2000b:195) calls this behaviour alternation:

(372) Alternation:
 Two (or more) constructions may coexist (optionality) but under certain circumstances one may block the other.

The IPP-construction is a clear case of alternation: The bare infinitive may coexist with the past participle in the case of perception verbs but in the case of, e.g., modals the bare infinitive blocks the past participle. In the case of, e.g., duratives

the past participle blocks the bare infinitive. Here the other constraints of the markedness subhierarchy become relevant again: It is crucial that the constraints of the markedness subhierarchy that are connected to verb classes with obligatory IPP are always ranked above MORPH and that the constraints connected to verb classes without IPP are always ranked below. The relative ranking of MORPH with respect to three constraints of the markedness subhierarchy (sensitive to modals (MV), perception verbs (PV), and duratives (DV)) is given in (373).

$$(373) \quad *PastP/+Inf-MV \gg MORPH \langle \rangle *PastP/+Inf-PV \gg *PastP/+Inf-DV$$

At the end of this section I will briefly discuss a case of more than two tied constraints. As already mentioned before (e.g. in chapter 2) a benefactive verb like *helfen* ‘help’ may also appear optionally in the IPP construction in German. At least this is grammatical for some speakers, including myself. For these speakers the constraint MORPH must not only be tied to $*PastP/+Inf-PV$, the perception verb sensitive constraint of the markedness subhierarchy, but also to $*PastP/+Inf-BV$, the constraint referring to benefactives. It is thereby crucial that the order of the constraints of the markedness subhierarchy remains fixed, i.e., $*PastP/+Inf-PV \gg *PastP/+Inf-BV$. In order to combine fixed hierarchies with constraint ties I will assume the following relation to be valid: (A and B being constraints of a subhierarchy in the fixed order $A \gg B$) $(A \gg B) \langle \rangle C$. This kind of relation for the interaction between ties and markedness subhierarchies is also used in Fischer 2001:161ff, following a suggestion by Ralf Vogel (p.c.). The more detailed definition of the abstract case is given in (374) (following Fischer 2001:162, for a generalisation of this definition see Fischer 2001:171):

(374)

$$\begin{aligned} (A \gg B) \langle \rangle C &= A \langle \rangle C \gg B \vee A \gg B \langle \rangle C \\ &= A \gg C \gg B \vee C \gg A \gg B \\ &\vee A \gg B \gg C \vee (A \gg C \gg B) \end{aligned}$$

(375) The resulting constraint orders:

- a. $A \gg C \gg B$
- b. $C \gg A \gg B$
- c. $A \gg B \gg C$

Coming back to our specific case of optional IPP: The relevant part of the underspecified grammar with tie(s) is given in (376):

$$(376) \quad (*PastP/+Inf-PV \gg *PastP/+Inf-BV) \langle \rangle MORPH = \\ *PastP/+Inf-PV \langle \rangle MORPH \gg *PastP/+Inf-BV \vee \\ *PastP/+Inf-PV \gg *PastP/+Inf-BV \langle \rangle MORPH$$

When the ties are resolved we get the three different grammars given in (377). On the righthand side of the arrow the optimal form (either bare infinitive or past participle) of both perception verbs and benefactives is given:

(377) The three different grammars:

- a. *PastP/+Inf-PV \gg MORPH \gg *PastP/+Inf-BV \rightarrow PV: bare infinitive,
BV: past participle
- b. MORPH \gg *PastP/+Inf-PV \gg *PastP/+Inf-BV \rightarrow PV: past participle,
BV: past participle
- c. *PastP/+Inf-PV \gg *PastP/+Inf-BV \gg MORPH \rightarrow PV: bare infinitive,
BV: bare infinitive

Each grammar in (a) -(c) gives a different result. Taking these results together we see that both perception verbs and benefactives occur either as bare infinitives or as past participles depending on the ranking of the constraints. This is exactly the desired result. In the following section, I will discuss how the neutralization approach can capture the data.

8.3.2 The neutralization approach

Following the general idea of the neutralization approach, a faithfulness constraint above a markedness constraint leads to (apparent) optionality when two inputs differ only in the functional feature that the faithfulness constraint refers to, and are the same otherwise, i.e., show the same predicate-argument structure and have an identical LF.

For the IPP case at hand the relevant faithfulness constraint is one that prohibits the deletion of features in the output that were given in the input. To formalise this idea, I make use of a correspondence constraint that relates elements in the input to corresponding elements in the output (on correspondence theory see McCarthy and Prince (1994), McCarthy and Prince (1995)), namely ‘maximisation-input-output’.¹⁵⁶

(378) MAX(imisation)I(nput)-O(utput): Every feature in the input has a correspondent in the output (* deletion of features).¹⁵⁷

The feature that I am interested in here is a feature that marks the past participle:

¹⁵⁶Note that with the introduction of MAX the constraint MORPH is now only indirectly relevant, namely through local conjunction. For the sake of simplicity I will therefore leave out the simplex constraint MORPH in the following tableaux.

¹⁵⁷Note that this constraint covers only one part of a faithfulness relation: MAX constraints only punish the deletion of material. The insertion of material, however, is not affected by them. This is the domain of other correspondence constraints, namely DEP(endance) constraints. The constraint DEP(PastP) is not introduced here as it is not relevant for the cases at hand. I do not assume it to be in the grammar at all. If it were in the grammar, however, it would have to be ranked below MAPch.

[PastP]. I take this feature to be responsible for the past participle morphology. When it is present on a verb then this verb appears morphologically as a past participle (according to the morphological requirements for past participles in the language in question, e.g., with the *ge*-prefix in German). I furthermore assume that the bare infinitive is underspecified, i.e., not marked by a special feature. When no feature is present on a verb then this verb appears as a bare infinitive.

GEN is able to manipulate functional features, e.g., to add or to delete them. GEN also builds all possible correspondence relations between elements in the input and in the output (for other kinds of correspondence relations like base-reduplicant correspondence see McCarthy and Prince (1995), for output-output correspondence see Benua (1995), Benua (1997).) The more specialised version of MAX that refers to this feature is given in (379):

(379) MAX(PASTP): The feature [PastP] in the input has a correspondent in the output (* deletion of [PastP]).

It is necessary for the neutralization approach that there are inputs that differ only with respect to their specification of the past participle: In one input, the verb feature [pastp] is present on the potential IPP verb and in another input it is not. Otherwise the inputs are identical.

To allow for optionality it is crucial that MAX(PASTP) is ranked above the relevant markedness constraint, namely *PastP/+Inf-PV as shown in (380):

(380) MAX(PASTP) \gg *PastP/+Inf-PV

Again, I will focus on optional IPP with perception verbs. I will first discuss a competition where the input is specified for V₂ a past participle:

(381) Input: V₂[PastP]: ... *dass sie ihn* ... ('that she him ...')

	MAPhc & D MORPH	MAX (PastP)	*PastP/ +Inf -PV	MAP ch
a.* singen hören _{Inf} hat	*!	*		
b.* hat singen hören _{Inf}		*!		*
☞ c. singen gehört _{PastP} hat			*	
d.* hat singen gehört _{PastP}			*	*!

The winner in this competition is the faithful candidate (c) in which the perception verb appears as a past participle and the temporal auxiliary follows the other verbs. Although this candidate violates the markedness constraint *PastP/+Inf-PV it is optimal due to the higher ranking of the faithfulness constraint MAX(PASTP).

A different winner emerges under the same ranking of constraints when the input is not specified for a past participle as shown in (382).

(382) Input: $V_2 =$ bare infinitive: ... *dass sie ihn* ... ('that she him ...')

	MAPhc & _D MORPH	MAX (PastP)	*PastP/ Inf -PV	MAP ch
a.* singen hören _{Inf} hat	*!			
☞ b. hat singen hören _{Inf}				*
c.* singen gehört _{PastP} hat			*!	
d.* hat singen gehört _{PastP}			*!	*

In this competition the correspondence constraint MAX(PastP) is not active because there was no past participle feature in the input that could have been deleted in the output. Therefore, the markedness constraint that prohibits the past participle of a perception verb becomes relevant. It makes the decision in favour of a candidate with the bare infinitive, i.e., candidate (a) or (b). As it is more important to obey the conjoint constraint than to obey MAPch, candidate (b) emerges as optimal that shows IPP and has the auxiliary on the left side of its complement.

The neutralization approach is also compatible with the fact that the IPP construction is not always optional, but, depending on the verb class of the potential IPP verb, either the bare infinitive or the past participle is obligatory. As before, the other constraints of the markedness subhierarchy become relevant now. For expository reasons I will again only deal with modals (for obligatory IPP) and duratives (for impossible IPP) in 3-verb clusters.

It is quite complicated to give an overview of all relevant competitions in the neutralization approach. Therefore I will go through all of them in the following, beginning with obligatory IPP with modals. Not surprisingly it is crucial that *PastP/+Inf-MV outranks MAX(PastP), i.e., it is more important for a modal to obey the markedness constraint than to keep all input specifications. A partial ranking compatible with the relevant constraints with respect to modals is given in (383):

(383) MAPhc &_D MORPH \gg *PastP/+Inf-MV \gg MAX(PastP) \gg MAPch

Now the typical OT-concept of neutralization becomes relevant. As before, two slightly different inputs lead to different competitions. As the markedness constraint *PastP/+Inf-MV, however, outranks the relevant faithfulness constraint, the different specifications of the two inputs are neutralized in the output. Due to this ranking the IPP-candidate (b) is optimal in both competitions. This is shown in (385) and (386) below:

- (384) ... , dass sie das Lied ...
 ... , that she the song
- a. ... hat singen wollen - candidate (b), IPP
 ... has sing want-Inf
- b. ... singen gewollt hat - candidate (c), past participle
 ... sing wanted-PastP has
- (385) Input: V_2 [PastP]; ... , dass sie das Lied ('that she the song') ...

	MAP hc & \mathcal{D} MORPH	*PastP/ Inf -MV	MAX (PastP)	MAP ch
a.* singen wollen _{Inf} hat	*!		*	
☞ b. hat singen wollen _{Inf}			*	*
c.* singen gewollt _{PastP} hat		*!		
d.* hat singen gewollt _{PastP}		*!		*

In this competition the IPP-candidate (b) is optimal although it is unfaithful to the input.

- (386) Input without the feature [PastP] (i.e., V_2 a bare infinitive):
 ... , dass sie das Lied ('that she the song') ...

	MAPhc & \mathcal{D} MORPH	*PastP/ Inf -MV	MAX (PastP)	MAP ch
a.* singen wollen _{Inf} hat	*!			
☞ b. hat singen wollen _{Inf}				*
c.* singen gewollt _{PastP} hat		*!		
d.* hat singen gewollt _{PastP}		*!		*

Again, the IPP-candidate (b) is optimal. This time it does not even violate MAX(PastP) because no specification for the past participle was given in the input. When we compare both competitions, we see that the differences in the input are neutralized in the output.

Let us now look at another case of neutralization – this time neutralization towards the past participle as, e.g., in the case of impossible IPP with duratives as given in (387):

- (387) ... , dass die Leute ...
 ... , that the people
- a. *... sind stehen bleiben_{Inf} - candidate (b), IPP
 ... are stand remain
- b. ... stehen geblieben_{PastP} sind - candidate (c), past participle
 ... stand remained are

It is crucial that the constraint of the markedness subhierarchy that is sensitive to duratives is ranked below MAX(PastP) but this alone is not enough. As we have seen before, this ranking only derives that IPP is not obligatory. It does not determine, however, whether IPP is optional (as in the case of optional IPP with perception verbs) or impossible (as in the case of duratives).

In a competition in which the input does not contain a [PastP] specification on the durative, the faithfulness constraint MAX(PastP) is not active. It is crucial that the decision is not made by the markedness constraint *PastP/+Inf-DV because this constraint prohibits duratives in the past participle in general. However, only candidate (d) with the wrong word order should be excluded. Therefore the word order constraint MAPch must be crucially ranked above *PastP/+Inf-DV. Together with the highly ranked conjoined constraint it is responsible for the neutralization towards the past participle. A partial grammar compatible with the crucial constraint rankings is given in (388):

(388) MAPhc &_D MORPH ≫ MAX(PastP) ≫ MAPch ≫ *PastP/+Inf-DV

The two relevant competitions that only differ slightly with respect to their input specification are given in (389) and (390) below:

(389) Input: V₂: [PastP]; ..., *dass die Leute* ('that the people') ...

	MAPhc & _D MORPH	MAX (PastP)	MAP ch	*PastP/ Inf-DV
a.* stehen bleiben _{Inf} sind	*!	*		
b.* sind stehen bleiben _{Inf}		*!	*	
☞c. stehen geblieben _{PastP} sind				*
d.* sind stehen geblieben _{PastP}			*!	*

When a specification for the past participle is given in the input then MAX(PastP) is active. Both candidates with the bare infinitive, i.e., (a) and (b) violate this constraint. Of the faithful candidates that show the past participle, candidate (c) is optimal as it does not violate MAP-CH.

(390) Input: V₂ a bare infinitive; ..., *dass die Leute* ('that the people') ...

	MAPhc & _D MORPH	MAX (PastP)	MAP ch	*PastP/ Inf -DV
a.* stehen bleiben _{Inf} sind	*!			
b.* sind stehen bleiben _{Inf}			*!	
☞c. stehen geblieben _{PastP} sind				*
d.* sind stehen geblieben _{PastP}			*!	*

Candidate (a) fatally violates the conjoined constraint. For the remaining can-

didates it is more important to obey MAP-CH than to obey *PastP/+Inf-DV, MAX(PastP) not being active in this competition. Therefore, candidate (c) is optimal here as well, and the bare infinitive in the input is neutralized to the past participle in the output. This is due to the interaction of markedness constraints in this case.

As we have seen in the case of (apparent) optionality with perception verbs it is more important to be faithful to the input than to obey a perception verb sensitive markedness constraint, i.e., different input specifications appear in the output. In the case of obligatory and impossible IPP, however, markedness constraints that neutralize input differences in the output become relevant.

To sum up, the relevant (partial) ranking with the three constraints of the markedness subhierarchy is given in (391):

- (391) MAPhc &_D MORPH ≫ *PastP/+Inf-MV (A) ≫ MAX(PastP) ≫
 PastP/+Inf-PV (B) ≫ MAPch ≫ *PastP/+Inf-DV (C)

The position of the constraints of the markedness subhierarchy (marked as A, B, and C) relative to the other constraints determines the status of IPP:

- (392) A: obligatory IPP
 B: optional IPP
 C: no IPP

At the end of this section I will briefly discuss optional IPP with more than one verb class, i.e. with benefactives in addition to perception verbs in German. In the neutralization approach it is crucial that all markedness constraints that refer to verb classes with optional IPP (i.e., perception verbs and benefactives in German) are located below the faithfulness constraint MAX(PastP) and above the markedness constraint MAPch. This ranking is shown in (393):

- (393) MAX(PastP) ≫ *PastP/+Inf-PV ≫ *PastP/+Inf-BV ≫ MAPch

8.4 Advantages and disadvantages of the two approaches

The reason for discussing the two approaches here was to show that they are both able to account for optional IPP, which is difficult or impossible for other approaches like identity of constraint profile and local ties.

Optional IPP, however, is not the only case of optionality that may be accounted for by either the global tie approach or the neutralization approach.¹⁵⁸

¹⁵⁸In Schmid (2001) both accounts were tested on a broader empirical base. I showed that both approaches can interchangeably be applied also to other cases of optionality and alternation like complementizer optionality in English (see, e.g., Keer and Baković (1999) for a neutralization approach), and optional *wh*-movement in French root questions (see, e.g., Ackema and Neeleman (1995) for a global tie approach).

More generally, both approaches may handle data with a similar profile showing the following properties:

- The optimal candidates seem to differ in many respects (i.e. global ties and neutralization are more impervious to differences lower down in the constraint hierarchy than other approaches, like, e.g., local ties).
- The data do not always show optionality but also the ‘breakdown’ of optionality in certain contexts (i.e. alternation).

The similarities of the two accounts of optionality suggest that the neutralization approach may easily be translated into the global tie approach and vice versa. Some considerations on possible ‘translation rules’ are given below:

- *From the neutralization approach to the global tie approach:*
The markedness constraint (e.g. *PastP/+Inf-PV) that was crucially outranked by the relevant faithfulness constraint (e.g. MAX(PastP)) in the neutralization approach will form a tie with a conflicting (markedness) constraint (e.g. MORPH). The faithfulness constraint is then either abandoned or ranked below the global tie. As the decision about the optimal candidate(s) in a competition is now made by markedness constraints alone,¹⁵⁹ it does not matter which feature specification is given in the input.
- *From the global tie approach to the neutralization approach:*
In the other direction, the relevant faithfulness constraint (e.g. MAX(PastP)) must be ranked above the constraints that form the global tie (e.g. *PastP/+Inf-PV and MORPH). The tie is then no longer needed. It is crucial that the faithfulness constraint is sensitive to a functional feature (e.g. [PastP]) whose presence or absence is the only distinction between otherwise identical inputs.

To sum up, it can be said that a global tie of two markedness constraints one of which, say M_1 , prohibiting [x] and the other, say M_2 , demanding [x] has the same effect as a faithfulness constraint F sensitive to [x] that outranks the markedness constraints. This is so because F on its own either demands or prohibits [x] already, depending on the input. Only one optimal candidate results in both approaches if another relevant markedness constraint outranks either the tie $M_1 \langle \rangle M_2$ or the faithfulness constraint F.¹⁶⁰

If it should indeed be the case that the global tie approach and the neutralization approach can always be translated into each other without empirical

¹⁵⁹Remember that MORPH is also a markedness constraint in the sense that the constraint violations may be read from the output alone.

¹⁶⁰In the case of impossible IPP the interaction of markedness constraints becomes relevant.

consequences¹⁶¹ then it would be preferable to dispense with one of the two approaches to avoid redundancy in the grammar.

The question arises which approach should be dispensed with. As the two approaches seem to be empirically equivalent, I will list some more conceptual and theory internal arguments below, both for and against each of the approaches.

8.4.1 The global tie approach

Global ties allow for the presence of two (or more) grammars simultaneously. One way to see this complexity as an advantage of the approach is that it may reflect the property of instability that languages show in their development. In studies of language change, it is not unusual to assume the simultaneous presence of two or more grammars (see e.g. Kroch (1989), Pintzuk (1991)). The following points, however, can be raised against the global tie approach:

- Global ties are problematic for learnability, see e.g. Tesar (1998) who proposes a learning algorithm that builds on a total ranking of constraints.¹⁶² Something else that may complicate language acquisition is the increasing number of possible grammars. The number of grammars containing three constraints is 6 without, and 19 with allowing for the possibility of constraint ties (see also Vikner 2001:133).
- Global ties are also problematic from a conceptual point of view. With one tie, two grammars may be simultaneously present in the mind of a single speaker, increasing to four grammars with two ties, six grammars with three ties, and so on. In addition, the possibility of a tie built by three (or more) constraints is not excluded and would increase the number of simultaneously present grammars enormously, resulting in (at least) six simultaneous grammars (see Sells *et al.* (1996)).

The complexity issue should, however, not be seen as a decisive argument against global ties (and OT in general). As long as we do not exactly know about the processing capacities of the human mind additional meta-constraints like ‘conceptual/computational’ plausibility would only restrict a theory of grammar unnecessarily (see also Prince and Smolensky 1993:197).

¹⁶¹Remember, however, that cases with three (or more) optimal candidates are more difficult to account for in terms of neutralization. Nevertheless, a neutralization account does not seem to be impossible if e.g. formal input features are not (always) assumed to be binary .

¹⁶²As pointed out by Tony Kroch p.c., it must be checked, however, whether global ties really turn out to be this problematic for the learning algorithm. It could be the case that whenever the learner comes to a piece of data that contradicts an assumed ranking then the contradicting ranking could be stored as a different grammar.

8.4.2 The neutralization approach

The following points can be made in favour of the neutralization approach:

- Optionality (and neutralization) is the result of the ‘normal’ constraint interaction of faithfulness constraints and markedness constraints. Faithfulness constraints are needed anyway (at least in phonology). If there were only markedness constraints in the grammar, the way would be open to an unmarked structure like ‘ba’ everywhere (see Chomsky 1995: 224(fn 4)).
- Neutralization can account for absolute ungrammaticality. By ranking a markedness constraint (M) above a faithfulness constraint (F), even an unfaithful candidate can be optimal in a competition when it differs from the faithful candidate by not violating M (see Legendre et al. 1998:274f for neutralization to a candidate with a different LF compared to its input, and Baković and Keer (2001)).

The following points may speak against the neutralization approach:

- Candidate sets can become very large as unfaithful candidates must be included to a certain degree.
- Derivational ambiguity: One and the same output can be derived from several different inputs.¹⁶³
- It is neither completely clear what functional features a faithfulness constraint can refer to nor whether it is desirable that different specifications of these functional features lead to different inputs.
- GEN must be able to manipulate functional features.

Note however, that most of the above points show general properties of an OT system (see e.g. ‘richness of the base’). The neutralization approach only makes us more conscious of them. For the ‘complexity issue’ mentioned under the first bullet the same argumentation holds as before with global ties: It should not restrict a theory of grammar until more is known about the human processing capacity.

To sum up: I am not in a position to favour one approach over the other due to empirical evidence, and not even the conceptual considerations mentioned above clearly point in one direction or the other. For reasons of exposition,

¹⁶³Note, however, that, e.g., Prince and Smolensky 1993:192 mention a principle to avoid derivational ambiguity. This principle is called ‘lexicon optimisation’ or, for underlying forms in general (see Prince and Smolensky 1993:192,fn 73) ‘input optimisation’. It compares candidates that lead to equivalent outputs across different competitions. The input of the candidate with the overall best constraint profile, i.e., of the ‘simplest alternative’ is chosen as optimal. This input will then be the only one chosen by the learner for the output in question.

however, I will refer mainly to one approach from here on. Although there is much to say in favour of the neutralization approach (e.g., that it accounts not only for optionality but also for total ungrammaticality) I will keep the global tie approach (contra Schmid (2001)) for the following reasons: First, global ties may more easily be presented than the complex neutralization approach (e.g., no introduction of new constraints). Note also as a minor point that the global tie approach solely refers to the selectional properties of a lexical item that may be read off the output candidates, i.e., no reference to the input is necessary. This is in line with the idea that the notion of input in OT syntax is superfluous, see Heck *et al.* (2001). Finally, my leading idea of IPP as a last resort can be more easily maintained under the global tie approach. It is not obvious in the neutralization approach presented here how to distinguish between repair forms like IPP and regular forms. The constraint on morphological selection that determines the regular, i.e., the selected verbal form is no longer crucial in the neutralization approach. The rather mechanical faithfulness constraints do not decide, however, whether a form is regular or exceptional but rather whether it is faithful to the input or not. Where, however, the results of the neutralization approach differ from the global ties approach in an interesting way, will in the following always be noted.

8.5 Summary

At first sight, it seems that optionality poses a problem for OT. In the OT-literature, however, several accounts of optionality can be found. In this chapter I have compared two of these approaches that both seem to be able to cover cases of optional IPP, namely the global tie approach and the neutralization approach.

The two approaches are empirically equivalent and can account for both optionality and breakdown of optionality in certain contexts. If two approaches can account for the same set of data, one of them should be abandoned (for reasons of simplicity, elegance, ‘economy’).

Mainly for presentational reasons I will keep the global tie approach. Empirical evidence to favour one approach over the other, however, has yet to be found.

9 Parametrisation in OT: the other languages

In OT, differences between languages are due to variations in the language specific rankings of universal constraints. The cases where the different grammatical behaviour of languages can be accounted for by reranking alone may serve as further support for an OT-approach, especially when such differences among languages can not be captured by a simple rule or parameter setting otherwise. In this chapter, I will extend the IPP-approach given in chapters 6 to 8 for German to the other West Germanic languages described in chapters 2 and 3. To facilitate the task, the differences concerning verb form and verb order will be discussed separately in the following section. I will start out with the verb form.

9.1 The verb form

The leading idea of the account of IPP in German in Chapter 6 has been that the unexpected verb form is a last resort strategy that only appears in order to repair an otherwise ungrammatical construction.¹⁶⁴ I will stick to this general idea and look more closely at the different kinds of behaviour of verb classes with respect to IPP not only in a single language but across a number of IPP-languages. IPP is obligatory, optional, or impossible with different verb classes in the languages discussed. The goal of this section is to give a uniform account of these different kinds of behaviour. As shown in chapter 6 for German, the placement of MORPH inside the markedness subhierarchy of verb classes is crucial not only to account for alternation inside one language but also for variation across languages.

As a reminder of the data in chapter 2 I repeat table (32) as (394):

¹⁶⁴The fact that the repair form is a bare infinitive in IPP-type languages and a past participle in PPI-type languages is due to additional constraints. IPP-languages build their past participle with the prefix *ge-*. Therefore, **ge-* is active, i.e. the last resort form is a bare infinitive and not a past participle as in PPI-languages (cf. chapter 6). For expository reasons I will simplify, however, and leave out these constraints (and the respective candidates).

(394) Summary (+: IPP, + -: optional IPP, -: no IPP)¹⁶⁵

Be	Ge	SG	Zü	Du	WF	Af	verbclasses	examples
+	+	+	+	+	+	+ -	causatives	<i>let, make, do</i>
+	+	+	+	+	+	+ -	modals	<i>may, can, must, shall, need, ...</i>
+ -	+ -	+ -	+ -	+	+	+ -	perception verbs	<i>hear, see, feel, ...</i>
+ -	+ -	+ -	+ -	+	+	+ -	benefactives	<i>help, learn, teach</i>
+ (-)	-	-	-	+	+	+ -	duratives	<i>stay, remain, lie, sit, be ...</i>
+ -	-	+ -	-	-	+ -	+ -	inchoatives	<i>begin, continue, stop, ...</i>
+ -	-	-	-	-	+ -	+ -	control verbs	<i>try, dare, promise, ...</i>
*	*	*	*	*	*	*	raising verbs	<i>seem, appear</i>

As a ‘repair strategy’ IPP is costly (it violates morphological selection) and occurs only in order to avoid a configuration that is even more expensive for the grammar. In the case of the IPP, this is the configuration in which a past participle embeds a bare infinitive ([[Inf] PastP]) – a configuration that is banned by a verb class sensitive markedness subhierarchy of constraints (*PastP/+Inf) punishing this configuration. The evidence for a ‘last resort’ analysis of IPP is that the IPP-form (i.e., an ‘unexpected’ bare infinitive) is restricted to certain constructions and is blocked otherwise. The occurrence of IPP is therefore minimised, it only appears when necessary.

¹⁶⁵At this point recall some remarks from chapter 2 concerning the data: Duratives behave exceptionally in some Swiss German dialects. In Bernese German they obligatorily show IPP for most speakers. Some speakers, however, also accept the past participle (with the order 132). The account given here captures the intuitions of these speakers. In Sankt Gallen German, duratives do not show IPP. This is exceptional as the following verb class in the implicational hierarchy, inchoatives, optionally shows IPP. As in Standard German, however, the use of duratives in Sankt Gallen German is quite restricted. Duratives only embed stative verbs like *liegen* ‘lie’, *sitzen* ‘sit’, and *stehen* ‘stand’ in these languages. This is different in other languages such as Afrikaans where the complement of duratives may come from a larger class of verbs (see, e.g., *bly rook* ‘remain smoke’, Ponelis 1993:42, see also IJbema 1997:142 for Dutch). It may therefore well be the case that what I called duratives in, e.g., Sankt Gallen German is in fact another verb class (‘statives’) that behaves differently from ‘real’ duratives. More data work is needed here to support this idea. For the time being I will exclude the so-called duratives in Sankt Gallen German from the analysis. With respect to the Dutch data, a large amount of variation can be found in the literature (see, e.g., Rutten (1991), IJbema (1997)). As noted in chapter 2, the judgements of my informant partly differ from the judgements given in the literature. In this section, I will concentrate on the judgements of my informant for a consistent data presentation.

It has been shown (cf. chapter 2 and chapter 6) that the selectional properties of (verbal) elements are respected whenever possible. This behaviour has been attributed to a constraint, MORPH, that demands morphological selectional properties of lexical items to be observed. It depends on the relative ranking of this constraint to the constraints of the markedness subhierarchy (*PastP/+Inf) whether IPP is obligatory, optional, or impossible with a certain verb class in a given language. A summary of the general account to obligatory, impossible, and optional IPP is given in (395):

- **Obligatory IPP** is due to the ranking of the relevant parts of the ‘trigger constraint’ *PastP/+Inf above MORPH (morphological selection).
- **Impossible IPP in 3-(and more) verb clusters** is due to the ranking of the relevant parts of the ‘trigger constraint’ *PastP/+Inf below MORPH.
- **Impossible IPP in 2-verb clusters** is due to MORPH (morphological selection) alone as none of the constraints that are part of *PastP/+Inf is active in 2-verb clusters.
- **Optional IPP** is due to a tie between the relevant parts of the ‘trigger constraint’ *PastP/+Inf and MORPH.

Before the relevant part of the constraint hierarchy is given for each language I will turn to optionality again in the following section, and see whether global ties may also account for languages with a large amount of optional IPP like, e.g., Bernese German and Afrikaans.

9.1.1 Optionality: Global ties in a more general form

In chapter 8 I accounted for cases of optional IPP in German where V_2 is either a perception verb or a benefactive by means of a global tie approach. Optionality was achieved by the co-occurrence of different grammars due to an interaction between constraints of the markedness subhierarchy (*PastP/+Inf) and the constraint on morphological selection, MORPH, in a global tie. This interaction is repeated in a general form in (395) (A and B being constraints of a subhierarchy, i.e. their relative order is fixed):

(395)

$$\begin{aligned}
 (A \gg B) \langle \rangle C &= A \langle \rangle C \gg B \quad \vee \quad A \gg B \langle \rangle C \\
 &= A \gg C \gg B \quad \vee \quad C \gg A \gg B \\
 &\quad \vee \quad A \gg B \gg C \quad \vee \quad A \gg C \gg B
 \end{aligned}$$

Two of the four resulting constraint orders are identical. The remaining different constraint orders are repeated in (396):

(396) The resulting constraint orders:

- a. $A \gg C \gg B$
- b. $C \gg A \gg B$
- c. $A \gg B \gg C$

We get three different constraint rankings, i.e., three different grammars when the (relevant part of the) subhierarchy that constraint C is tied to consists of two constraints A and B. More generally, the number of different grammars that result from the interaction (i.e., the global tie) of a fixed hierarchy consisting of n members, and another constraint k is $n+1$.¹⁶⁶ I will exemplify this in detail for Bernese German. Bernese German is chosen because it shows one of the largest numbers of verb classes with optional IPP of the languages in this study. In Bernese German, IPP is optional with perception verbs, benefactives, duratives, inchoatives, and control verbs. Optional IPP is achieved by a (global) tie between the relevant constraints of the markedness subhierarchy *PastP/Inf with MORPH as illustrated in (397):

(397) (*PastP/+Inf-PV \gg *PastP/+Inf-BV \gg *PastP/+Inf-DV
 \gg *PastP/+Inf-IV \gg *PastP/+Inf-CV) $\langle \rangle$ MORPH

This underspecified representation equals the following (still underspecified) constraint rankings:

- (398) a. *PastP/Inf-PV $\langle \rangle$ MORPH \gg *PastP/Inf-BV \gg *PastP/Inf-DV \gg
 *PastP/Inf-IV \gg *PastP/Inf-CV \vee
- b. *PastP/Inf-PV \gg *PastP/Inf-BV $\langle \rangle$ MORPH \gg *PastP/Inf-DV \gg
 *PastP/Inf-IV \gg *PastP/Inf-CV \vee
- c. *PastP/Inf-PV \gg *PastP/Inf-BV \gg *PastP/Inf-DV $\langle \rangle$ MORPH \gg
 *PastP/Inf-IV \gg *PastP/Inf-CV \vee
- d. *PastP/Inf-PV \gg *PastP/Inf-BV \gg *PastP/Inf-DV \gg *PastP/Inf-IV
 $\langle \rangle$ MORPH \gg *PastP/Inf-CV \vee
- e. *PastP/Inf-PV \gg *PastP/Inf-BV \gg *PastP/Inf-DV \gg *PastP/Inf-IV
 \gg *PastP/Inf-CV $\langle \rangle$ MORPH

When these constraint orders are no longer underspecified but resolved, they result in the $n+1$ (in this case 6) different grammars given in (399):

- (399) a. MORPH \gg *PastP/Inf-PV \gg *PastP/Inf-BV \gg *PastP/Inf-DV \gg
 *PastP/Inf-IV \gg *PastP/Inf-CV
- b. *PastP/Inf-PV \gg MORPH \gg *PastP/Inf-BV \gg *PastP/Inf-DV \gg
 *PastP/Inf-IV \gg *PastP/Inf-CV

¹⁶⁶And $\frac{(n+i)!}{n!}$ when i constraints interact with n constraints of a fixed hierarchy, see the permutation formula ('Permutationsformel') in Schmid (2002).

- c. *PastP/Inf-PV \gg *PastP/Inf-BV \gg MORPH \gg *PastP/Inf-DV \gg *PastP/Inf-IV \gg *PastP/Inf-CV
- d. *PastP/Inf-PV \gg *PastP/Inf-BV \gg *PastP/Inf-DV \gg MORPH \gg *PastP/Inf-IV \gg *PastP/Inf-CV
- e. *PastP/Inf-PV \gg *PastP/Inf-BV \gg *PastP/Inf-DV \gg *PastP/Inf-IV \gg MORPH \gg *PastP/Inf-CV
- f. *PastP/Inf-PV \gg *PastP/Inf-BV \gg *PastP/Inf-DV \gg *PastP/Inf-IV \gg *PastP/Inf-CV \gg MORPH

In the following, only the most underspecified form will be given for presentational reasons.¹⁶⁷

I will now go through the individual languages and give the relative ranking of the constraints that are relevant for the verb form.

9.1.2 Bernese German

The verb form of the potential IPP-verbs both with and without verbal complement is repeated for all verb classes in (400):

(400) Occurrences of past participle and IPP in perfect tenses in Bernese German:

Verb classes	[- verbal complement]	[+ verbal complement]
Causatives	*	IPP
Modals	the forms are phonetically equivalent	
Perception verbs	PastP	IPP, PastP
Benefactives	PastP	IPP, PastP
Duratives	PastP	IPP
Inchoatives	PastP	IPP, PastP
Control verbs	PastP	IPP, PastP
Raising verbs	*	*

¹⁶⁷The neutralization approach yields the same result. As discussed above in chapter 8, it is crucial that all constraints of the markedness subhierarchy which refer to verb classes with optional IPP are located below the faithfulness constraint MAX(PastP) and above the markedness constraint MAPch. An example of this is the following:

- (i) MAX(PastP) \gg *PastP/Inf-PV \gg *PastP/Inf-BV \gg *PastP/Inf-DV \gg *PastP/Inf-IV \gg *PastP/Inf-CV \gg MAPch

The differences between the global tie approach and the neutralization approach are quite evident here: Under the global tie approach $n+1$ different grammars have to be assumed whereas only one grammar is needed under the neutralization approach. As said before, however, complexity arguments are not informative for formalisms of grammar as discussed in detail in Prince and Smolensky 1993:197. For representational reasons I will therefore continue with the global tie approach.

Without verbal complement, the potential IPP-verb is only grammatical as a past participle. With a verbal complement, however, a large amount of optionality is visible. Apart from causatives that obligatorily show IPP, and apart from modals for which the forms of past participle and bare infinitive are phonetically equivalent,¹⁶⁸ IPP is clearly optional for all other verb classes.

Under the assumption that IPP is obligatory with modals in Bernese German, the ranking of MORPH with respect to the constraints of the markedness subhierarchy is as in (401):

- (401) *PastP/Inf-CAUS \gg *PastP/Inf-MV \gg
 (*PastP/Inf-PV \gg *PastP/Inf-BV \gg
 *PastP/Inf-DV \gg *PastP/Inf-IV \gg
 *PastP/Inf-CV) $\langle \rangle$ MORPH \gg *PastP/Inf-RV

The constraint MORPH is ranked below *PastP/Inf-CAUS and *PastP/Inf-MV and is globally tied to the other verb class sensitive constraints of the markedness subhierarchy up to control verbs. It is ranked above *PastP/Inf-RV, however.¹⁶⁹

¹⁶⁸For most modals it therefore cannot be determined whether IPP is obligatory or not. There is one modal in Bernese German, however, that shows a phonetically different form for past participle and bare infinitive. This is (*nid*) *bruuche z* ‘(not) need to’. Here, IPP is optional:

- (i) a. Du hättsch nid bbruucht_{PastP} z choo
 You had(subjunctive) not needed to come
 b. Du hättsch nid bruuche_{Inf} z choo
 You had(subjunctive) not need to come
 ‘You would not have needed to come’

Either the other modals show IPP obligatorily and behave differently from *bruuche*, or all modals behave the same in Bernese German and show IPP optionally – it just cannot be told for most of them. I will assume the first possibility here. Both options, however, could be accounted for in principle. In order to come to a final decision more data work is necessary. Note, however, that in order to account for the behaviour of *bruuchen* ‘need’ a finer grained distinction between the single modals would be necessary which I will leave out for presentational reasons.

¹⁶⁹Note that raising verbs like ‘seem’ are not grammatical in the perfect tense independently of the verb form. Other factors must play a role here as well.

9.1.3 Standard German

The behaviour of the different verb classes with respect to IPP is repeated in (402):

(402) Occurrences of past participle and IPP in perfect tenses in Standard German:

Verb classes	[- verbal complement]	[+ verbal complement]
Causatives	*	IPP
Modals	PastP	IPP
Perception verbs	PastP	IPP, PastP
Benefactives	PastP	IPP, PastP
Duratives	PastP	PastP
Inchoatives	PastP	PastP
Control verbs	PastP	PastP
Raising verbs	?? PastP	*

As repeated in (402) IPP is obligatory with causatives and modals in German. It is optional with perception verbs and benefactives, and it is impossible with the other potential IPP-verbs. These data have been discussed in detail in chapters 6 and 7. The ranking of the relevant constraints is repeated in (403):

(403) *PastP/Inf-CAUS \gg *PastP/Inf-MV \gg
 (*PastP/Inf-PV \gg *PastP/Inf-BV) $\langle \rangle$ MORPH
 \gg *PastP/Inf-DV \gg *PastP/Inf-IV
 \gg *PastP/Inf-CV \gg *PastP/Inf-RV

The constraint on morphological selection (MORPH) is ranked below *PastP/Inf-CAUS and *PastP/Inf-MV, it is globally tied to *PastP/Inf-PV and *PastP/Inf-BV, and it is ranked above the remaining constraints of the markedness sub-hierarchy. As shown in detail in chapter 6 above, this ranking accounts for the IPP-data in Standard German.

9.1.4 Sankt Gallen German

The behaviour of the different verb classes with respect to IPP is given in (404):

(404) Occurrences of past participle and IPP in perfect tenses in Sankt Gallen German:

Verb classes	[- verbal complement]	[+ verbal complement]
Causatives	*	IPP
Modals	the forms are phonetically equivalent	
Perception verbs	PastP	IPP, PastP
Benefactives	PastP	IPP, PastP
Duratives	PastP	PastP
Inchoatives	PastP	IPP, PastP
Control verbs	PastP	PastP
Raising verbs	*	*

IPP is obligatory with causatives and modals.¹⁷⁰ It is optional with perception verbs, benefactives, and inchoatives. IPP is not possible with control verbs.¹⁷¹ Raising verbs do not appear in the perfect tense. The constraint ranking that accounts for these data is given in (405):

(405) *PastP/Inf-CAUS \gg *PastP/Inf-MV \gg
 (*PastP/Inf-PV \gg *PastP/Inf-BV \gg
 *PastP/Inf-IV) $\langle \rangle$ MORPH
 \gg *PastP/Inf-CV \gg *PastP/Inf-RV

The constraint ranking of Sankt Gallen German is quite similar to the ranking of Standard German. A difference lies in the optionality of IPP with inchoatives in Sankt Gallen German. This is accounted for by including the constraint *PastP/Inf-IV into the global tie with MORPH.

9.1.5 Zürich German

The occurrences of IPP and past participle in Zürich German are repeated in (406):

¹⁷⁰Although the past participle and the bare infinitive are phonetically equivalent, it is assumed that only the bare infinitive appears in these constructions. This view is supported by the fact that the possible verb orders in these constructions are typical for IPP-constructions but not for the ‘expected’ case where V_2 is a past participle.

¹⁷¹The duratives which may well be statives in Sankt Gallen German are left out here, see footnote 165 above.

(406) Occurrences of past participle and IPP in perfect tenses in Zürich German:

Verb classes	[- verbal complement]	[+ verbal complement]
Causatives	*	IPP
Modals	the forms are phonetically equivalent	
Perception verbs	PastP	IPP, PastP
Benefactives	PastP	IPP, PastP
Duratives	PastP	PastP
Inchoatives	PastP	PastP
Control verbs	PastP	PastP
Raising verbs	??	??

IPP is obligatory with causatives and modals.¹⁷² Just like Standard German, it is optional with perception verbs and benefactives, and it does not appear with duratives, inchoatives, and control verbs. Raising verbs are judged as highly marked in the perfect tense. The Zürich German ranking equals the Standard German ranking. It is given in (407):

(407) *PastP/Inf-CAUS >> *PastP/Inf-MV >>
 (*PastP/Inf-PV >> *PastP/Inf-BV) <> MORPH >>
 *PastP/Inf-DV >> *PastP/Inf-IV >>
 *PastP/Inf-CV >> *PastP/Inf-RV

9.1.6 Dutch

The occurrences of past participle and IPP with respect to the potential IPP-verbs are given in (408):¹⁷³

(408) Occurrences of past participle and IPP in perfect tenses in Dutch:

Verb classes	[- verbal complement]	[+ verbal complement]
Causatives	*	IPP
Modals	PastP	IPP
Perception verbs	PastP	IPP
Benefactives	PastP	IPP
Duratives	PastP	IPP
Inchoatives	PastP	PastP
Control verbs	PastP	PastP
Raising verbs	?PastP	*

¹⁷²For modals the same argumentation holds as in Sankt Gallen German, see footnote 170. Although the connection between verb form and verb order is not as clear as in Sankt Gallen German, it goes in the same direction.

¹⁷³Remember that judgements differ in the literature, and that I follow my informant here.

IPP is obligatory with many verb classes in Dutch ranging from causatives to duratives. It is not possible with inchoatives and control verbs. Raising verbs are judged as ungrammatical in 3-verb clusters in the perfect tense by my informant.¹⁷⁴

- (409) *PastP/Inf-CAUS >> *PastP/Inf-MV >>
 *PastP/Inf-PV >> *PastP/Inf-BV >>
 *PastP/Inf-DV >> MORPH >>
 *PastP/Inf-IV >> *PastP/Inf-CV
 >> *PastP/Inf-RV

The constraint on morphological selection, MORPH, that demands the past participle is ranked below *PastP/Inf-DV and therefore also below the other constraints of the subhierarchy that refer to verb classes that are ‘higher up’ in the implicational scale, i.e., that have less semantic content. MORPH is ranked above the remaining constraints of the markedness subhierarchy concerning inchoatives, control verbs, and raising verbs.

9.1.7 West Flemish

The distribution of IPP and past participle in West Flemish is repeated in (410):

- (410) Occurrences of past participle and IPP in perfect tenses in West Flemish:

Verb classes	[- verbal complement]	[+ verbal complement]
Causatives	*	IPP
Modals	PastP	IPP
Perception verbs	PastP	IPP
Benefactives	PastP	IPP
Duratives	PastP	IPP
Inchoatives	PastP	IPP, PastP ¹⁷⁵
Control verbs	PastP	IPP, PastP
Raising verbs	?PastP	*

As in Dutch, IPP is obligatory with many verb classes ranging from causatives to duratives. It is optional with inchoatives and control verbs. Raising verbs are ungrammatical in a 3-verb cluster in the perfect tense. The ranking that accounts for the West Flemish data is given in (411):

¹⁷⁴Contra, e.g., Rutten 1991:69. In the Dutch that Rutten describes, IPP is more often optional, i.e., MORPH would presumably be tied to the markedness constraints that refer to inchoatives, (at least some) control verbs, and even raising verbs for some speakers.

¹⁷⁵Remember that IPP is only optional with inchoatives that embed a *to*-infinitive as opposed to those that embed an infinitival complement beginning with the preposition *met* ‘with’. In the latter case, IPP is not possible.

- (411) *PastP/Inf-CAUS >> *PastP/Inf-MV >>
 *PastP/Inf-PV >> *PastP/Inf-BV >> *PastP/Inf-DV
 >> (*PastP/Inf-IV >> *PastP/Inf-CV) <> MORPH
 >> *PastP/Inf-RV

As in Dutch, MORPH is ranked below *PastP/Inf-DV and therefore below all higher ranked constraints of the markedness subhierarchy. It is tied to *PastP/Inf-IV and *PastP/Inf-CV, and ranked above *PastP/Inf-RV.

9.1.8 Afrikaans

Finally, the distribution of IPP and past participle in Afrikaans is repeated in (412). Again, with respect to the different verb classes:

- (412) Occurrences of past participle and IPP in perfect tenses in Afrikaans:

Verb classes	[- verbal complement]	[+ verbal complement]
Causatives	*	IPP, PastP
Modals	PastP	IPP?
Perception verbs	PastP	IPP, PastP
Benefactives	PastP	IPP, PastP
Duratives	PastP	IPP, PastP
Inchoatives	PastP	IPP, PastP
Control verbs	PastP	IPP, PastP
Raising verbs	?PastP	*

IPP is optional with nearly all verb classes in Afrikaans. Remember, however, that modals behave exceptionally in Afrikaans. The imperfect form in a compound tense is preferred to IPP. From this I concluded that IPP is optional with modals although the alternation is not one between IPP and past participle but between IPP and a form of the imperfect. An independent constraint must be assumed that regulates this distribution. The ranking for Afrikaans is given in (413):

- (413) (*PastP/Inf-CAUS >> *PastP/Inf-MV >>
 PastP/Inf-PV >> *PastP/Inf-BV >> *PastP/Inf-DV
 >> *PastP/Inf-IV >> *PastP/Inf-CV) <> MORPH
 >> *PastP/Inf-RV

With the exception of the markedness constraint referring to raising verbs, the whole markedness subhierarchy is tied to MORPH.

9.1.9 Summary

In this section I have extended the account of the IPP-form given in chapter 6 for German to the other IPP-languages under discussion. Inside the group of IPP-languages we find a lot of variation. First, the languages differ as to which verb classes allow IPP and which do not. Second, languages differ as to which verb classes obligatorily show IPP and which only optionally.

The language specific distribution of IPP and past participle is accounted for by the ranking of MORPH either above or below the relevant constraints of the markedness subhierarchy *PastP/Inf. Optionality is accounted for by a global tie between MORPH and the relevant constraints of *PastP/Inf.

The OT-account is flexible enough to account for the variation by reranking of MORPH relative to the constraints of the subhierarchy. It is also strict enough to account for the fact that no language shows e.g. obligatory IPP with perception verbs but not with causatives and modals. This is captured by the markedness subhierarchy *PastP/Inf whose members are in a fixed ranking relation with respect to each other. Fixed constraint hierarchies like this may be derived by the mechanism of harmonic alignment of markedness scales as introduced in chapter 5 which is a device commonly employed to capture implicational relations in OT.

9.2 The verb order in 3-verb clusters

The large amount of variation in the verb order of (3-)verb clusters in West Germanic languages has been the subject of much research which gained different results (for a good overview see Wurmbrand (2002)). Verb order variation in verb clusters is a difficult phenomenon to account for: Not only are there differences between languages but also language internally, depending on several parameters like, e.g., construction type, verb classes, etc. This has been shown in some detail for German in chapter 7. I will focus on the verb order in West Germanic IPP-constructions here and compare them to other 3-verb clusters (perfect tense with past participle and future tense) as already shown in chapter 3.

In this section I will concentrate on the predominant verb orders in each construction, i.e., the following table represents the orders that appeared most frequently (across all verb classes in question) in the data given in chapter 3. As shown there, more verb orders were judged as grammatical by my informants. Therefore, the following table is a simplification. The default orders in the table, however, are largely in accordance with what Wurmbrand 2002:9 (table 2) summarises partly from the literature and partly from questionnaires of her own. I will account for the default orders, and sketch an analysis for two additional verb orders of Sankt Gallen German later in this chapter.

(414) The predominant verb orders

Language	Perfect tense: PastP	Perfect tense: IPP	Future
BG	123	123	123
Ge	321	132	321, 132
SG	213	123	123
Zü ¹⁷⁶	213	123	123
Du	123	123	123
WF	231,213	231,123	123
Af	231	231, 123	123

We have two languages with a strictly ascending order in the verbal complex throughout all three constructions. These are Dutch and Bernese German.¹⁷⁷ The other languages display different verb orders depending on the different constructions. The verb order(s) in the IPP-construction sometimes pattern(s) with one of the verb orders in the other constructions, and sometimes with both. Thus, verb order in IPP-constructions is not exceptional but would seem to follow rules of the grammar that are also relevant in non-IPP contexts.

Most previous accounts of verb order variation assume that the different verb orders are derived by movement operations that apply to an underlying structure: The traditional assumption is that the underlying structure of the verb cluster is head final, and that other verb orders are derived by rightward movement (see, e.g., Evers (1975)). More recently, however, it has also been argued that the underlying structure is head initial (see, e.g., Zwart (1996), Haegeman (1998), Hinterhölzl (1999)). Subject to both kind of approaches is the question whether heads are moved (see again Evers (1975)) or (remnant) phrases (see, e.g., Koopman and Szabolcsi (2000)). I will not go into details here, for an overview and a comparison of the different approaches see Wurmbrand (2002).¹⁷⁸ For all approaches, however, the large variation in verb orders in verb clusters is prob-

¹⁷⁶We have seen in chapter 3 that there is a large amount of variation of verb order patterns in Zürich German. See also Lötscher (1978) who stated that there is no simple consistent principle concerning the placement of elements in a verb cluster. (In the German original (Lötscher 1978:10): ‘Es gibt für das Zürichdeutsche aber offenbar kein einfaches einheitliches Prinzip für die Stellung der Elements einer komplexen Verbalgruppe’.) Nevertheless, my informant had quite strong intuitions which verb order was predominant in the perfect tense both with past participle and with IPP. As a construction with *weerde* ‘will’ is more often used with modal interpretation in Zürich German, and ‘sounds like Standard German’ in the future tense interpretation, his judgements were not as strong here. In a similar construction with a modal verb as V₁, however, he preferred order 123 (c) (above orders 132 (d) and 321 (a)). This is the order given in the table. In the following, I will account for the predominant orders of each construction.

¹⁷⁷Dutch also allows for the verb orders 312 and 132 in case V₃ is a past participle, see, e.g., Zwart (1996), IJbema (1997). These orders will not be discussed here, however, as I will only concentrate on the predominant verb orders.

¹⁷⁸For a comparison of an OT-approach along the lines suggested here and structural movement accounts, see Vogel (2002).

lematic. I will depart from the structural movement approaches here, and see whether the PF-oriented OT-approach introduced for German in chapter 7 can be extended to the other languages. An abstract syntactic constituent structure¹⁷⁹ stands in a correspondence relation with linear orders of the terminal elements, i.e., each terminal element relates to a PF-element. Which linear order is chosen in a language depends on constraints that regulate the mapping of syntactic structure to linear order. Languages differ in the relative order of these constraints.¹⁸⁰ In chapter 7, two of these mapping constraints have been introduced which may be seen as implementations of the head parameter: MAPch and MAPhc. Their relative ranking determines whether a complement precedes or follows its (verbal) head in a given language. Only the constraint MAPch has turned out to be relevant for the approach to verb order in Standard German.

The effects of MAPch are (partly) overridden by (the self-conjunction of) constraints of a subhierarchy referring to the ‘degree of functionality’ of verbs. One member of this subhierarchy (not self-conjoined yet) that refers to *have* (or, more general, the perfect tense auxiliary) is repeated in (415):

(415) MAPlr(V_{have}):

If A is a perfect tense auxiliary (e.g., *have*) that asymmetrically c-commands another verb B that belongs to the same extended projection at LF, then the correspondent of A precedes that of B at PF.

Before addressing the verb orders of the different 3-verb constructions, I will introduce a generalised version of constraints like the above that allows the separation of verbal complements from, e.g., NP-complements or non-verbal complements in general.

Even in IPP-languages that show a strictly ascending verb order in the (3-verb) cluster, an NP-complement always precedes its embedding verb. An example from Dutch that illustrates this point for a finite and a non-finite verb is given in (416):

(416) NP before V in Dutch (taken from Zwart 1996:292)

- a. (Ik wil dat hij) het boek **leest**
I want that he the book reads
‘I want him to read the book’
- b. *(Ik wil dat hij) **leest** het boek
- c. (Hij wil) het boek **lezen**
He wants the book read-Inf
‘He wants to read the book’
- d. *(Hij wil) **lezen** het boek

¹⁷⁹In chapter 7 this abstract syntactic structure has been called LF. I will keep this notion for reasons of consistency although it deviates from what is normally understood as LF.

¹⁸⁰Note that other than in chapter 8 on optionality where the focus was different, I will come back to the more general constraints on verb order here that were argued to replace the conjoined constraint MAPhc & D MORPH (see chapter 7).

Under the assumption that the constraint MAPhc is responsible for the purely ascending verb order in Dutch (and also in Bernese German, etc.), it should also be active in the case of non-verbal complements as in (416) and favour the sentences in (b) and (d) that equal the English order. As these sentences are ungrammatical in Dutch (and also in the other IPP-languages), however, I assume that it is not MAPhc that is responsible for the ascending order of verbs in a (3-verb) cluster but a constraint that refers to verbal heads only. This constraint is given in (417), see also Vogel (2002), Schmid and Vogel (2002):

- (417) MAP-left-right(V^0) (MAPlr(V^0)): Map left-right of verbal heads;
 The heads of an extended projection of V are linearised in a left-to-right fashion, i.e., if head A asymmetrically c -commands head B at LF, then the PF correspondent of A precedes the one of B at PF.

MAPlr(V^0) is a general version of the above mentioned MAPlr(V_{have}) (and also of the other constraints of the subhierarchy on ‘functionality’). The constraints stand in a stringency relation towards each other (see chapter 6), i.e., whenever the more special constraint MAPlr(V_{have}) is violated, then the more general constraint MAPlr(V^0) is violated as well.

A ranking like ‘MAPlr(V^0) \gg MAPch \gg MAPhc’ yields a language in which the verbs stand in a strictly ascending order, and in which non-verbal complements precede their (verbal) head. The opposite order of MAPch and MAPhc would result in a language of the English type.

Let us now have a look at the most common orders in 3-verb clusters of IPP-languages, and see whether they can be accounted for by the constraints introduced so far. In the following section, I will begin with IPP-constructions.

9.2.1 Perfect tense: V_2 a bare infinitive (IPP)

The overall predominant order in IPP-constructions is order 123 (c). Apart from Standard German that only allows order 132 (d), this order is possible in the IPP-constructions of all other languages discussed here. In the three Swiss German dialects and in Dutch, order 123 (c) clearly is the predominant verb order, and in West Flemish and Afrikaans it is among the two most common verb orders in IPP-constructions.

The ranking of MAPlr(V^0) – the constraint that demands a left to right order of verbal heads – above MAPch – the constraint that demands complements to precede (verbal) heads – is responsible for order 123 in IPP-constructions of the Swiss German dialects and Dutch. The ranking of the more special constraint that demands *have* to precede the verbs it c -commands (in the same verbal extended projection) in 3-verb clusters, (MAPlr(V_{have}))², is irrelevant as it requires the same order as MAPlr(V^0).

A ranking that is consistent with the data is given in (418):¹⁸¹

$$(418) \quad (\text{MAPlr}(V_{have}))^2 \gg \text{MAPlr}(V^0) \gg \text{MAPch}$$

A ranking like this ensures that the verb order 123 is optimal in the IPP-construction. The fact that V_2 is a bare infinitive here (i.e., the IPP) is due to constraints on the verb form as shown in the first part of this chapter. These constraints are left out here for presentational reasons.

In the competition in (420), the effects of the ranking in (418) are shown for all logically possible verb order patterns. These are given as abstract candidates. The elements of these candidates are explained in (419):

- (419) a. LV: lexical verb V_3 as an infinitive
 b. MV: modal verb V_2 as a bare infinitive
 c. HAVE: V_1 as a finite perfect tense auxiliary like, e.g., *have*
- (420) Verb order in IPP-constructions: V_2 (MV) a bare infinitive, 123 is optimal (Bernese German, Sankt Gallen German, Zürich German, Dutch, West Flemish, Afrikaans)

		$(\text{MAPlr}(V_{have}))^2$	$\text{MAPlr}(V^0)$	MAPch
a.*	321: LV-MV-HAVE	*!	***	
b.*	231: MV-LV-HAVE	*!	**	*
☞ c.	123: HAVE-MV-LV			**
d.*	132: HAVE-LV-MV		*!	*
e.*	312: LV-HAVE-MV		*!*	*
f.*	213: MV-HAVE-LV		*!	**

The candidates that show *have* at the right side of the cluster, i.e., order 321 (a) and order 231 (b) violate the highly ranked self-conjunction $(\text{MAPlr}(V_{have}))^2$. Of the remaining candidates only candidate (c) with the order 123 does not violate the next highest constraint $\text{MAPlr}(V^0)$.¹⁸² Candidate 123 (c) is therefore optimal although it violates the low ranked constraint MAPch (twice).

¹⁸¹As I will only look at the pure verb cluster in the following, and thus exclude non-verbal complements, the constraint MAPhc will be left out. As said above, it must be ranked below MAPch. Notice that the constraint $\text{MAPlr}(V_{have})$ is also left out here. It is ranked below $(\text{MAPlr}(V_{have}))^2$ but it is not relevant in the following competitions. Note also that the constraint *CONST-SPLIT that demands sister nodes to be adjacent in linear order (as introduced in chapter 7) is left out in this first ranking because then the tableau in (420) is valid for all six languages showing order 123 (c) in IPP-constructions. If it had been included, it must have been ranked below $(\text{MAPlr}(V_{have}))^2$ in Sankt Gallen German and Zürich German, and above $(\text{MAPlr}(V_{have}))^2$ in West Flemish and Afrikaans. In Bernese German and in Dutch its ranking is not crucial. The insertion of *CONST-SPLIT would not make a difference in the IPP-case, however. It will be included in all other rankings below when it becomes crucial.

¹⁸²Note that the ranking of $(\text{MAPlr}(V_{have}))^2$ above $\text{MAPlr}(V^0)$ is not crucial here. It could well be the other way round. It is crucial, however, that both these constraints outrank MAPch.

In Standard German, the predominant order in IPP-constructions is order 132 (d). As illustrated in chapter 7 it is crucial that $(\text{MAPlr}(V_{\text{have}}))^2$, i.e., the self-conjunction referring to the perfect auxiliary *have*, outranks MAPch. This ranking together with the ranking of MAPch above the newly introduced constraint on verbal heads, $\text{MAPlr}(V^0)$, derives order 132 (d) as optimal in IPP-constructions.

The ranking is given in (421):¹⁸³

$$(421) \quad * \text{CONST-SPLIT} \gg (\text{MAPlr}(V_{\text{have}}))^2 \gg \text{MAPch} \gg \text{MAPlr}(V^0)$$

The ranking of MAPch above $\text{MAPlr}(V^0)$ favours a verb order in which all complements precede their heads: This is the purely descending verb order (3)21 which clearly functions as default order in Standard German. When, however, the perfect auxiliary *have* is the highest verb (V_1) in a 3-verb cluster, then the highly ranked self-conjunction $(\text{MAPlr}(V_{\text{have}}))^2$ becomes active and demands that *have* precedes the verbs it c-commands. Candidates 312 (e) and 213 (f) violate *CONST-SPLIT. The verb order that fares best under the ranking given in (421) is order 132 (d). This is shown in the competition in (422), again for abstract candidates:

(422) Verb order in IPP-constructions in Standard German: V_2 (MV) a bare infinitive, 132 is optimal

	*CONST SPLIT	$(\text{MAPlr}(V_{\text{have}}))^2$	MAPch	$\text{MAPlr}(V^0)$
a.* 321: LV-MV-HAVE		*!		***
b.* 231: MV-LV-HAVE		*!	*	**
c.* 123: HAVE-MV-LV			**!	
☞ d. 132: HAVE-LV-MV			*	*
e.* 312: LV-HAVE-MV	*!		*	**
f.* 213: MV-HAVE-LV	*!		**	*

To sum up: In languages that show the strictly ascending order 123 in IPP-constructions, we see that the stringent and the general constraints of the MAPlr type ‘cluster together’. Both constraints of the MAPlr type outrank MAPch. In Standard German, that shows order 132 in the IPP-construction, this is different. The stringent and general versions of MAPlr occur at different sides of MAPch. MAPch outranks the general version $\text{MAPlr}(V^0)$. This way, the descending order 321 (a) that does not violate MAPch at all becomes the default verb order in German. As, however, the stringent version of $\text{MAPlr}(V^0)$, $(\text{MAPlr}(V_{\text{have}}))^2$, outranks MAPch, the default verb order may be overridden when the perfect tense auxiliary is the highest verb in a 3-verb cluster (in the IPP-construction, i.e., when V_2 is a bare infinitive). This way the ‘mixed order’ 132 (d) becomes optimal.

¹⁸³ Again, MAPch is left out here for reasons of presentation but *CONST SPLIT is included in rankings and tableaux from now on.

9.2.2 Perfect tense: V_2 as a past participle

Let us now look at the verb orders that appear in the perfect tense when V_2 is a past participle. The predominant verb orders with V_2 as a past participle differ from the predominant orders with IPP. For a better overview, the verb orders with past participle are extracted from the table in (414) and repeated in (423) (see also chapter 7):

(423) The predominant verb orders in 3-verb clusters in the perfect tense

Language	Perfect tense, V_2 : PastP
BG	123
Ge	321
SG	213
Zü	321
Du	123
WF	231,213
Af	231

It is especially striking that V_2 as a past participle preferably precedes its selecting verb V_1 in IPP-languages. With exception of Bernese German and Dutch that keep the strictly ascending order 123, this can be observed in all other languages as shown in (423). As everything else remains equal, I assume that the past participle is responsible for the differences in verb order compared to IPP-constructions. Therefore a mapping constraint has been introduced in chapter 7 referring to past participles. The constraint is repeated in (424):

(424) Map past participle before head (MAP(pastph)):
 If A and B are sister nodes at LF, and A is a head that requires its complement to be a past participle and B is a complement with past participle morphology at PF, then the correspondent of B precedes the one of A at PF.

In the remainder of this section, I will see how this constraint interacts with the other constraints introduced so far.

Let us come back to the individual languages: In Bernese German and in Dutch the purely ascending verb order 123 (c) is also predominant when V_2 is a past participle.¹⁸⁴ In these languages the effect of MAP(pastph) is overridden. A

¹⁸⁴When the past participle is the most deeply embedded verb in Dutch, then it may appear anywhere in the cluster, i.e., order 312 and 132 are possible as well, see, e.g., IJbema 1997:fn10, and footnote 177 above. When V_2 is a past participle as in the cases discussed here, order 213 is possible as well. The same can be observed in Bernese German: Depending on the verb class of V_2 , order 213 may also be possible. To sum up: Order 123 is not as predominant in the perfect tense when V_2 is a past participle as in the case of IPP or in the future tense, see also chapter 3. Although the constraint MAP(pastph) seems to play a role in both cases, an account of these

verbal head precedes the verbs it c-commands rather than being itself preceded by a c-commanded past participle. It is therefore crucial that MAP(pastph) is ranked below MAPlr(V^0). One possible ranking is given in (425):

$$(425) \quad (\text{MAPlr}(V_{\text{have}}))^2 \gg \text{MAPlr}(V^0) \gg \text{MAP}(\text{pastph}) \gg * \text{CONST-SPLIT} \gg \text{MAPch}$$

A ranking as in (425) yields order 123 (c) as optimal even when V_2 is a past participle (PastP). This is shown in the tableau in (426) with abstract candidates.

(426) Verb order in the perfect tense: V_2 as a past participle, 123 is optimal (Bernese German, Dutch)

	(MAPlr(V_{have})) ²	MAPlr(V^0)	MAP(pastph)	*CONST-SPLIT	MAPch
a.* 321: LV-PastP-HAVE	*!	***			
b.* 231: PastP-LV-HAVE	*!	**			*
 c. 123: HAVE-PastP-LV			*		**
d.* 132: HAVE-LV-PastP		*!	*		*
e.* 312: LV-HAVE-PastP		*!*	*	*	*
f.* 213: PastP-HAVE-LV		*!		*	**

In Standard German, only order 321 is grammatical in the perfect tense with V_2 as a past participle. The constraint MAP(pastph) becomes relevant here as has been shown in detail in chapter 7. The relative ranking of MAP(pastph) and *CONST-SPLIT is not crucial. It is crucial, however, that both constraints outrank (MAPlr(V_{have}))². The ranking proposed in chapter 7 is repeated in (427):

$$(427) \quad \text{MAP}(\text{pastph}) \gg * \text{CONST-SPLIT} \gg (\text{MAPlr}(V_{\text{have}}))^2 \gg \text{MAPch} \\ \gg \text{MAPlr}(V^0)$$

The competition is repeated from chapter 7 in (428), with abstract candidates:

data cannot be easily delivered. If the two orders 123 and 213 were always optional with V_2 as a past participle, a tie between MAP(pastph) and MAPlr(V^0) would yield the right result. As the data are slightly more complicated, however, I will leave a more elaborate approach to further research.

(428) Verb order in the perfect tense: V_2 as a past participle, 321 is optimal (Standard German)

	MAP (pastph)	*CONST SPLIT	(MAPlr (V_{have})) ²	MAP ch	MAPlr (V^0)
☞ a. 321: LV-PastP-HAVE			*		***
b.* 231: PastP-LV-HAVE			*	*!	**
c.* 123: HAVE-PastP-LV	*!			**	
d.* 132: HAVE-LV-PastP	*!			*	*
e.* 312: LV-HAVE-PastP	*!	*		*	**
f.* 213: PastP-HAVE-LV		*!		**	*

Sankt Gallen German and Zürich German are languages that show the strictly ascending order 123 (a) in IPP-constructions. When V_2 is a past participle, however, the pattern changes and order 213 (f) becomes predominant. We observe that the past participle precedes its selecting verb and deduce from this that the constraint MAP(pastph) is active in both Swiss German dialects. In order to show an effect, it must be ranked above MAPlr(V^0). A ranking compatible with this requirement is given in (429):

(429) MAP(pastph) \gg (MAPlr(V_{have}))² \gg MAPlr(V^0) \gg *CONST-SPLIT \gg MAPch

The effects of the high ranking of MAP(pastph) are shown in (430), again for abstract candidates:

(430) Verb order in the perfect tense: V_2 as a past participle, 213 is optimal (Sankt Gallen German, Zürich German)

	MAP (pastph)	(MAPlr (V_{have})) ²	MAPlr (V^0)	*CONST SPLIT	MAP ch
a.* 321: LV-PastP-HAVE		*!	***		
b.* 231: MV-PastP-HAVE		*!	**		*
c.* 123: HAVE-PastP-LV	*!				**
d.* 132: HAVE-LV-PastP	*!		*		*
e.* 312: LV-HAVE-PastP	*!		**	*	*
☞ f. 213: PastP-HAVE-LV			*	*	**

Due to the high ranking of MAP(pastph), order 213 (f) is optimal in this construction although it violates MAPch twice and *CONST-SPLIT and MAPlr(V^0) once. Note that the violation of MAPlr(V^0) would be fatal in the case of IPP.

Let us finally turn to West Flemish and Afrikaans. These two languages predominantly show pattern 213 (b) when V_2 is a past participle. Again, the past participle precedes its selecting verb. In the other 3-verb constructions looked at here, West Flemish and Afrikaans predominantly show the strictly ascending

order 123.¹⁸⁵ A ranking that is compatible with these data is given in (431):

$$(431) \quad \text{MAP}(\text{pastph}) \gg * \text{CONST-SPLIT} \gg (\text{MAPlr}(V_{\text{have}}))^2 \gg \text{MAPlr}(V^0) \gg \text{MAPch}$$

The competition for the perfect tense with V_2 as a past participle is given in (432):

$$(432) \quad \text{Verb order in the perfect tense: } V_2 \text{ as a past participle, 231 is optimal (West Flemish, Afrikaans)}$$

	MAP (pastph)	*CONST SPLIT	(MAPlr (V_{have})) ²	MAPlr (V^0)	MAP ch
a.* 321: LV-PastP-HAVE			*	***!	
 b. 231: PastP-LV-HAVE			*	**	*
c.* 123: HAVE-PastP-LV	*!				**
d.* 132: HAVE-LV-PastP	*!			*	*
e.* 312: LV-HAVE-PastP	*!	*		**	*
f. 213: PastP-HAVE-LV		*!		*	**

The highly ranked constraint MAP(pastph) is only obeyed by candidates 321 (a), 231 (b), and 213 (f). Candidate 213 (f) violates *CONST-SPLIT, however, and as the remaining candidates behave the same at (MAPlr(V_{have}))², the decision in favour of candidate 231 (b) is made by MAPlr(V^0). The special constraint MAP(pastph) and the general constraint (MAPch) of the MAPch-family here ‘enclose’ both the special and the general constraint of the MAPlr-family.

9.2.3 Future tense: V_2 a bare infinitive

In 3-verb clusters in the future tense, order 123 (c) is predominant. All languages allow this order with the exception of Standard German that shows both the descending order 321 (a), and the ‘mixed’ order 312 (d).

For Bernese German and Dutch, the constraint ranking given in (433) derives order 123 as the optimal candidate. Naturally, it is the same constraint ranking as above in the perfect tense. I will only give the general constraint MAPlr(V^0) and not the special versions that refer to functional elements ((MAPlr(V_{have}))², (MAPlr(V_{will}))²) when these constraints are immediately ranked above the general constraint, and therefore do not show an effect of their own. This is the case in all languages but Standard German.

$$(433) \quad \text{MAPlr}(V^0) \gg \text{MAP}(\text{pastph}) \gg * \text{CONST-SPLIT} \gg \text{MAPch}$$

¹⁸⁵Remember from chapter 3, however, that order 231 is optionally possible in IPP-constructions in both languages. More data work is needed to see which factors influence the appearance of which order. Ideally, the analysis should incorporate these factors.

The effects of this ranking are shown for the future tense in (434):

(434) Verb order in the future tense, 123 is optimal (Bernese German, Dutch)

	MAPlr (V ⁰)	MAP (pastph)	*CONST SPLIT	MAP ch
a.* 321: LV-Inf-WILL	*!***			
b.* 231: Inf-LV-WILL	*!*			*
☞ c. 123: WILL-Inf-LV				**
d.* 132: WILL-LV-Inf	*!			*
e.* 312: LV-WILL-Inf	*!*		*	*
f.* 213: Inf-WILL-LV	*!		*	**

As MAPlr(V⁰) (i.e., the whole MAPlr-family) is ranked highest, the decision for order 123 (c) is made immediately. All other candidates violate this constraint more often.

Sankt Gallen German and Zürich German only differ from Bernese German and Dutch by ranking MAP(pastph) above MAPlr(V⁰). This difference, however, does not play a role in the future tense as MAP(pastph) is not active here. MAPlr(V⁰) again favours the purely ascending order, and candidate 123 (c) is optimal in the future tense. The ranking is repeated in (435):

(435) MAP(pastph) ≫ MAPlr(V⁰) ≫ *CONST-SPLIT ≫ MAPch

The competition is given in (436):

(436) Verb order in the future tense, 123 is optimal (Sankt Gallen German, Zürich German)

	MAP (pastph)	MAPlr (V ⁰)	*CONST SPLIT	MAP ch
a.* 321: LV-Inf-WILL		*!***		
b.* 231: MV-Inf-WILL		*!*		*
☞ c. 123: WILL-Inf-LV				**
d.* 132: WILL-LV-Inf		*!		*
e.* 312: LV-WILL-Inf		*!*	*	*
f.* 213: Inf-WILL-LV		*!	*	**

West Flemish and Afrikaans also show order 123 (c) in the future tense. They differ from Sankt Gallen German and Zürich German by ranking *CONST-SPLIT above MAPlr(V⁰). Again this is not relevant for the future tense. The ranking is repeated in (437):

(437) MAP(pastph) ≫ *CONST-SPLIT ≫ MAPlr(V⁰) ≫ MAPch

The effects of this ranking are shown in the competition in (438):

(438) Verb order in the future tense, 123 is optimal (West Flemish, Afrikaans)

	MAP (pastph)	*CONST SPLIT	MAPlr (V ⁰)	MAP ch
a.* 321: LV-Inf-WILL			*!***	
b.* 231: Inf-LV-WILL			*!*	*
☞ c. 123: WILL-Inf-LV				**
d.* 132: WILL-LV-Inf			*!	*
e.* 312: LV-WILL-Inf		*!	**	*
f. 213: Inf-WILL-LV		*!	*	**

MAP(pastph) is not active in the future tense, *CONST-SPLIT excludes orders 312 (e) and 213 (f), and MAPlr(V⁰) finally makes the decision in favour of order 123 (c).

In Standard German, order 321 (a) and order 132 (d) are optionally grammatical in the future tense.¹⁸⁶ Standard German differs from the other languages discussed so far in that MAPch outranks MAPlr(V⁰). As shown above in chapter 7, however, the more special version of MAPlr(V⁰) that refers to perfect tense auxiliaries outranks MAPch, and the more special version that refers to the future tense auxiliary is tied to MAPch. I include both of these more special constraints in the ranking in (439) as they are separated from the general constraint MAPlr(V⁰), and show effects of their own. The constraint that refers to the perfect tense auxiliaries, however, will be left out in the tableau as it is not active in the future tense. The Standard German ranking is given in (439):

(439) MAP(pastph) \gg *CONST-SPLIT \gg (MAPlr(V_{have}))² \gg (MAPlr(V_{will}))² $\langle \rangle$ MAPch \gg MAPlr(V⁰)

The competition for the future tense is given in (440) (the ranking is underspecified, see chapter 7 for a resolution of the tie):

(440) Verb order in the future tense, 321 and 132 are optimal (Standard German)

	MAP (pastph)	*CONST SPLIT	(MAPlr (V _{will})) ²	MAP ch	MAPlr (V ⁰)
☞ a. 321:LV-PastP-HAVE			*(!)		***
b.* 231: Inf-LV-WILL			*(!)	*(!)	**
c.* 123: WILL-Inf-LV				*(!)*!	
☞ d. 132: WILL-LV-Inf				*(!)	*
e.* 312: LV-WILL-Inf		*!		*	**
f.* 213: Inf-WILL-LV		*!		**	*

¹⁸⁶This is a simplification, however (see chapter 3 for data that show that the verb class of V₂ influences the verb order in the future tense as well.)

The constraint MAP(pastph) is not active in a future tense competition. *CONST-SPLIT excludes orders 312 (e) and 213 (f), and the global tie of (MAPlr(V_{will}))² and MAPch accounts for the optionality of orders 321 (a) and 132 (d).

To summarise, I will give the rankings of all constraints concerning verb order that have been discussed in this section for the different languages/language types:

- (441) Ranking compatible with Bernese German and Dutch:
 (MAPlr(V_{have}))² >> (MAPlr(V_{will}))² >> MAPlr(V⁰) >>
 MAP(pastph) >> *CONST-SPLIT >> MAPch
- (442) Ranking compatible with Sankt Gallen German and Zürich German:
 MAP(pastph) >> (MAPlr(V_{have}))² >> (MAPlr(V_{will}))²
 >> MAPlr(V⁰) >> *CONST-SPLIT >> MAPch
- (443) Ranking compatible with West Flemish and Afrikaans:
 MAP(pastph) >> *CONST-SPLIT >> (MAPlr(V_{have}))² >>
 (MAPlr(V_{will}))² >> MAPlr(V⁰) >> MAPch
- (444) Ranking compatible with Standard German:
 MAP(pastph) >> *CONST-SPLIT >> (MAPlr(V_{have}))² >>
 (MAPlr(V_{will}))² <> MAPch >> MAPlr(V⁰)

What should have been shown in this section is that the predominant verb orders can be accounted for by the interaction of violable constraints (mainly of the two constraint families MAPch and MAPlr). The system does not overgenerate, thus the predominant patterns are derived.¹⁸⁷

As shown in chapter 3 there is much more verb order variation in 3-verb clusters, however. In the remainder of this chapter I will briefly illustrate how at least some of the additional orders may be derived in an Optimality Theory system.

9.2.4 The influence of stress patterns on verb order

In this section, I will propose that (at least some of) the additional orders that appear in 3-verb clusters as shown in chapter 3 can be derived by taking ‘extra-syntactic’ factors like underlying focus assignment into account which is connected to certain stress patterns. Although hierarchical structure influences linear order, it does not totally determine it but is only one factor among others. In the following, I exemplify the influence of stress on verb order for Sankt Gallen German.

¹⁸⁷As already mentioned in footnote 185, the approach may be too strict for West Flemish and Afrikaans where we accounted only for order 123 in IPP-constructions although order 231 (b) is also possible (and maybe even predominant). More data work is needed to extract all relevant factors that influence verb order in these languages.

9.2.5 A case study of Sankt Gallen German

I will look at verb order in Sankt Gallen German in this section for two reasons: First, Sankt Gallen German is one of the languages that has been investigated in some detail in Schmid and Vogel (2002) with respect to underlying focus and stress assignment.¹⁸⁸ Second, the results were surprising in that order 213 (f) appeared as the preferred option with underlying focus on V_2 in the IPP-construction. This is insofar surprising as it is often claimed in the literature (see, e.g. IJbema (1997:148), Wurmbrand (2002:10), and the discussion in chapter 4) that order 213 does not appear in IPP-constructions at all.¹⁸⁹

What we saw in chapter 3 and what was summarised in table (414) is that order 123 (c) is predominant in IPP-constructions in Sankt Gallen. When, however, stress is forced on the single verbs of the verb cluster, then the picture is quite different: Additional orders appear when either the modal (MV) or the lexical verb (LV) is stressed/focussed. The additional orders are shown in (445) for stress/focus on the lexical verb (V_3) and in (446) for stress/focus on the modal (V_2). Stress on V_1 or on the NPs as well as no special stress assignment result in the default order 123 (c) and are therefore not shown here.

(445) 312: ... , dass si das Lied SINGE hät müese (focus on V_3)
... , that she the song sing has must

(446) 213: ... , dass si das Lied MÜESE hät singe (focus on V_2)
... , that she the song must has sing

The Sankt Gallen German pattern is summarised in a more abstract form in (447):

- (447) a. Default order:
123 (c): Aux-MV-LV
b. Additional orders:
(i) stress on LV: 312 (e): LV-Aux-MV
(ii) stress on MV: 213 (f): MV-Aux-LV

We observe that the stressed verb (with narrow focus) appears at the left edge of the verb cluster, i.e., order 312 (e) is optimal when the lexical verb receives stress, and order 213 (f) is optimal when the modal receives stress. Sankt Gallen German is among the languages that place focussed elements at a particular edge of the verb cluster.¹⁹⁰

¹⁸⁸This section is based on still ongoing research together with with Ralf Vogel, see, e.g., Vogel (2002), Schmid and Vogel (2002).

¹⁸⁹Interestingly, our informant did not judge order 213 (f) as grammatical when the sentences were given without focus/stress assignment, see, e.g., the judgements in chapter 3.

¹⁹⁰See Schmid and Vogel (2002) for languages that either tend to have focus at one edge of the verb cluster or that choose a different strategy altogether by favouring the syntactically least marked order (like, e.g., Standard German).

A constraint that refers to this property is given in (448):

- (448) FOCUSLEFT
 Focussed material occurs at the left edge of its phonological phrase.

By interaction of this focus constraint with the mapping constraints already introduced, the additional orders 312 (e) and 213 (f) in Sankt Gallen German can be accounted for. I assume that focus information is part of the input.¹⁹¹ The six different candidates are also already optimised with respect to prosodic phrasing. This needs to be accounted for independently.¹⁹² I will deal with the assignment of narrow focus to the lexical verb V_3 in (449), and with the assignment of narrow focus to the modal V_2 in (450).¹⁹³

- (449) Narrow focus on V_3 (lexical verb, LV)¹⁹⁴

	FocL	MAPlr(V^0)	*CONST-SPLIT	MAPch
a.* 321: LV MV Aux		***!		
b.* 231: MV LV Aux	*!	**		*
c.* 123: Aux MV LV	*!			**
d.* 132: Aux LV MV	*!	*		*
 e. 312: LV Aux MV		**	*	*
f.* 213: MV Aux LV	*!	*	*	**

The highly ranked constraint FOCUSLEFT is violated by all candidates with exception of candidates 321 (a) and 312 (e). The decision about the optimal candidate is made by the constraint MAPlr(V^0) whose ranking above MAPch is responsible for order 123 (c) as the default order in Sankt Gallen German. Here it favours order 312 (e) over order 321 (a).

¹⁹¹This is standardly assumed in OT-syntax, see, e.g., Grimshaw and Samek-Lodovici (1995), Grimshaw and Samek-Lodovici (1998), Biring (2001).

¹⁹²For an Optimality Theoretic approach of this issue see, e.g., Truckenbrodt (1999).

¹⁹³For an account of more complex foci see Schmid and Vogel (2002).

¹⁹⁴Note that for presentational reasons MAP(pastph) is left out in the tableaux as it is not active in the case of IPP. Also for presentational reasons, the more special constraint (MAPlr(V_{have}))² is left out as in Sankt Gallen German it immediately precedes the more general constraint and therefore does not show an effect of its own.

(450) Narrow focus on V_2 (modal, MV)

	FocL	MAPlr(V^0)	*CONST-SPLIT	MAPch
a.* 321: LV MV Aux	*!	***		
b.* 231: MV LV Aux		**!		*
c.* 123: Aux MV LV	*!			**
d.* 132: Aux LV MV	*!	*		*
e.* 312: LV Aux MV	*!	**	*	*
☞ f. 213: MV Aux LV		*	*	**

In this competition, FOCUSLEFT is only obeyed by order 231 (b) and order 213 (f). The decision in favour of order 213 (f) is again made by MAPlr(V^0).

The short overview of focus assignment in Sankt Gallen German should have demonstrated that syntactic constraints on verb order alone are not sufficient to account for the large amount of possible verb order patterns. Other factors like, e.g., informational structure have an influence on verb order as well.

The fact that a purely syntactic account is not sufficient has been observed before as the following citations of Maurer (1926) and Lötscher (1978) show:

(451) Predecessors of a multifactorial analysis:

‘[...] So liegt der Schluß nahe, daß die Wahl des Wortstellungstypus mit dem Tonfall der Rede, mit dem Akzent der betreffenden Mundart zusammenhängt. Vor allem fällt unser Augenmerk auch wieder auf den Rhythmus, der in Wortstellungsfragen eine ganz gewaltige Rolle spielt.[...]’ ((Maurer, 1926, 72))

‘[...] So we may conclude that the choice of the word order type is connected to the intonation and to the accent of the dialect in question. Primarily, we look at the rhythm again that is hugely important for word order questions. [...]’ (translation by TS)

‘Dabei muß die zusätzliche Komplikation berücksichtigt werden, daß für die Erklärung der Wortstellung wohl kaum ein einziger Regeltyp vorausgesetzt werden kann. Vielmehr lassen sich mindestens drei interagierende, aber primär voneinander unabhängige Arten von Regeln ansetzen: Erstens **grammatisch bedingte Regeln** [...] die mehr oder minder willkürlich eine Abfolge bestimmen [...]; **performanzbedingte Regeln** [...]; endlich **funktional bedingte Regeln** [...] deren Zweck die Ermöglichung von bestimmten funktionalen Satzverhältnissen im Sinne der Thema-Rhema Unterscheidung ist.’ ((Lötscher, 1978, 11); boldfacing by TS)

‘The additional complication, that one single rule type is hardly sufficient to account for word order, must be taken into account as well. Rather, there are at least

three interacting but primarily independent kind of rules: First, **grammatical rules** [...] that determine an order more or less arbitrarily [...]; **performance rules** [...]; at last, **functional rules** [...] that allow for certain functional relations in a sentence in the sense of the topic-comment distinction.’ (translation by TS)

In the next section, I will sketch a multifactorial OT-model that takes the observations made above seriously, i.e., not only syntactic factors have an influence on verb order.

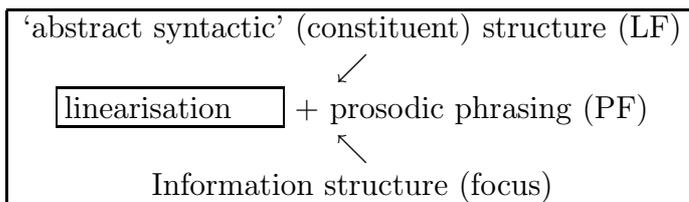
9.2.6 The sketch of an OT-modell

In this section, I will give a brief overview on how different factors on verb order like stress assignment, phonological and semantic information could be combined in an OT-approach. Such an enterprise, however, demands a thorough empirical investigation of the stress- and focus patterns that would be beyond the scope of this thesis. In ongoing work with Ralf Vogel, see, e.g., Schmid and Vogel (2002) we tackle the question of the interaction of syntactic, semantic, and phonological factors on verb order in verb clusters. I will give a short summary of our main ideas here.

As has already been mentioned above, e.g., in chapter 7 and also earlier in this section, we assume a PF-oriented model (see also Haegeman and van Riemsdijk (1986), Wurmbrand (2000)). This means that verb order variation in clause final (3-)verb clusters is not derived by syntactic movement operations (contra, e.g., Zwart (1996), Koopman and Szabolcsi (2000), see also Wurmbrand (2001) for an overview). We assume instead that all possible linearisations of the verbal elements inside a verb cluster are generated freely, and evaluated with respect to both mapping constraints relating abstract syntactic properties to linear order, and ‘extra-syntactic’ constraints. As an example, a constraint on focus placement has been given above. It may well be the case, however, that many more factors influence linearisation. As shown in chapter 3, further lexical properties such as verb classes of V_1 and of V_2 influence the verb order in a 3-verb cluster as well. Because of the mapping of abstract syntax (LF) to linear order (PF), syntactic information is nevertheless preserved at PF as much as possible.

The multifactorial model that we suggest is shown in (452):

(452) The multifactorial model



9.2.7 Summary

To sum up: I have concentrated on the predominant verb orders in the three different 3-verb constructions introduced in chapter 3: the IPP-construction, the perfect tense with V_2 as a past participle, and the future tense. The PF-oriented approach already suggested in chapter 7 on verb order in German has been carried over to the other languages. The predominant verb order patterns were accounted for by interacting mapping constraints that relate syntactic structure to linear order. As shown in chapter 3 and in a short case study on focus assignment in Sankt Gallen German in this chapter, there is much more variation (due to, e.g., verb classes or focus assignment). Verb order therefore does not seem to provide a good test case for an OT-approach at first sight, also because none of the ‘typical OT-phenomena’ were at stake like, e.g., last resort, emergence of the unmarked. Nevertheless, at second sight, OT may indeed provide a suitable theoretical frame that makes possible an interaction of several modules like syntax, i.e., mapping of structure to linear order, semantics/informational structure (focus-placement), and presumably also phonology and lexical information (like, e.g., verb classes). All these modules seem to influence verb order, i.e., any approach to verb order should take these factors into account. A careful integration of these factors into an account of verb order is subject to further research.

9.3 Summary

In this chapter, a comparative account has been given for the verb form and the verb order in IPP-constructions across seven languages. As the relative order of constraints of the subhierarchy *PastP/+Inf is universally fixed, variation with respect to which verb classes appear with IPP is not arbitrary but follows a typological prediction. Which verb classes appear with IPP depends on the point of insertion of the constraint on morphological selection in the markedness subhierarchy. With respect to the verb order patterns we have seen that mapping constraints that relate an abstract syntactic structure with a linear order may account for the predominant verb orders but not for the large variation that is found in some languages. Extra-syntactic factors seem to influence verb order in (3-)verb clusters a lot. Taking Sankt Gallen German as an example, it was shown for focus assignment how such factors can be integrated in an OT-model.

10 Conclusion

This dissertation dealt with IPP-constructions in the West Germanic languages. IPP poses a potential problem for syntactic theories because an unexpected form, the bare infinitive, turns out to be grammatical instead of the expected past participle.

I proposed that IPP can best be analysed as a last resort or repair strategy that appears when all other options would seem to be even less acceptable to the grammar. In contrast to former approaches, an analysis along these lines can account for the exceptional status of the construction which has often been stated in the literature but has not been captured theoretically. The theoretical elaboration of the last resort proposal of IPP-constructions requires a model of grammar in which constraints are violable and hierarchically ordered. As Optimality Theory fulfills these requirements I carried out the proposal in this theoretical framework.

Having recapitulated the main idea behind my analysis, I will summarise the results of the dissertation step by step.

As shown above in the empirical part, I systematically compared the data from seven West Germanic languages with respect to both verb form and verb order in IPP-constructions. The data confirmed that the verb class of the IPP-verb largely influences whether IPP is obligatory, impossible, or optional crosslinguistically. Although the context in which IPP (preferably) appears is the same across IPP-languages, there is variation with respect to exactly which verb classes exhibit IPP. I showed that this variation is not random but follows a certain pattern: Across languages, more ‘auxiliary-like’ verbs like causatives and modals show (obligatory) IPP more often than less ‘auxiliary-like’ verbs like inchoatives and control verbs. The main result of this section was that the verb classes of IPP-verbs could be placed in a cross-linguistically valid implicational hierarchy. Languages do not differ as to the ordering inside this hierarchy, they only differ as to the exact position of the cut-off points in the hierarchy.

With respect to verb order, IPP-constructions were compared to two other 3-verb constructions (perfect tense with past participle and future tense). A main finding here was that the verb order in IPP-constructions is not ‘exceptional’ in the sense that it appears nowhere else in the languages. On the contrary, especially the verb order in the future tense often coincides with the order in IPP-constructions crosslinguistically. Another important result was that in contrast to often repeated claims in the literature, all logically possible verb orders indeed appear in IPP-constructions. Even order 213 (f) is found which has often been claimed to be impossible.

In the theoretical part of the dissertation, I worked out in detail an account for Standard German, and then I showed how the other languages can be accounted for by reranking the constraints used for German. As mentioned at the beginning of this chapter, the leading idea behind my approach was that IPP is a last resort

or repair strategy. As it violates rules of the grammar, it only appears when needed to avoid a configuration which is even more problematic from the point of view of the grammar.

The bare infinitive in IPP-constructions violates a constraint on morphological selection that requires a past participle in the perfect tense. Nevertheless, it is optimal, i.e., grammatical in some constructions, because it does not violate the ‘IPP-trigger’ constraint, i.e., a higher ranked constraint prohibiting infinitival complements of past participles. The implicational hierarchy of IPP-verbs was implemented as a universal markedness subhierarchy by conjoining it to the IPP-trigger. By inserting the constraint on morphological selection at different points of this universal hierarchy, the different behaviour of verb classes with respect to IPP was accounted for both language internally and across languages.

It was also shown that the change of a past participle to a bare infinitive as in IPP-constructions is not the only last resort strategy that languages employ in order to avoid the marked configuration of a past participle embedding an infinitival complement. Some other Germanic languages follow the opposite strategy and replace the infinitive embedded under the past participle by a past participle. This phenomenon is called ‘Participium pro Infinitivo’ (PPI).

I linked the different strategies to the different morphology of IPP-languages and PPI-languages: IPP-languages build their past participle with *ge*-prefix whereas PPI-languages only show a suffix. Thus, the past participle violates a constraint on structure in IPP-languages but not in PPI-languages.

Optionality of IPP which is often ignored in the literature was explicitly considered. I presented two OT-accounts of optionality which both capture the IPP-data.

By assuming ranked and violable constraints, I could not only account for cases of obligatory, impossible, and optional IPP in German but, through reranking of the proposed constraints, also for Dutch, West Flemish, Afrikaans, and the three Swiss German dialects.

With respect to the diversity of verb order patterns, a PF-oriented approach was proposed. I suggested that an abstract syntactic structure is mapped into the optimal linear order according to the constraint ranking of the language. By interaction of mainly two constraint-families (MAP-XPh, and MAP_lr) the predominant orders in three different kind of 3-verb constructions could be derived. The main finding of this section was, however, that the whole range of possible verb orders in 3-verb clusters cannot be accounted for by structural constraints alone. Extrasyntactic factors like, e.g., verb class, and focus information need to be included in a descriptively adequate account. I sketched a ‘multifactorial model’ (along the lines of Schmid and Vogel (2002)), and exemplified its working for focus assignment in Sankt Gallen German. A more thorough investigation of the influence of extra-syntactic factors on verb order is beyond the scope of this dissertation, however. Further research may reveal how successful a multifactorial OT-model will be.

Let me finally repeat three reasons why Optimality Theory proved to be an adequate theory for the IPP-construction:

First, a last resort analysis of IPP is suggested by the empirical data: IPP violates otherwise valid rules of the grammar but is nevertheless the best choice in certain configurations. Although previous analyses implicitly assumed something along these lines, only in an OT-setting where constraints are violable and hierarchically ranked, can these intuitions be explicitly stated and formally captured.

Second, OT proved to be well-suited for the comparative approach to IPP taken here: By reranking of constraints the differences between IPP-languages could be accounted for.

Third, we saw that many factors influence verb order in IPP-constructions, and (3-)verb clusters in general. A multifactorial approach in which these factors are taken into account may best be modelled within OT due to the basic role this theory assigns to constraint interaction.

In contrast to most work in the literature, this dissertation offered a comparative approach to the IPP-construction by systematically investigating data of seven languages.

That does not mean, however, that each individual language must not also be investigated on its own. On the contrary, only by combining both comparative and language-specific approaches, a descriptively and explanatorily adequate theory of grammar can be achieved that may provide a better understanding of the mechanisms of language.

Summary in German – Zusammenfassung

Westgermanische Ersatzinfinitivkonstruktionen.

Eine optimalitätstheoretische Analyse

1. Einführung

Die vorliegende Arbeit beschäftigt sich mit Ersatzinfinitivkonstruktionen (auch ‘Infinitivus Pro Participio’, IPP) in den westgermanischen Sprachen. Neben dem Deutschen (De) werden das Niederländische (Nd), Afrikaans (Af), Westflämisch (WF), und drei schweizerdeutsche Dialekte (Sankt Gallen Deutsch (SG), Berndeutsch (Be) und Zürichdeutsch (Zü)) stellvertretend behandelt.

Unter dem Terminus ‘Ersatzinfinitiv’ (EI) ist ein reiner Infinitiv zu verstehen, der in bestimmten Kontexten an Stelle eines erwarteten Partizip Perfekt auftritt. Normalerweise selegiert ein Perfektauxiliar (*haben, sein*) ein Verb im Partizip Perfekt wie das Beispiel aus dem Deutschen in (453) zeigt:

- (453) a. Peter hat das Buch **gelesen**
b. *Peter hat das Buch **lesen**

Wenn jedoch das vom Perfektauxiliar selegierte Verb selbst ein verbales Komplement einbettet, dann erscheint in Ersatzinfinitivsprachen statt des erwarteten Partizip Perfekt ein reiner Infinitiv:

- (454) Ersatzinfinitiv beim Modalverb *können*
a. *Peter hat das Buch lesen **gekonnt**
b. Peter hat das Buch lesen **können**

In einigen Sprachen tritt in der Ersatzinfinitivkonstruktion außerdem eine unerwartete Verbabfolge auf. Nachfolgend ist ein Beispiel aus dem Deutschen gegeben:

- (455) a. 321:* ... , dass Peter das Buch lesen₃ können₂ hat₁
b. 132: ... , dass Peter das Buch hat₁ lesen₃ können₂

Statt der normalerweise erwarteten 321-Abfolge (a) ist beim Ersatzinfinitiv nur die 132-Abfolge (b) grammatisch.

Der exzeptionelle Status der Ersatzinfinitivkonstruktion – sowohl in Bezug auf die Verbform als auch in Bezug auf die Verbstellung – stellt seit langem ein Problem für syntaktische Theorien dar.

Die Arbeit verfolgt zwei Ziele: Erstens soll eine komparative Datenbasis sowohl zur Form als auch zur Verbstellung in der Ersatzinfinitivkonstruktion aufgestellt werden. Zweitens soll eine Analyse erarbeitet werden, die sowohl die sprachübergreifenden Gemeinsamkeiten der Ersatzinfinitivkonstruktion als auch die einzelsprachlichen Besonderheiten erfassen kann.

Aus den Daten ergibt sich die leitende Hypothese, dass das Auftreten des Er-

satzinfinitivs eine ‘Reparaturstrategie’ darstellt, die nur dann als ‘letzter Ausweg’ (siehe auch ‘last resort’ Chomsky 1995) genutzt wird, wenn alle Alternativen in bestimmten Kontexten von der Grammatik noch weniger erlaubt werden. Eine solche Sichtweise setzt voraus, dass Beschränkungen verletzt werden können und dass sie geordnet sind. Die Optimalitätstheorie, zu deren Grundlagen im Gegensatz zu Standardtheorien – die Verletzbarkeit und Geordnetheit grammatischer Beschränkungen gehört, wird deshalb die theoretische Grundlage der vorgestellten Analyse bilden.

Im Folgenden wird der Inhalt der einzelnen Kapitel kurz dargestellt.

2. Die Verbform

Das zweite Kapitel der Arbeit beschäftigt sich empirisch mit der Verbform in Ersatzinfinitivkonstruktionen. Anhand von Daten aus drei schweizerdeutschen Dialekten, dem Standarddeutschen, Niederländischen, Westflämischen und Afrikaans zeigt sich, dass das Auftreten des Ersatzinfinitivs von mehreren Faktoren abhängt: Einerseits vom Kontext, andererseits von der Verbklasse des Ersatzinfinitivverbs.

Der Ersatzinfinitiv tritt nur dann auf, wenn das Ersatzinfinitivverb selbst ein verbales Komplement selektiert, ansonsten ist er ungrammatisch und das erwartete Partizip erscheint. Der Kontext alleine ist jedoch noch nicht ausreichend: Nur wenn das Ersatzinfinitivverb einer bestimmten Gruppe von Verbklassen angehört, kann der Ersatzinfinitiv auftreten. Je nach Verbklasse und Sprache ist der Ersatzinfinitiv obligatorisch, optional oder ungrammatisch. Zu den Verbklassen, die in mindestens einer der betrachteten Sprachen im Ersatzinfinitiv auftreten können, gehören neben den Modalverben die Klassen der Kausative, Perzeptionsverben, Benefaktive, Durative, Inchoative, Kontrollverben und Anhebungsverben. Wie ein Vergleich der Ersatzinfinitivsprachen zeigt, ergibt sich ein Muster beim Auftreten des Ersatzinfinitivs: Wenn das Auftreten des Ersatzinfinitivs bei Perzeptionsverben obligatorisch ist, dann ist es auch bei Modalverben und Kausativen obligatorisch. Umgekehrt lässt sich jedoch nicht von einem obligatorischen Auftreten des Ersatzinfinitivs bei Modalverben auf ein obligatorisches Auftreten des Ersatzinfinitivs bei Perzeptionsverben schließen. Diese implikationelle Hierarchie der Ersatzinfinitivverben stellt das Hauptergebnis des Kapitels dar. Die Daten sind in der folgenden Tabelle zusammengefasst:

(456) Zusammenfassung (+ = EI, +/- = optionaler EI, -: kein EI)

Be	De	SG	Zü	Nd	WF	Af	Verbklassen	Beispiele
+	+	+	+	+	+	+	Kausative	<i>lassen</i>
+	+	+	(+)	+	+	+	Modalverben	<i>dürfen, können, müssen, wollen, ...</i>
+ -	+ -	+ -	+ -	+	+	+ -	Perzeptionsverben	<i>hören, sehen ...</i>
+ -	+ -	+ -	+ -	+	+	+ -	Benefaktive	<i>helfen, lehren, ...</i>
+	-	-	-	+	+	+ -	Durative	<i>bleiben, ...</i>
+ -	-	+ -	-	-(+ -)	+ -	+ -	Inchoative	<i>beginnen, aufhören, ...</i>
+ -	-	-	-	-(+ -)	+ -	+ -	Kontrollverben	<i>versuchen, wagen, versprechen, ...</i>
*	*	*	*	*(+ -)	*	*	Anhebungsverben	<i>scheinen</i>

3. Die Verbstellung

Nicht nur die Form des IPP-Verbs unterscheidet sich in Ersatzinfinitivkonstruktionen von der ‘normalerweise’ erwarteten Form. In einigen Sprachen (wie z.B. dem Deutschen) unterscheidet sich auch die Stellung der Verben in der Ersatzinfinitivkonstruktion von der ‘normalerweise’ erwarteten Verbstellung.

In diesem Kapitel wird die Verbstellung in Ersatzinfinitivkonstruktionen mit der Verbstellung in zwei weiteren Konstruktionen mit jeweils drei Verben verglichen. Bei diesen Konstruktionen handelt es sich um das Perfekt mit der erwarteten Partizip Perfekt Form sowie um das Futur. Anders als in der Ersatzinfinitivkonstruktion treten in beiden Vergleichskonstruktionen alle Verben in der Verbform auf, die vom jeweils höheren Verb selektiert wird. Alle drei Konstruktionen werden in Bezug auf sämtliche in Kapitel 2 eingeführten Ersatzinfinitivverben verglichen. Der Vergleich erfolgt dabei in allen in Kapitel 2 eingeführten Sprachen mit Ersatzinfinitiv. Es ergeben sich die folgenden Fragen:

- (457)
- Wie sieht die Verbstellung in der Ersatzinfinitivkonstruktion im Vergleich zu den übrigen Konstruktionen aus? Korrespondieren Ähnlichkeiten in der Wortform mit Ähnlichkeiten in der Wortstellung, d.h., ähnelt die Verbstellung beim Ersatzinfinitiv einer der übrigen Verbstellungen?
 - Inwieweit unterscheidet sich die Verbstellung einer Konstruktion von Sprache zu Sprache?
 - Welche Verbstellungen treten in den westgermanischen Ersatzinfinitivsprachen auf?
 - Welche Faktoren beeinflussen die Verbstellung – sowohl innerhalb einer Sprache als auch sprachübergreifend?

Bei einer Anzahl von drei Verben ergeben sich sechs mögliche Verbabfolgen. Alle sechs Verbstellungen werden jeweils für die drei Konstruktionen aufgeführt und von Muttersprachlern der entsprechenden Sprache beurteilt.

Dies ist beispielhaft für die Ersatzinfinitivkonstruktion bei Perzeptionsverben im Deutschen in (458) gezeigt:

- (458) Deutsch: Ersatzinfinitiv, V₂: Perzeptionsverb
- a. 321* ... , dass er sie rufen₃ hören₂ hat₁
 - b. 231* ... , dass er sie hören₂ rufen₃ hat₁
 - c. 123* ... , dass er sie hat₁ hören₂ rufen₃
 - d. 132 ... , dass er sie hat₁ rufen₃ hören₂
 - e. 312* ... , dass er sie rufen₃ hat₁ hören₂
 - f. 213* ... , dass er sie hören₂ hat₁ rufen₃

In diesem Fall ist nur eine Verbstellung grammatisch ((d), 132). Dies ist in den übrigen Konstruktionen nicht der Fall. Die Tabelle in (459) zeigt exemplarisch an Hand des Deutschen, welche Verbabfolgen in welchen Konstruktionen möglich sind. Entsprechende Übersichtstabellen wurden auch für die übrigen Sprachen erstellt:

(459) Überblick über die Verbstellungsmuster im (Standard-)Deutschen

	Perfekt, V ₂ : PartP	Perfekt, V ₂ : EI	Futur
Kausative	*	132	132
Modalverben	*	132	?321, 132
Perzeptionsverben	321	132	321, 132
Benefaktive	321	132	321, 123
Durative	321	*	321
Inchoative	321, 213	*	321, 213
Kontrollverben	321, 213	*	321, 213

Zusammenfassend kann gesagt werden, dass sich Konstruktionen mit drei Verben sprachübergreifend durch große Variation auszeichnen: Jede der sechs möglichen Verbstellungen tritt in mindestens einer Sprache auf. Es wurde gezeigt, dass sowohl der Konstruktionstyp als auch die Verbklasse von V₂ die Verbstellung beeinflussen.

Die Daten in diesem Kapitel bilden zusammen mit den Daten aus Kapitel 2 die Grundlage für die Analyse der Ersatzinfinitivkonstruktion.

4. Frühere Analysen

In diesem Kapitel werden frühere Analysen der Ersatzinfinitivkonstruktion betrachtet. In der Literatur wird häufig der Kontext, in dem der Ersatzinfinitiv auftritt (Partizip Perfekt bettet ein Infinitivkomplement ein) als Auslöser für die

Ersatzinfinitivkonstruktion genannt. Auch auf die Korrelation zwischen Partizip Perfekt Präfix *ge-* und Ersatzinfinitiv (Lange 1981, Lange 1982, Hoeksema 1988, Vanden Wyngaerd 1994 etc.) wird wiederholt hingewiesen.

Diese Punkte werden in die Analyse in Kapitel 6 und 7 eingehen; ebenso, dass bestimmte Verben/Verbklassen das Auftreten des Ersatzinfinitivs fördern. Anders als in der Literatur meist üblich, wird außerdem die in Kapitel 2 erarbeitete implikationelle Hierarchie der Verben in die Analyse einfließen. Ebenfalls anders als in der Literatur häufig vorgeschlagen, konnte eine Korrelation zwischen bestimmten Verbabfolgen und dem Ersatzinfinitiv an Hand des Datenmaterials nicht bestätigt werden.

Einige Punkte wurden in der Literatur vernachlässigt. Dazu zählt die zu beobachtende Alternation zwischen Ersatzinfinitiv und Partizip Perfekt. Viele Artikel zum Ersatzinfinitiv beschäftigen sich zudem nur mit einer oder zwei Sprachen (meist Deutsch und Niederländisch). Die hier vorgeschlagene Analyse versucht, die Ersatzinfinitivkonstruktion komparativ in sieben Sprachen zu erfassen.

Das Hauptresultat des Literaturüberblicks ist jedoch folgendes: Einerseits wird der reine Infinitiv in Ersatzinfinitivkonstruktionen wie der Name schon sagt als Ersatz für das eigentlich zu erwartende Partizip, d.h. als Ausnahme angesehen. Andererseits wird in der Literatur jedoch häufig nicht explizit ausgeführt, dass eine solche 'Ersatzform' notwendigerweise Regeln der Grammatik verletzt, die ansonsten in der Sprache gültig sind. Theorien, die nicht von einer Verletzbarkeit der Beschränkungen ausgehen, haben Probleme, solche Sachverhalte zu erfassen.

Ein Hauptziel der vorliegenden Arbeit wird sein, die in der bisherigen Literatur zum Ersatzinfinitiv implizit angenommene Verletzbarkeit von Beschränkungen explizit zu machen. Die Annahme wird sein, dass der Ersatzinfinitiv als Reparaturform nur dann auftritt, wenn das eigentlich erwartete Partizip Perfekt wichtigere Beschränkungen der Grammatik verletzt. Da die Daten die Verletzbarkeit von Beschränkungen nahe legen, wird die Analyse im Rahmen der Optimalitätstheorie ausgeführt, zu deren grundlegenden Annahmen die Verletzbarkeit und Geordnetheit von Beschränkungen gehört.

Bevor die Ersatzinfinitivkonstruktion an Hand des Deutschen exemplarisch analysiert wird, werden die Grundannahmen der Optimalitätstheorie eingeführt.

5. Einführung in die Optimalitätstheorie

Die Optimalitätstheorie ist eine Theorie der Beschränkungsinteraktion, genauer gesagt der Auflösung von Konflikten zwischen universellen Beschränkungen durch hierarchische Ordnungen. Die Grundlagen der Theorie sind im folgenden zusammengestellt:

- (460) Grundannahmen der Optimalitätstheorie (nach Prince & Smolensky 1993)
- a. Beschränkungen sind universell und potentiell im Konflikt miteinander
 - b. Beschränkungen können verletzt werden
 - c. Grammatiken sind hierarchische Ordnungen von Beschränkungen, einzelsprachliche Parametrisierung wird durch Beschränkungsumordnung erfasst
 - d. Nur der optimale Kandidat innerhalb einer Kandidatenmenge ist grammatisch, die nicht optimalen Kandidaten sind ungrammatisch (ein Kandidat ist optimal, wenn er beim Vergleich mit jedem anderen Kandidaten derselben Kandidatenmenge die höchstgeordnete Beschränkung, an der sich die Kandidaten unterscheiden, weniger oft verletzt als sein Konkurrent).

Eine optimalitätstheoretische Grammatik besteht im Wesentlichen aus zwei Teilen: Ein Teil der Grammatik, der nur nicht verletzbar Beschränkungen enthält, die Funktion GEN ('Generator'), erzeugt aus jeder zugrundeliegenden Form ('Input') die Kandidatenmenge der möglichen Oberflächenstrukturen. Diese Strukturen, die Kandidaten, konkurrieren miteinander im selben Wettbewerb. Sie werden an Hand der je nach Sprache unterschiedlich geordneten Beschränkungen von einem zweiten Teil der Grammatik, der Funktion H-EVAL ('Harmony Evaluation') bewertet. Aus dieser Bewertung ergibt sich der optimale und damit grammatische Kandidat.

Einige empirische Daten legen eine optimalitätstheoretische Herangehensweise unmittelbar nahe. Dazu gehören insbesondere Fälle, die sich unter dem Stichwort 'Reparaturphänome' zusammenfassen lassen. Unter einem Reparaturphänomen wird verstanden, dass eine wohlgeformte Konstruktion Eigenschaften aufweist, die normalerweise von der Grammatik nicht toleriert werden. Obwohl die Konstruktion unabhängig motivierte Beschränkungen der Grammatik verletzt, ist sie dennoch grammatisch.

Als Beispiel für die optimalitätstheoretische Analyse eines Reparaturphänomens wird Grimshaws Analyse der *do*-insertion im Englischen dargestellt, Grimshaw (1997). Da es sich bei Ersatzinfinitiven ebenfalls um Reparaturphänomene handelt, liegt eine optimalitätstheoretische Analyse des Phänomens nahe.

Abschließend wird erläutert, wie empirisch motivierte implikationelle Hierarchien (wie sie z.B. im Fall der Verbklassen mit Ersatzinfinitiv vorkommen) optimalitätstheoretisch erfasst werden können. Dies geschieht durch den Mechanismus der 'harmonischen Ausrichtung' ('Harmonic Alignment') nach Prince and Smolensky (1993).

6. Eine Fallstudie an Hand des Deutschen, Teil I: Die Verbform (obligatorischer versus unmöglicher Ersatzinfinitiv)

In diesem Kapitel wird die Idee des Ersatzinfinitivs als einer Reparaturstrategie theoretisch umgesetzt und exemplarisch an Hand des Deutschen ausgearbeitet.

Der Ersatzinfinitiv tritt in einer Umgebung auf, in der normalerweise ein Partizip Perfekt erwartet wird. Wenn an Stelle des vom Perfektauxiliar selektierten Partizip Perfekt ein reiner Infinitiv erscheint, ist eine Beschränkung verletzt, die verlangt, dass Selektionseigenschaften lexikalischer Elemente eingehalten werden:

- (461) Morphologische Selektion MORPH:
Selektionseigenschaften lexikalischer Elemente müssen eingehalten werden.

Obwohl der Ersatzinfinitiv diese Beschränkung verletzt, ist er dennoch grammatisch. Das erwartete Partizip Perfekt verletzt eine höher geordnete Beschränkung, die infinite Komplemente von Perfektpartizipien verbietet:

- (462) *PerfP/Inf: (*infinite Komplemente von Perfektpartizipien): Ein Perfektpartizip darf nicht Schwester einer VP sein, deren Kopf ein Infinitiv ist.

Diese Markiertheitsbeschränkung wird mit der implikationellen Verbklassenhierarchie gekoppelt, die in Kapitel 2 aufgestellt wurde. Die so entstandene 'Markiertheitssubhierarchie' von Beschränkungen ist in (463) gegeben. Die Abfolge der Beschränkungen zueinander ist universell festgelegt:

- (463) **PerfP/ + Inf – Subhierarchie:*
*PerfP/+Inf-KAUSATIVES (KAUSV) >>
*PerfP/+Inf-MODALVERBEN (MV) >>
*PerfP/+Inf-PERZEPTIONSVERBEN (PV) >>
*PerfP/+Inf-BENEFAKTIVE (BV) >>
*PerfP/+Inf-DURATIVE (DV) >>
*PerfP/+Inf-INCHOATIVE (IV) >>
*PerfP/+Inf-KONTROLLVERBEN (KV)

Die Position, an der MORPH innerhalb dieser Markiertheitssubhierarchie steht, ist entscheidend dafür, mit welchen Verbklassen der Ersatzinfinitiv obligatorisch ist und mit welchen Verbklassen er nicht auftritt. Die Beschränkungshierarchie des Deutschen ist in (464) gegeben.

- (464) *PastP/+Inf-KAUSATIVE (KAUSV) >>
 *PastP/+Inf-MODALVERBEN (MV) >> MORPH <>
 (*PerfP/+Inf-PERZEPTIONSVERBEN (PV) >>
 *PastP/+Inf-BENEFAKTIVE(BV)) >>
 *PastP/+Inf-DURATIVE (DV) >>
 *PastP/+Inf-INCHOATIVE (IV) >>
 *PastP/+Inf-KONTROLLVERBEN (KV)

Die Wirkungsweise des Systems wird für obligatorische Ersatzinfinitive mit Modalverben in (465) gezeigt (nur die relevanten Beschränkungen der Markiertheitssubhierarchie sind aufgeführt):

- (465) *Ich habe das Buch ...*

		*PastP Inf- MV	MORPH	*PastP Inf-DV
a.*	[[lesen _{Inf}] gewollt _{PastP}]	*!		
☞ b.	[[lesen _{Inf}] wollen _{Inf}]		*	

Der Ersatzinfinitivkandidat (a) erfüllt die hochgeordnete Beschränkung *PastP/V-MV besser als sein Konkurrent mit Partizip. Er geht deshalb als optimaler Kandidat aus dem Wettbewerb hervor.

Durative treten im Deutschen nicht mit Ersatzinfinitiv auf. Dies ergibt sich aus der Beschränkungsordnung 'MORPH >> *PastP Inf-DV'. Der entsprechende Wettbewerb ist in (466) gegeben:

- (466) *Die Leute sind ...*

		*PastP/ Inf-MV	MORPH	*PastP Inf-DV
☞ a.	[[stehen _{Inf}] geblieben _{PastP}]			
b.*	[[stehen _{Inf}] bleiben _{Inf}]		*!	

Da MORPH hierarchisch höher steht als die Durativ-sensitive Markiertheitsbeschränkung *PastP/Inf-DV, ist der Ersatzinfinitivkandidat hier ungrammatisch.

In diesem Kapitel wird ausserdem gezeigt, dass IPP-Konstruktionen nur eine mögliche Reparaturstrategie darstellen, um die markierte Konfiguration zu umgehen, in der ein Partizip ein Infinitivkomplement einbettet. In einigen Sprachen wird die umgekehrte Strategie verfolgt, indem der eingebettete Infinitiv zum Partizip wird ('Participium pro Infinitivo', PPI). Die unterschiedlichen Strategien werden daraus abgeleitet, dass IPP- und PPI-Sprachen sich in Bezug auf die Partizipialbildung unterschiedlich verhalten. In IPP-Sprachen ist das Partizip Perfekt markierter als in PPI-Sprachen.

7. Eine Fallstudie an Hand des Deutschen, Teil II: Die Verbabfolge

In diesem Kapitel wird die Verbabfolge in IPP-Konstruktionen untersucht und mit Abfolgen in zwei weiteren Konstruktionen verglichen (Perfekt mit Partizip und Futur). Die ‘Standardabfolge’ im Deutschen ist die Verbfolge 321. In Ersatzinfinitivkonstruktionen ist jedoch nur Abfolge 132 grammatisch. Durch die Interaktion zweier Beschränkungsfamilien, die die Abbildung einer syntaktischen Struktur in eine lineare Abfolge bewerten, können beide Abfolgen abgeleitet werden. Wie schon im Fall der Verbform in IPP-Konstruktionen ist auch hier die Verbklasse sowohl von V_1 als auch von V_2 relevant. Je ‘auxiliarhafter’ die Verben sind, desto eher findet sich die Abfolge 132. Außer in Ersatzinfinitivkonstruktionen kann diese Abfolge optional auch im Futur auftreten. Um diese Optionalität zu erfassen, wird die Möglichkeit einer Beschränkungskopplung skizziert. Optionalität wird im folgenden Kapitel ausführlich behandelt.

8. Optionaler Ersatzinfinitiv im Deutschen

Wie der Datenüberblick in Kapitel 2 gezeigt hat, ist das Auftreten des Ersatzinfinitivs im Deutschen mit Perzeptionsverben und Benefaktiven optional. Sowohl der Ersatzinfinitiv als auch das Partizip Perfekt sind grammatisch.

In diesem Kapitel werden verschiedene Ansätze zur Optionalität diskutiert, die in einem optimalitätstheoretischen Rahmen vorgeschlagen wurden. Zwei dieser Ansätze (‘globale Kopplung’ und ‘Neutralisierungsansatz’) können die Ersatzinfinitivdaten erfassen. Der Ansatz der ‘globalen Kopplung’ geht davon aus, dass zwei (oder mehrere) Beschränkungen nicht in einer fixen Ordnung zueinander stehen. Eine Grammatik mit einer ‘globaler Kopplung’ ist unter-spezifiziert. Die Kopplung kann in beide Richtungen aufgelöst werden. Der Neutralisierungsansatz geht davon aus, dass die optionalen Kandidaten Sieger in verschiedenen Wettbewerben sind.

9. Parametrisierung in OT: Die anderen Sprachen

In diesem Kapitel wird die Analyse, die bisher an Hand des Deutschen dargestellt wurde, auf die übrigen EI-Sprachen übertragen. Die Beschränkungen sind dabei gemäß den Grundannahmen der Optimalitätstheorie in allen Sprachen gleich. Die Unterschiede zwischen den Sprachen werden durch die unterschiedliche hierarchische Ordnung der universellen Beschränkungen erfasst. Die Unterschiedlichkeit der EI-Verben in den einzelnen Sprachen wird dadurch erfasst, dass die Beschränkung, die in perfektiven Tempora ein Partizip verlangt (MORPH) an unterschiedlichen Punkten in die verbklassensensitive Markiertheitssubhierarchie (*PerfP/+Inf) eingefügt wird.

In Bezug auf die Verbabfolge entscheidet die relative Ordnung zweier Beschränkungen beziehungsweise Beschränkungsfamilien, die in Bezug auf verbale

Komplemente miteinander in Konflikt stehen, über die zu Grunde liegende Abfolge im Verbalkomplex sowie über die Verbabfolge in EI-Konstruktionen, Partizipialkonstruktionen und ‘regulären’ Infinitivkonstruktionen (z.B. im Futur). Um alle Abfolgen abzuleiten, die im Verbalkomplex sprach- und konstruktionsübergreifend auftreten, reichen rein syntaktische Beschränkungen nicht aus. Am Ende des Kapitels wird deshalb ein Modell skizziert, das weitere Faktoren (wie z.B. Informationsstruktur) einbezieht.

10. Schlussfolgerungen

Die vorliegende Arbeit beschäftigte sich mit EI-Konstruktionen in westgermanischen Sprachen. EI-Konstruktionen stellen ein Problem für syntaktische Theorien dar, weil eine unerwartete Form (Infinitiv) an Stelle des erwarteten Partizip Perfekt erscheint. Diesem ‘Ersatzstatus’ wurde hier in einer optimalitätstheoretischen Analyse erstmals theoretisch Rechnung getragen. Ersatzinfinitive verletzen gut motivierte Beschränkungen der Grammatik, treten aber in bestimmten Kontexten als ‘Reparaturstrategie’ auf, wenn alle konkurrierenden Strukturen ein schlechteres Beschränkungsprofil aufweisen.

Die vorgeschlagene Analyse der EI-Konstruktion basiert auf einer breiten Datensammlung, die neben EI-Konstruktionen weitere Vergleichskonstruktionen aus sieben Sprachen umfasst. Diese komparative Herangehensweise ermöglichte es, Generalisierungen aufzuzeigen (wie z.B. die implikationelle Hierarchie der EI-Verben), die in den eher sprachspezifisch orientierten früheren Untersuchungen nicht in diesem Maß gesehen werden konnten.

References

- Abraham, Werner (1994). Kaynes Asymmetriehypothese und die Abfolge im V-Komplex. *Groninger Arbeiten zur germanistischen Linguistik*, **37**, 19–46.
- Ackema, Peter and Neeleman, Ad (1995). Optimal Questions. Technical Report 55, OTA Working Papers, Utrecht University.
- Ackema, Peter and Neeleman, Ad (1998). Optimal Questions. *Natural Language and Linguistic Theory*, **16**, 443–490.
- Aissen, Judith (1999). Markedness and Subject Choice in Optimality Theory. *Natural Language and Linguistic Theory*, **17**, 673–711.
- Aissen, Judith (2001). Markedness and Subject Choice in Optimality Theory. In G. Legendre, J. Grimshaw, and S. Vikner, editors, *Optimality-Theoretic Syntax*, pages 61–96. MIT Press, Cambridge, Mass.
- Aissen, Judith and Bresnan, Joan (2002). Optimality and Functionality: Objections and Refutations. *Natural Language and Linguistic Theory*, **20**, 81–95.
- Aldenhoff, Jules (1962). Der Ersatzinfinitiv im heutigen Deutschen. *Revue des Langues Vivantes*, **28**, 195–217.
- Ammon, Ulrich and Loewer, Uwe (1977). Schwäbisch. In W. Besch, H. Löffler, and H. H. Reich, editors, *Dialekt-Hochsprache kontrastiv. Sprachhefte für den Deutschunterricht*, volume 4. Pädagogischer Verlag Schwann, Düsseldorf.
- Archangeli, Diana and Langendoen, Terence, D., editors (1997). *Optimality Theory. An Overview*. Blackwell, Oxford.
- Artstein, Ron (1999). Hierarchies. In T. Cambier-Langeveld, A. Liptak, M. Redford, and E. J. van der Torre, editors, *Proceedings of Console VII*, pages 1–15, Leiden. SOLE.
- Askedal, John Ole (1991). ‘Ersatzinfinitiv/Partizipialersatz’ und Verwandtes. *Zeitschrift für germanistische Linguistik*, **19**, 1–23.
- Bach, Emmon (1962). The Order of Elements in a Transformational Grammar of German. *Language*, **38**, 263–269.
- Baković, Eric (1995). A Markedness Subhierarchy in Syntax. Optimality and Inversion in Spanish. Manuscript, Rutgers University.
- Baković, Eric (1998). Optimality and Inversion in Spanish. In P. Barbosa and al., editors, *Is the Best Good Enough?*, pages 35–58. MIT Press, Cambridge, Mass.

- Baković, Eric and Keer, Edward (2001). Optionality and Ineffability. In G. Legendre, J. Grimshaw, and S. Vikner, editors, *Optimality-Theoretic Syntax*, pages 97–112. MIT Press, Cambridge, Mass.
- Barbosa, Pilar, Fox, Danny, Hagstrom, Paul, McGinnis, Martha, and Pesetsky, David, editors (1998). *Is the Best Good Enough?* MIT Press, Cambridge, Mass.
- Bausewein, Karin (1991). AcI-Konstruktionen und Valenz. In E. Klein, F. Pouradier Duteil, and K. Wagner, editors, *Betriebslinguistik und Linguistikbetrieb. Akten des 24. Linguistischen Kolloquiums, Universität Bremen, 4.-6. September 1989*, pages 245–250. Niemeyer, Tübingen.
- Bech, Gunnar (1983). *Studien über das deutsche verbum infinitum*. Niemeyer, Tübingen. Unchanged reprint of 1955/57, Munksgaard: Copenhagen.
- Beckman, Jill, Walsh-Dickie, Laura, and Urbanczyk, Suzanne, editors (1995). *Papers in Optimality Theory*. UMass Occasional Papers in Linguistics 18, Amherst, Mass.
- Behagel, Otto (1932). *Deutsche Syntax. Volume IV*. Carl Winter, Heidelberg.
- Bennis, Hans and Hoekstra, Teun (1989). Why Kaatje was not Heard Sing a Song. In D. Jaspers, W. Klooster, W. Kooster, Y. Putseys, and P. Seuren, editors, *Sentential Complementation and the Lexicon. Studies in honour of Wim de Geest*, pages 21–39. Foris, Dordrecht.
- Benua, Laura (1995). Identity Effects in Morphological Truncation. In J. Beckman, L. Walsh-Dickie, and S. Urbanczyk, editors, *Papers in Optimality Theory*, pages 77–136. UMass Occasional Papers in Linguistics 18, Amherst, Mass.
- Benua, Laura (1997). *Transderivational Identity: Phonological Relations between Words*. Ph.D. thesis, University of Massachusetts, Amherst.
- Bierwisch, Manfred (1963). *Grammatik des deutschen Verbs*. Akademie Verlag, Berlin.
- Blom, Elma and Hoekstra, Eric (1996). IPP en Werkwoordsvolgorde in het Achterhoeks. *Taal en Tongval*, **48**, 72–83.
- Bresnan, Joan (1998). Morphology Competes with Syntax. In P. Barbosa, D. Fox, P. Hagstrom, M. McGinnis, and D. Pesetsky, editors, *Is the Best Good Enough?*, pages 59–92. MIT Press, Cambridge, Mass.
- Büring, Daniel (2001). Let's Phrase it! Focus, Word Order, and Prosodic Phrasing in German Double Object Constructions. In G. Müller and W. Sternefeld, editors, *Competition in Syntax*, pages 69–104. Mouton de Gruyter, Berlin.

- Burzio, Luigi (1986). *Italian Syntax*. Reidel, Dordrecht.
- Chomsky, Noam (1957). *Syntactic Structures*. Mouton, The Hague.
- Chomsky, Noam (1981). *Lectures on Government and Binding*. Foris, Dordrecht.
- Chomsky, Noam (1986). *Barriers*. MIT Press, Cambridge, Mass.
- Chomsky, Noam (1991). Some Notes on Economy of Derivation and Representation. In R. Freidin, editor, *Principles and Parameters in Comparative Grammar*, pages 417–454. MIT Press, Cambridge, Mass.
- Chomsky, Noam (1993). A Minimalist Program for Linguistic Theory. In K. Hale and S. J. Keyer, editors, *The View from Building 20. Essays in Linguistics in Honour of Sylvian Bromberger*, pages 1–52. MIT Press, Cambridge, Mass.
- Chomsky, Noam (1995). *The Minimalist Program*. MIT Press, Cambridge, Mass.
- Cooper, Kathrin (1994). *Topics in Zurich German Syntax*. Ph.D. thesis, University of Edinburgh.
- den Besten, Hans and Edmondson, Jerold A. (1983). The Verbal Complex in Continental West Germanic. In W. Abraham, editor, *On the Formal Syntax of the Westgermania*, pages 155–216. John Benjamins, Amsterdam.
- den Dikken, Marcel (1989). Verb projection raising en de analyse van het IPP-effect. *Tabu*, **19**, 59–75.
- den Dikken, Marcel and Hoekstra, Eric (1997). Parasitic Participles. *Linguistics*, **35**, 1057–1089.
- Donaldson, Bruce, C. (1993). *A Grammar of Afrikaans*. Mouton de Gruyter, Berlin.
- Edmondson, Jerold A. (1980). Gradienz und die doppelte Infinitiv-Konstruktion. *Papiere zur Linguistik*, **22**, 59–82.
- Eisenberg, Peter (2000). *Grundriss der deutschen Grammatik. Band 1: Das Wort*. Metzler, Stuttgart.
- Erdmann, Oskar (1886). *Grundzüge der deutschen Syntax nach ihrer geschichtlichen Entwicklung*, volume 1. Verlag der J.G. Cotta'schen Buchhandlung, Stuttgart.
- Evers, Arnold (1975). *The Transformational Cycle in Dutch and German*. Ph.D. thesis, University of Utrecht.

- Evers, Arnold (2001). Verbal Clusters and Cluster-Creepers. Manuscript, Utrecht University.
- Fischer, Silke (2001). On the Integration of Cumulative Effects into Optimality Theory. In G. Müller and W. Sternefeld, editors, *Competition in Syntax*, pages 151–173. Mouton de Gruyter, Berlin.
- Geilfuß-Wolfgang, Jochen (1998). Über die optimale Position von *ge*. *Linguistische Berichte*, **176**, 581–588.
- Grimm, Jacob (1837). *Deutsche Grammatik*, volume 4. Dieterichsche Buchhandlung, Göttingen.
- Grimshaw, Jane (1997). Projection, Heads, and Optimality. *Linguistic Inquiry*, **28**, 373–422.
- Grimshaw, Jane (1998). Constraints on Constraints in Optimality Theoretic Syntax. Manuscript, Rutgers University, New Brunswick, New Jersey.
- Grimshaw, Jane (2001). Economy of Structure in OT. Manuscript, Rutgers University, New Brunswick, New Jersey.
- Grimshaw, Jane and Samek-Lodovici, Vieri (1995). Optimal Subjects. In J. Beckman, L. Walsh-Dickie, and S. Urbanczyk, editors, *Papers in Optimality Theory*, pages 589–605. UMass Occasional Papers in Linguistics 18, Amherst, Mass.
- Grimshaw, Jane and Samek-Lodovici, Vieri (1998). Optimal Subjects and Subject Universals. In P. Barbosa, D. Fox, P. Hagstrom, M. McGinnis, and D. Pesetsky, editors, *Is the Best Good Enough?*, pages 193–219. MIT Press, Cambridge, Mass.
- Haegeman, Liliane (1998). V-Positions and the Middle Field in West Flemish. *Syntax*, **1**(3), 259–299.
- Haegeman, Liliane and van Riemsdijk, Henk (1986). Verb Projection Raising, Scope, and the Typology of Verb Movement Rules. *Linguistic Inquiry*, **17**, 417–466.
- Haftka, Brigitte (1994). Wann man angeblich soll das finite Verb voranstellen müssen. In A. Steube and G. Zybatow, editors, *Zur Satzwertigkeit von Infinitiven und Small Clauses*, pages 155–171. Niemeyer, Tübingen.
- Haider, Hubert (1991). Fakultativ kohärente Infinitivkonstruktionen im Deutschen. *Arbeitspapiere des SFB 340, Universität Stuttgart*, **17**.
- Haider, Hubert (1993). *Deutsche Syntax – Generativ*. Narr, Tübingen.

- Haider, Hubert (1997). Projective Economy. In W. Abraham and E. van Gelderen, editors, *German: Syntactic Problems – Problematic Syntax*, pages 83–103. Niemeyer, Tübingen.
- Haider, Hubert (2000). OV is More Basic than VO. In P. Svenonius, editor, *The Derivation of VO and OV*, pages 45–67. John Benjamins, Amsterdam.
- Haider, Hubert (2002). V-Clustering and Clause Union – Causes and Effects. Manuscript, University of Salzburg.
- Haspelmath, Martin (2000). Optimality and Diachronic Adaption. *Zeitschrift für Sprachwissenschaft*, **18**, 179–205.
- Heck, Fabian (in prep.). Pied Piping. Ph.D.thesis, University of Tübingen.
- Heck, Fabian and Müller, Gereon (2000). Successive Cyclicity, Long-Distance Superiority, and Local Optimization. In R. Billerey and B. D. Lillehaugen, editors, *Proceedings of WCCFL 19*, pages 218–231, Somerville, MA. Cascadilla Press.
- Heck, Fabian, Müller, Gereon, Vogel, Ralf, Fischer, Silke, and Schmid, Tanja (2001). On the Nature of the Input in Optimality Theory. Manuscript, University of Stuttgart, to appear in *The Linguistic Review*.
- Hendriks, Petra and de Hoop, Helen (2001). Optimality Theoretic Semantics. *Linguistics and Philosophy*, **24**, 1–32.
- Hinterhölzl, Roland (1999). *Restructuring Infinitives and the Theory of Complementation*. Ph.D. thesis, University of Southern California, Los Angeles.
- Hoeksema, Jacob (1988). A Constraint on Governors in the West Germanic Verb Cluster. In M. Everaert, A. Evers, R. Huybregts, and M. Trommelen, editors, *Morphology and Modularity. In honour of Henk Schultink*, pages 147–161. Foris, Dordrecht.
- Hoekstra, Eric and Taanman, Willem (1996). Een West-Friese gradatie van het Infinitivus-pro-Participio Effect. *Nederlandse Taalkunde*, **1**, 13–25.
- Höhle, Tilman N. (1997). Vorangestellte Verben und Komplementierer sind eine natürliche Klasse. Technical report, Sonderforschungsbereich 340, Tübingen/Stuttgart.
- IJbema, Aniek (1997). Der IPP-Effekt im Deutschen und im Niederländischen. *Groninger Arbeiten zur germanistischen Linguistik*, **40**, 137–163.
- Kager, René (1999). *Optimality Theory*. Cambridge University Press, Cambridge.

- Kayne, Richard S. (1994). *The Antisymmetry of Syntax*. MIT Press, Cambridge, Mass.
- Keer, Edward and Baković, Eric (1999). Have FAITH in Syntax. In E. Curtis, J. Lyle, and G. Webster, editors, *Proceedings of WCCFL 16*, Stanford, CA. CSLI Publications.
- Koopman, Hilda and Szabolcsi, Anna (2000). *Verbal Complexes*. MIT Press, Cambridge, Mass.
- Kroch, Anthony (1989). Reflexes of Grammar in Patterns of Language Change. *Journal of Language Variation and Change*, **1**, 199–244.
- Kuhn, Jonas (2001). *Formal and Computational Aspects of Optimality-theoretic Syntax*. Ph.D. thesis, Universität Stuttgart, Arbeitspapiere des Instituts für Maschinelle Sprachverarbeitung.
- Lange, Klaus-Peter (1981). Warum Ersatzinfinitiv? *Groninger Arbeiten zur Germanistischen Linguistik*, **19**, 62–81.
- Lange, Klaus-Peter (1982). Ersatzinfinitiv und Oberflächenprofil. *Zeitschrift für germanistische Linguistik*, **10**, 173–186.
- Legendre, Géraldine, Wilson, Colin, Smolensky, Paul, Homer, Kristin, and Raymond, William (1995). Optimality and Wh-Extraction. In J. Beckman, L. Walsh-Dickie, and S. Urbanczyk, editors, *Papers in Optimality Theory*, pages 607–635. UMass Occasional Papers in Linguistics 18, Amherst, Mass.
- Legendre, Géraldine, Smolensky, Paul, and Wilson, Colin (1998). When is Less More? Faithfulness and Minimal Links in Wh-Chains. In P. Barbosa, D. Fox, P. Hagstrom, M. McGinnis, and D. Pesetsky, editors, *Is the Best Good Enough?*, pages 249–289. MIT Press, Cambridge, Mass.
- Legendre, Géraldine, Grimshaw, Jane, and Vikner, Sten, editors (2001). *Optimality-Theoretic Syntax*. MIT Press, Cambridge, Mass.
- Lockwood, William B. (1964). *An Introduction to Modern Faroese*. Munksgaard, Copenhagen.
- Lockwood, William B. (1995). *Lehrbuch der modernen jiddischen Sprache*. Buske, Hamburg.
- Lötscher, Andreas (1978). Zur Verbstellung im Zürichdeutschen und in anderen Varianten des Deutschen. *Zeitschrift für Dialektologie und Linguistik*.
- Maurer, Friedrich (1926). *Untersuchungen über die deutsche Verbstellung in ihrer geschichtlichen Entwicklung*. Carl Winter's Universitätsbuchhandlung, Heidelberg.

- McCarthy, John and Prince, Alan (1994). The Emergence of the Unmarked: Optimality in Prosodic Morphology. In *Proceedings of NELS*, volume 24, pages 333–379.
- McCarthy, John and Prince, Alan (1995). Faithfulness and Reduplicative Identity. In J. Beckman, L. Walsh-Dickie, and S. Urbanczyk, editors, *Papers in Optimality Theory*, pages 249–384. UMass Occasional Papers in Linguistics 18, Amherst, Mass.
- Meier, Judith (1994). Zur Syntax des Verbalkomplexes im Deutschen. Technical Report 55, Arbeitspapiere des Sonderforschungsbereichs 340 ‘Sprachtheoretische Grundlagen für die Computerlinguistik’, University of Stuttgart.
- Merkes, Peter Wilhelm (1895). *Der neuhochdeutsche Infinitiv als Teil einer umschriebenen Zeitform. Historisch-grammatische Betrachtungen*. Ph.D. thesis, Universität Göttingen.
- Meurers, Walt Detmar (2000). *Lexical Generalizations in the Syntax of German Non-Finite Constructions*. Ph.D. thesis, Universität Tübingen.
- Müller, Gereon (1997). Partial Wh-Movement and Optimality Theory. *The Linguistic Review*, **14**, 249–306.
- Müller, Gereon (1999). Optionality in Optimality-Theoretic Syntax. *GLOT International*, **4**, 3–8.
- Müller, Gereon (2000a). Das Pronominaladverb als Reparaturphänomen. *Linguistische Berichte*, **182**, 139–178.
- Müller, Gereon (2000b). *Elemente der optimalitätstheoretischen Syntax*. Stauffenburg, Tübingen.
- Müller, Gereon (2001). Remarks on Nominal Inflection in German. Manuscript, IDS Mannheim.
- Newmeyer, Frederick J. (2002a). A Rejoinder to Bresnan and Aissen. *Natural Language and Linguistic Theory*, **20**, 97–99.
- Newmeyer, Frederick J. (2002b). Optimality and Functionality: A Critique of Functionally-Based Optimality-Theoretic Syntax. *Natural Language and Linguistic Theory*, **20**, 43–80.
- Pesetsky, David (1997). Optimality Theory and Syntax: Movement and Pronunciation. In D. Archangeli and D. Langendoen, Terence, editors, *Optimality Theory. An Overview*, pages 134–170. Blackwell, Oxford.

- Pesetsky, David (1998). Some Optimality Principles of Sentence Pronunciation. In P. Barbosa, D. Fox, P. Hagstrom, M. McGinnis, and D. Pesetsky, editors, *Is the Best Good Enough?*, pages 337–383. MIT Press, Cambridge, Mass.
- Pintzuk, Susan (1991). *Phrase Structures in Competition: Variation and Change in Old English Word Order*. Ph.D. thesis, University of Pennsylvania.
- Plank, Frans (2000). ‘Der Schritt vom Wege’: Form Alternations of the Prefix *k-* of the Resultative Participle in Bavarian. In A. Bittner, D. Bittner, and K.-M. Köpcke, editors, *Angemessene Strukturen: Systemorganisation in Phonologie, Morphologie und Syntax*, pages 283–319. Georg Olms, Hildesheim.
- Ponelis, F. A. (1979). *Afrikaanse Sintaksis*. Van Schaik, Pretoria.
- Ponelis, F. A. (1993). *Development of Afrikaans*. Peter Lang, Frankfurt Main.
- Ponten, Jan Peter (1973). Der Ersatz- oder Scheininfininitiv. Ein Problem aus der deutschen und niederländischen Syntax. *Wirkendes Wort*, **23**, 73–85.
- Prince, Alan and Smolensky, Paul (1993). Optimality Theory. Technical Report 2, Rutgers University Center for Cognitive Science, Rutgers University.
- Rizzi, Luigi (1982). *Issues in Italian Syntax*. Foris, Dordrecht.
- Rizzi, Luigi (1997). The Fine Structure of the Left Periphery. In L. Haegeman, editor, *Elements of Grammar*, pages 281–337. Kluwer, Dordrecht.
- Robbers, Karin (1997). *Non-Finite Verbal Complements in Afrikaans. A Comparative Approach*. Holland Academic Graphics, Den Haag.
- Rutten, Jean (1991). *Infinitival Complements and Auxiliaries*. Ph.D. thesis, Universiteit Amsterdam.
- Sabel, Joachim (1996). *Restrukturierung und Lokalität: universelle Beschränkungen für Wortstellungsvarianten*. Akademie Verlag, Berlin.
- Scheffele, Kyoko (1999). *Die IPP-Konstruktion im Deutschen aus generativ-komparativer Sicht*. Ph.D. thesis, Universität München.
- Schmid, Tanja (1999). West Germanic ‘Infinitivus Pro Participio’ (IPP) constructions in Optimality Theory. In T. Cambier-Langeveld, A. Liptak, M. Redford, and E. J. van der Torre, editors, *Proceedings of Console VII*, pages 229–244, Leiden. SOLE.
- Schmid, Tanja (2000). Die Ersatzinfininitivkonstruktion im Deutschen. *Linguistische Berichte*, **183**, 325–351.

- Schmid, Tanja (2001). OT Accounts of Optionality: A Comparison of Global Ties and Neutralization. In G. Müller and W. Sternefeld, editors, *Competition in Syntax*, pages 283–319. Mouton de Gruyter, Berlin.
- Schmid, Tanja and Vogel, Ralf (2002). Dialectal Variation in German 3-Verb Clusters. Paper presented at the GLOW-Colloquium, Amsterdam.
- Schmid, Wolfgang (2002). Mathematikvorkurs. Vorlesungsmanuskript. Manuscript, Universität Stuttgart.
- Schobinger, Viktor (1984). *Zürichdeutsche Kurzgrammatik*. pendo-verlag, Zürich.
- Schönenberger, Manuela (1995). Constituent Order in the VP: Verb Raising and Verb Projection Raising. In Z. Penner, editor, *Topics in Swiss German Syntax*, pages 347–411. Peter Lang, Bern.
- Sells, Peter, Rickford, John, and Wasow, Thomas (1996). An Optimality Theoretic Approach to Variation in Negative Inversion in AAVE. *Natural Language and Linguistic Theory*, **14**, 591–627.
- Smolensky, Paul (1995). On the Internal Structure of the Constraint Component *Con* of UG. Manuscript, Johns Hopkins University.
- Smolensky, Paul (1997). Constraint Interaction in Generative Grammar II: Local Conjunction (or, Random Rules in Universal Grammar). Handout, Hopkins Optimality Theory Workshop/ U. Maryland Mayfest.
- Stechow, Arnim von and Sternefeld, Wolfgang (1988). *Bausteine syntaktischen Wissens*. Westdeutscher Verlag, Opladen.
- Sternefeld, Wolfgang (1997). Comparing Reference Sets. In C. Wilder, H.-M. Gärtner, and M. Bierwisch, editors, *Economy in Linguistic Theory*, pages 81–114. Akademie Verlag, Berlin.
- Tesar, Bruce (1998). Error-Driven Learning in Optimality Theory via Efficient Computation of Optimal Forms. In P. Barbosa, D. Fox, P. Hagstrom, M. McGinnis, and D. Pesetsky, editors, *Is the Best Good Enough?*, pages 421–435. MIT Press, Cambridge, Mass.
- Truckenbrodt, Hubert (1999). On the Relation between Syntactic Phrases and Phonological Phrases. *Linguistic Inquiry*, **30**, 219–255.
- Vanden Wyngaerd, Guido (1994). IPP and the Structure of Participles. *Groninger Arbeiten zur germanistischen Linguistik*.
- Vikner, Sten (1995). *Verb Movement and Expletive Subjects in the Germanic Languages*. Oxford University Press, New York; Oxford.

- Vikner, Sten (1997). The Interpretation of Object Shift, Optimality Theory, and Minimalism. *Working Papers in Scandinavian Syntax*, **60**, 1–24.
- Vikner, Sten (2001). Verb Movement Variation in Germanic and Optimality Theory. Habilitationsschrift Neuphilologische Fakultät Universität Tübingen.
- Vikner, Sten and Sprouse, Rex A. (1988). Have/Be Selection as an A-Chain Membership Requirement. *Working Papers in Scandinavian Syntax*.
- Vogel, Ralf (2002). Dialectal Variation in German 3-Verb Clusters. Looking for the Best Analysis. To appear in Proceedings of the UCLA/University of Potsdam Workshop on Head Movement, October 21/22 2001, UCLA, Los Angeles.
- Weber, Albert (1987). *Zürichdeutsche Grammatik*. Rohr, Zürich.
- Wexler, Kenneth (1994). Optional Infinitives, Head Movement and the Economy of Derivations in Child Grammar. In N. Hornstein and D. Lightfoot, editors, *Verb movement*, pages 305–350. Cambridge University Press, Cambridge.
- Wiklund, Anna-Lena (2001). Dressing up for Vocabulary Insertion: The Parasitic Supine. *Natural Language and Linguistic Theory*, **19**, 199–228.
- Wiklund, Anna-Lena (in prep.). Parasitic Complements. Ph.D. thesis, Umeå University.
- Wöllstein-Leisten, Angelika (2001). *Die Syntax der dritten Konstruktion*. Stauffenburg, Tübingen.
- Wurmbrand, Susanne (1998). *Infinitives*. Ph.D. thesis, Massachusetts Institute of Technology.
- Wurmbrand, Susi (2000). Verb Clusters: Variation at the Right Periphery. Handout, presented at the Workshop on Syntactic Microvariation, Amsterdam, August 2000.
- Wurmbrand, Susanne (2001). *Infinitives. Restructuring and Clause Structure*. Mouton de Gruyter, Berlin.
- Wurmbrand, Susi (2002). Verb Raising, Verb Clusters and Restructuring. To appear in *The Syntax Compendium*.
- Zwart, Jan-Wouter (1996). Verb Clusters in Continental West Germanic Dialects. In J. Black and V. Motapanyane, editors, *Microparametric Syntax and Dialect Variation*, pages 229–258. John Benjamins, Amsterdam.
- Zwart, Jan-Wouter (1997). *Morphosyntax of Verb Movement*. Kluwer, Dordrecht.