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Variation as the exception or the rule? Swiss relatives, revisited*

Abstract: 'Microvariation', i.e. variation *between* closely related dialects, has become a focus of interest in syntactic theory in recent years. Yet the consequences of variation *within* a variety for the architecture of grammar are still relatively poorly understood. In the present paper we discuss an interesting case of grammar-internal variation, namely relativization in Alemannic. The use of resumptive pronouns is obligatory for obliques and impossible for subject and direct object. However, as for datives, resumptive pronouns are optional for most speakers. The empirical evidence suggests that this kind of optionality must be rooted in the grammar itself, as it cannot be attributed to extragrammatical factors such as style or register mixing. We will analyze the optionality of dative resumptives as the absence of a strict ranking between two conflicting constraints on grammatical well-formedness. Employing the framework of Stochastic Optimality Theory, we do not only capture the optionality as such but also provide a straightforward account of individually variable preferences.

Zusammenfassung: 'Mikrovariation', das heißt, Variation *zwischen* eng verwandten Dialekten hat in den letzten Jahren großes Interesse von Seiten der Syntaxtheorie auf sich gezogen. Jedoch sind die Konsequenzen von Variation *innerhalb* einer Varietät für die Architektur der Grammatik nach wie vor noch wenig verstanden. In vorliegendem Beitrag diskutieren wir einen interessantesten Fall von solcher Grammatik-interner Variation, Relativierung im Alemannischen. Resumptive Pronomen werden obligatorisch eingesetzt für oblique Relationen, für Subjekt und Objekt hingegen sind sie ganz ausgeschlossen. Bemerkenswerterweise sind resumptive Pronomen für die meisten Sprecher optional im Dativ. Die empirische Evidenz legt den Schluss nahe, dass diese Form von Optionaliät in der Grammatik selbst verankert sein muss und nicht etwa auf außergrammatische Faktoren wie Stilebene oder Vermischung von Registern zurückgeführt werden kann. Wir analysieren die Optionaliät von Resumptivpronomen im Dativ als das Fehlen einer eindeutigen Hierarchisierung von zwei konfligierenden Wohlgeformtheitsbedingungen im Format der Stochastischen Optimali-

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tätstheorie, womit nicht nur die Optionallität an sich, sondern auch individuell variable Präferenzen adäquat erfasst werden können.

1. Introduction

The existence of variation has been acknowledged as a central fact about the nature of language in descriptive linguistics, historical linguistics, sociolinguistics, and dialectology, though relatively little is said in these approaches about the consequences of variation for the internal architecture of grammar. On the other hand, generative syntactic theory has traditionally been rather innocent with regard to the analysis of syntactic variation, partly due to a lack of interest in variation phenomena in general, partly due to technical difficulties in the formal implementation of variation. In this context it is interesting to note that in recent years the study of microvariation has become a center of interest in generative syntax (Kayne 1996; Barbiers, Cornips and van der Kleij 2002). However, whereas most work in the field concentrates on the analysis of cross-dialectal variation, i.e., the differences *between* systems of grammar, the coexistence of competing variants *within* one system of grammar (i.e., within one particular dialect) is studied with significantly less enthusiasm and therefore still remains poorly understood. It has been a standard assumption of generativist theoretical linguistics that (intra-speaker) variation is alien to grammar and, when it is nevertheless observed, must be added from outside in some way, e.g. by mixing different registers (Chomsky 1995; Adger and Smith 2005). Only recent work makes it clear that the existence of grammar-internal variation provides an interesting challenge for the formal modeling of linguistic competence and is therefore of crucial importance to theoretical linguistics as a whole (Hayes 2000; Anttila 2002; Henry 2002; Barbiers 2005; Adger 2006; Bresnan, Deo and Sharma 2007; Dufter, Fleischer and Seiler 2009).

In the present paper we will discuss one case of this type of grammar-internal variation, namely relativization in Swiss German. In Swiss German dialects, dative resumptives are used optionally, whereby the preference for resumptive vs. gap is influenced by the syntactic environment (case matching + semantics of the head noun) in a non-deterministic way. This kind of variation cannot be explained away by reference to dialect or register mixture, or other extralinguistic or extragrammatical factors. Our goals are twofold. On the one hand, we will attempt to give an empirically adequate

picture of the whole complexity of the facts. On the other hand, we will argue that intra-speaker variation is normal and variation is rooted in the internal structure of grammar itself. Preferences for one or another option may be 'soft', but they are part of the internalized grammar. Of course, this must be plausibly mirrored in a competence model of grammar. We will critically discuss the potential of recent syntactic theories to model this kind of variation before we present our own proposal for an architecture of grammar which is able not only to enumerate variants but also to derive them from the interaction of more general principles and at the same time accounts for the limits of variation.

The paper is organized as follows. After a short review of earlier descriptions (section 2), we will present the results of a recent geolinguistic survey (section 3) and of a detailed empirical investigation of relativization in Zurich German (sections 4–5). Section 6 presents a syntactic analysis of Zurich German relatives, leaving aside the variation problem for a moment. In section 7 we will comment on previous approaches to variation, which we will evaluate as insufficient for our purposes. We will present our final account in section 8. We will argue that a complete explanation of Swiss German relativization must include the ideas of constraint competition and soft preferences (as implemented by Stochastic Optimality Theory). Section 9 outlines some of the consequences of our analysis for linguistic theory in general, attempting to integrate the modeling of linguistic competence, variation and change.

Dialects are an unusually instructive source of data for research on natural language structure in general and variation phenomena in particular. Dialects are free of standardization and demonstrate the results of language acquisition and naturally occurring language change in a very direct way (Weiß 2001). From a competence-oriented perspective, dialects are complete natural languages in their own right and certainly not just bizarre versions of their respective standard languages (historically, the standard languages are derived from dialects, not vice versa). Variant competition is thus not ruled out by standardization. A further advantage is the micro-comparative aspect. Studying cross-dialectal variation from one locality to another uncovers the smallest contrasts between very similar I-languages. We assume that the I-language of a speaker from one area is different from the I-language of speakers from other areas, yet those differences may be extremely

subtle. Any theory of grammar must be able to mirror those minimal units of cross-linguistic variation in highest possible resolution.

German-speaking Switzerland confronts us with a sociolinguistic situation that is unusually privileged for our purposes (Haas 2006). The dialects are more immune to influence of the standard language than anywhere else in Western Europe. All inhabitants, regardless of social class, education, sex etc., use their local dialect for all sorts of oral communication (informal and formal). Dialects are clearly distinct, there is no koiné (Christen 1998). However, (almost) all dialects are mutually intelligible. Standard German is reserved for (most of) written communication, teaching, some media genres, and communication with immigrants. Dialect and standard are kept strictly apart in the speakers' consciousness (diglossia), even if, of course, there are interferences in both directions. The vernacular is not associated with low prestige (rather on the contrary). And, of course, the dialect is the first language acquired by children.

2. Earlier descriptions

Swiss German relatives are postnominal and head external. More interestingly, there are no relative pronouns (except for certain adverbial relations),¹ but instead an invariant complementizer *wo* (won before vowel-initial clitics) introduces relative clauses. In certain grammatical relations, a resumptive pronoun appears instead of a gap. In the default case those resumptives behave like weak personal pronouns and are fronted to the Wackernagel position or cliticize onto the complementizer (or, in the case of oblique objects, onto the governing preposition).

The distribution of resumptive pronouns in local relativization nicely follows the noun phrase accessibility hierarchy by Keenan & Comrie (1977) in that gaps are found for higher functions and resumptives for lower functions. The following examples from Zurich German serve to illustrate these facts. According to Weber (1964) and van Riemsdijk (1989: 343, 345), all relations from the dative object on downwards require resumptives while subjects and direct objects do not:²

¹ See Salzmann (2009b: 155, fn. 1) for qualifications.

² For the transcription, cf. Salzmann (2006: 320, fn. 259). Long-distance relativization, where resumptive pronouns appear across the board, can be argued to instantiate a different construction, cf. Salzmann (2006b, chapter 4.9), van Riemsdijk (2008). Free

- (1) a. *d. Frau, wo (*s̥j) immer z spaat chunt*
the woman C (she) always too late comes
'the woman who is always late'
(subject: *wo* + gap)
- b. *es Bild, wo niemer (*s̥j) cha zale*
a picture C nobody (it) can.1SG pay
'a picture that nobody can afford'
(object: *wo* + gap)
- c. *de Bueb, wo mer *(em) es Velo versproche händ*
the boy C we (he.DAT) a bike promised have.1PL
'the boy we promised a bike'
(indir. object: *wo* + res.)
- d. *d. Frau, won i von *(ee) es Buech überchoo han*
the woman C I from (she) a book got have.1SG
'the woman from whom I got a book'
(P-object: *wo* + res.)

With their resumptive strategy Swiss German relatives are quite marked in the German speaking area, cf. Fleischer (2004).

Importantly, Swiss German relatives are radically different from their Standard German counterparts, which employ relative pronouns that invariably leave gaps:

- (2) *der Mann, dem, ich — ein Buch gegeben habe*
the man who.DAT I a book given have.1SG
'the man to whom I gave a book'

Before we approach the variation data obtained in our empirical studies it is instructive to look at earlier descriptions of Swiss relatives. Apart from several traditional dialect grammars and dictionaries there are three theoretical contributions (van Riemsdijk 1989, 2008, Salzmann 2006b). The point of interest in the present study is the distribution of resumptive pronouns. The patterns reported in the sources are mostly identical; deviating patterns are reported for Glarus German (Bähler 1949) and for the Alemannic dialect of Oberrotweil (Southern Germany, Noth 1993). Additionally, examples in the Idiotikon, a dictionary of Swiss German dialects, suggest that there may be variation within dialects.

relativization requires wh-relative pronouns that leave gaps, cf. van Riemsdijk (1989). For possessor relativization cf. Salzmann (to appear).

Resumptives occur with the same distribution in comparative deletion, cf. Salzmann (2006), but not, or at least not systematically, in topicalization and wh-movement, cf. Salzmann (2006: 376; fn. 297) and Salzmann (to appear, section 4) for details.

2.1. Dialectal variation

According to the grammatical descriptions, Alemannic dialects all show a combination of gap-relatives and resumptive relatives. While subjects and direct objects are always constructed with gaps, oblique objects such as objects of prepositions require resumptives. The distribution in local relativization thus always follows the Keenan & Comrie (1977) hierarchy. The only area of variation concerns datives: While some dialects are reported to use resumptives, others apparently require gaps. The dative thus sometimes sides with the direct cases and sometimes with oblique relations.

2.1.1. With dative resumptives

The following dialects are reported to use dative resumptives in addition to Zurich German: The dialect of Zug (Bossard 1962: 141), the dialect of Lucerne (Fischer 1989: 429), Bernese German (Hodler 1969: 246; Marti 1985), Appenzell German (Sonderegger and Gadmer 1999), and Basel German (Suter 1992: 183). Dialect dictionaries for these varieties report the same facts, cf. Salzmann (2009b: 146).

2.1.2. Without dative resumptives

There are only two descriptions that report gaps for datives. The first one is a grammar of the Low Alemannic dialect spoken in Oberrotweil (Germany), which otherwise has the same resumptive system as the Swiss German varieties. Here are data involving direct object, indirect object and oblique object (Noth 1993: 418–420):

- (3) a. *Alli, wun em — hab wellä machä, si mr vrgroodä.*
 All C he.DAT have.1SG wanted make are me.DAT failed
 'Of those that I tried to make for him, all turned out badly.' (DO)
- b. *Wä mr sälä g frogä häädä, wu dr Agger dar — ghäänd ...*
 If we the.one asked had.1PL C the field belongs.to
 'If we had asked the one to whom the field belongs ...' (IO)
- c. *Dr äinzig, wu si v rhanälä mid em, isch dr Acfärer.*
 the only.one C they negotiate with him is the leader
 'The only one with whom they negotiate is the leader.' (OBL)

The same is found in Glarus German, cf. Bähler (1949: 59–60):

- (4) a. *e Hund, wo — bit*
 a dog C barks
 'A dog that barks' (SU)

- b. *de Uussicht, wo me uf em Tödi — het*
 the view C one on the Tödi has
 'the view one has on mount Tödi'
 (DO)
- c. *Kännscht du der Bueb, wo me... de es Bremi gih het?*
 know.2sg you the boy C one then a prize given has
 'Do you know the boy to whom they then gave a prize?' (IO)
- d. *... dr Gade, wo es Schwii und zwä Geiss drmit verbrunne sind*
 the barn C a pig and two goats it.with burned are
 'the barn that a pig and two goats burned to death with' (OBL)

It is difficult to interpret this type of variation. It is definitely not a clear geographical pattern as the two dialects are far apart from each other. It is rather unexpected that the only dialects that pattern identically with respect to dative relativization should be non-adjacent.

2.2. Competition of variants

While traditional grammatical descriptions seem to suggest that some dialects require dative resumptives while others do not, a few other sources point in a different direction:

The most important source in this context is the *Idiotikon* (1999, XV, 13–14), a comprehensive dictionary of Swiss German dialects. The entry of the relative particle *wo* contains quite a few examples with datives relatives, some of which are constructed with a resumptive and some without. The examples belong to different dialects and are all taken from reliable written sources such as textbooks, grammatical descriptions, dialect literature etc. Crucially, there is no perfect correlation with the claims of the traditional descriptions concerning dative resumptives: The examples without dative resumptives belong to Bernese, Appenzell, Glarus and Wallis German, respectively. At least for Bernese and Appenzell German, this clashes with the descriptions mentioned above. The examples with dative resumptives come from the following dialects: Basel, Bernese, Zugovian and Lucerne German, which is in accordance with the descriptions.

The only publications where both variants are explicitly mentioned are Dalcher (1963: 127), citing examples from the *Idiotikon*, and Hodler (1969: 246) on Bernese. Both regard gaps for datives as the exception, but do not comment any further on this issue.

3. Geolinguistic investigation

A larger geolinguistic investigation (2900 consultants from 383 measuring points)³ with the main objective of determining the dialect-geographical distribution of syntactic variants within German-speaking Switzerland also includes tasks on relativization. In a judgment task on dative relativization consultants were presented with four different expressional variants of the sentence *That's the guy who [dative] I showed the way yesterday*. Consultants were asked to indicate which variants are acceptable and which one is the preferred variant for them. The two most frequently preferred variants are resumptive (5)a and gap (5)b (note that, as a rule, the first person singular subject pronoun is deleted in clitic clusters as in (5)a):

- (5) a. *Das isch de Maa, won em geschter de Wäg zäigt han*
 that is the guy C he-DAT yesterday the way showed have.1SG
 b. *Das isch de Maa, won i ^{-DAT} geschter de Wäg zäigt han*
 that is the guy C I-NOM yesterday the way showed have.1SG

The results can be summarized as follows. Whereas information taken from earlier dialect descriptions (section 2) made us expect that the overwhelming majority of consultants would prefer the resumptive (5)a and reject the gap (5)b, the dative resumptive turned out to be far less common than the literature suggests (it is the preferred variant for only 21% of the consultants). Both resumptive and gap occur in all areas side-by-side. However, geographical dialect differences do show up if the quantitative distribution is taken into account. The resumptive is more frequently preferred in Western areas. Thus, Western and Eastern dialects are different not in their inventories of variants, but with respect to the frequency distributions of variants. This is a very important finding: The contrast between two internalized grammars may appear as a difference in the preference for one of the variants, whereby both are grammatical (see Seiler 2003, 2004, 2007). Note, finally, that the equivalent of the Standard German construction (relative pronoun, (2)) plays only a marginal role (preferred by 12%).

³ Syntactic Atlas of Swiss German Dialects. Swiss National Science Foundation #1113-68244.02, University of Zurich, German Department. Project Director: Eivira Glaser. See Bucheli and Glaser (2002) for a detailed description of aims and methodology.

4. A closer look at Zurich German

4.1. A second study

In order to verify the results of the first study and to isolate possible factors that might govern the variation, a second study was conducted (Salzmann, 2009b) where only Zurich German was selected. 34 consultants were asked to fill in 4 questionnaires with 79 questions in total. There were both judgment and production tasks. The consultants were also often asked to indicate possible preferences. In some cases, personal interviews were carried out to get a better understanding of a subject's judgments.

The results of the second study confirm the findings of the large-scale study: Variation is pervasive in dative relativization while there is no variation whatsoever in other environments. For datives, resumptives and gaps compete in most contexts to varying degrees, inter- and intra-individually. Many speakers accept both the gap and the resumptive variant. Dative resumptives are less frequent than earlier descriptions suggest.⁴

4.2. Conditioning factors

We have been able to isolate two grammatical contexts where the variation is less random, i.e. where there are clear preferences for one or the other variant. In both contexts, speakers report a preference for the gap variant.⁵

4.2.1. Case matching

Dative resumptives are less likely in matching configurations, i.e. when the head noun is also marked with dative case (cf. Bayer 1984 for case matching in Bavarian):⁶

⁴ Importantly, dative resumptives become obligatory once they are inside islands, where resumptives are necessary across the board, cf. 6.2.1. below:

- (i) *de Maa, won i kās < Buech, won *(em) gib >, zrugg überchum*
 the man C I no book C he-DAT give.1SG back get.1SG
 'the man such that I don't get any book back that I give to him'

⁵ In appositive dative relatives, only the gap variant is acceptable, a fact we have no explanation for so far.

⁶ Dalcher (1963: 127) and Hodler (1969: 247) were the first ones to point out the importance of matching contexts for dative resumptives in Swiss German.

- (6) *Ich han em Bueb, fwo i (??em) es Buech*
 I have.1SG the.DAT boy C you (he.DAT) a book
versproche häschl, es schöns Exemplar ggää.
 promised have.2SG a beautiful copy given
 'I gave the boy who you promised a book a beautiful copy.'

Importantly, dropping the resumptive is preferred, but a resumptive is not categorically ruled out. For an analysis cf. Salzmann (2006a).

4.2.2. The specificity/referentiality of the head noun

Another factor that favors the gap variant are non-specific and negatively quantified external heads:

- (7) a. *öpperl, wo mer (??em) nöd chan vertroue*
 someone C one he.DAT not can.1SG trust
 'Someone who one cannot trust'
 b. *Ich käne niemerl, wo mer (??em) I däre Sach chan vertroue*
 I know.1SG nobody C one he.DAT in this issue can.3SG trust
 'I don't know anybody one can trust in this issue.'

This is in accordance with the crosslinguistically well-established observation that a definite/specific/wide-scope reading of the external head is preferred in resumptive relatives (cf. e.g. Bianchi 2004). For instance, scope reconstruction is blocked for most speakers:

- (8) *di [zwü Müttli, won ene jede Bueb*
 the two girls C they.DAT every boy
en Struuss muess bringe
 a bunch.of.flowers must.1SG bring
 'the two girls that every boy must bring a bunch of flowers' (Salzmann 2006b: 361) 2 > V; *V > 2

5. Intermediate summary

In sum, intra-speaker variation is pervasive in the area of dative relativization: many speakers allow both variants. As for cross-dialectal variation, speakers of Western dialects use the resumptive variant more frequently than speakers from Eastern dialects. On the level of the individual, there are two factors that lead to a clear though non-categorical preference for the gap variant: matching contexts and non-specific/non-referential head nouns.

There is no indication in our results that the variation could be related to extralinguistic factors like age, sex, education, or processing factors. Furthermore, there are independent arguments against explanations in terms of extralinguistic factors.

For instance one cannot simply say that younger people are less likely to use dative resumptive pronouns. In fact, some of the sources in the *Idiotikon* mentioned above without dative resumptive pronouns are 50–100 years old, thereby showing that the use of gaps for resumptives is not (necessarily) a recent innovation. Conversely, a quick Google search reveals that dative resumptive pronouns are used frequently in news forums, chat-rooms etc., i.e. in communicative contexts which are most likely to be frequented by younger people.

Nor is it the case that the variation can simply be attributed to processing factors, e.g. that the resumptive pronoun is dropped in sloppy speech or conversely that the resumptive pronoun is inserted as some repair strategy. As shown in 2.2. gaps and resumptive pronouns for datives are found in reliable written sources such as textbooks, traditional dialect literature etc. It is highly unlikely that those cases represent performance errors. But once gap as well as resumptive relatives are a possibility in the grammar of many speakers of an Alemannic variety, it is unlikely that speakers who use gaps next to resumptive pronouns for dative relatives make performance errors when they use one of the variants. Furthermore, in our questionnaires, the majority of our informants explicitly marked both the gap and the resumptive variant as grammatical. Finally, a processing account would have to assume that one of the variants, the gap or the resumptive pronoun, is the basic variant while the other one is the result of a performance error. Given that both variants are attested in careful sources, cf. 2.2, both variants are equally good candidates for the basic variant. Choosing between the two seems not only arbitrary but even wrong. We conclude from this that intra-speaker variation in the use of dative resumptive pronouns is simply a fact one cannot deny. Both gap and resumptive pronoun are grammatical variants for one and the same speaker.

6. The syntax of gap and resumptive relatives in Swiss German

In this section we will first discuss which type of dependencies are found in gap and resumptive relatives. Then we will propose an explanation for the distribution of resumptive pronouns. In the last subsection we will argue against previous accounts of dative resumptives.

6.1. Resumption involves base-generation and gaps involve movement

There are basically two types of dependencies between antecedents and the elements that are related to them: In one type of dependency the antecedent occurs in a non-canonical position while the canonical position remains empty. A simple example is a *wh*-question where the question operator occupies a position at the beginning of the sentence while the position where elements with the corresponding grammatical function normally occur remains empty:

- (9) a. Whom_i did he see ?'
 b. He saw Mary

Such sentences are standardly analyzed as involving a relationship between the fronted *wh*-operator and the gap. The most wide-spread implementation involves a syntactic operation that displaces the *wh*-operator from its canonical object position to its operator position, leaving behind a so-called trace. This operation is usually referred to as *movement*. Movement dependencies are subject to certain syntactic locality constraints, i.e. the operation cannot “move” an element out of certain opaque domains (so-called islands) such as e.g. adjuncts. This is why we will refer to such dependencies as *movement dependencies* (co-indexation indicates the dependency):

- (10) *Whom_i did he laugh < when Mary kissed > ?'

The other type of dependency involves two elements that both occur in canonical position. It is usually found with coreference relations, e.g. reflexive or pronominal binding as in the following example where the interpretation of the pronoun *he* is (or: can be) dependent on that of its antecedent, a negative quantifier:

- (11) Every man_i is happy < when he_i is promoted > .

As the example shows, this type of dependency is not subject to the locality constraints movement dependencies are subject to. The dependency is thus not derived by syntactic means. Rather, both antecedent and pronoun are base-generated in their surface position and the link between the two is established semantically. We therefore refer to it as a *binding dependency*.

The question now is which type of dependency is involved in resumptive and gap relatives. It is important to point out in this context that all relative clauses are assumed to involve a relative operator. Often, the operator is a

relative pronoun, but in many languages like e.g. English *that*-relative clauses, where only a complementizer appears at the beginning of the relative clause, the relative operator is assumed to be empty, i.e. phonologically non-overt but still syntactically present. This is for the simple reason that relative clauses normally display the same type of dependency as *wh*-questions, i.e. they are subject to the same locality constraints. The dependency in relative clauses is usually written as follows:

- (12) The woman [Op_i that I love]_i.

While the gap relatives in 1a/b are straightforwardly amenable to a movement analysis, things are less clear with resumptive relatives because on the one hand we have an antecedent in non-canonical position – the empty operator –, on the other hand we have an overt bound pronoun in the dependent position, i.e. the argument position the operator is semantically related to. Resumptive relatives thus seem to have properties of both types of dependencies introduced above. Crucially, however, it can be shown that resumptive relatives are not sensitive to the locality restrictions movement dependencies are subject to. The following pair contrasts relativization with *wh*-movement from an adjunct clause (Salzmann 2006b: 331, to appear; the island is indicated by angled brackets):

- (13) a. *de* [Sänger]_i won i mi fröi, < wänn i *(en) gsee >
 the singer C I me be.happy.1SG when I him see.1SG
 ‘the singer such that I am happy when I see him’
 b. **[Welle Sänge]_i fröisch di*, < wänn i /en_i gseesch > ?
 which singer be.happy.2SG when you see.2SG
 ‘Which singer is such that you are you happy when you see him?’

Resumptive relatives are thus similar to the binding dependency in (11). We therefore opt for an analysis commonly referred to as base-generation where the dependency is not established in syntax. Rather, both elements are inserted in their surface position, and the binding relation between operator and pronoun is established semantically. Since a base-generation analysis is unavoidable for cases like (13)a, it is most economical to extend it to all resumptive structures. A base-generation analysis for a sentence like 1c can be schematized as follows:

- (14) the boy [RC Op_i that we pron_i a bike promised have]

Our approach implies that gap and resumptive relatives are two independent constructions that cannot be derived from each other. This fact will have far-reaching consequences for the analysis of variation in 8 below.⁷

6.2. The general distribution of resumptives

The distribution of resumptives in Zurich German (as well as other Swiss German dialects) relatives is governed by two factors: Resumptives occur to amnesty locality violations and to make oblique case visible. They are thus a last resort device that comes into play when gap derivations fail (cf. Shlonsky 1992 for the notion last resort).

6.2.1. Resumptives amnesty locality violations

As shown in (13)a above, resumptives also occur in positions from where movement is impossible. In such environments their function clearly is to avoid a violation of syntactic locality constraints. This explanation can be extended to resumptives after prepositions as in (14) since PPs (of complement and adjunct type) are islands in German and its varieties. This is illustrated by the following example where movement from a complement PP leads to ungrammaticality (Salzmann 2008: 103):

- (15) **[Vo wem]_i häsch < a d Schwöschter ___ > tänkt?*
 of who.DAT have.2SG at the sister thought
 'Of whose sister did you think?'

The amnesty function of resumptives must not be understood in a processing sense. Resumptives inside islands are perfectly grammatical in Swiss German. They do not have the faintest repair flavor as e.g. intrusive pronouns in English, cf. Chao & Sells (1983).

6.2.2. Dative resumptives: realizing oblique case

Many approaches to resumption try to give a unified explanation for the distribution of resumptive pronouns for oblique relations such as datives and

⁷ The issue whether resumption involves movement or base-generation has attracted quite some discussion in recent years. See Salzmann (2008, 2009a, to appear) for a literature overview and a detailed argument in favor of (this particular implementation of) base-generation for Zurich German.

This approach is thus similar to van Riemsdijk (1989), to be discussed in 6.3.2. below who, however, assumes base-generation not only for resumptive relatives, but also for gap relatives. See Salzmann (2009a: 41f., 2009b: 143f.) for arguments against a base-generation analysis of Zurich German gap relatives.

complements of prepositions, cf. e.g. van Riemsdijk (1989), Shlonsky (1992), Boeckx (2003) etc. While certainly attractive from a conceptual perspective, such an approach does not work for Zurich German. While resumptives after prepositions occur to prevent violations of locality, as argued in the previous subsection, a different solution is necessary for the dative (cf. also Salzmann 2006b) because datives are positions from where movement is possible:

- (16) *[Wem Maa]_i häsch ___ es Buech ggëz?*
 which.DAT man have.2SG a book given?
 'To which man did you give a book?'

Instead, the use of dative resumptives can be related to a language-internal constraint that requires the overt realization of oblique case. As in Standard German (cf. Bayer *et al.* 2001), dative, the only oblique case left in the Swiss German case system (genitive has been lost), requires special morphological licensing. Bayer *et al.* (2001) discuss a number of contexts some of which we will repeat here. First, complement clauses in German cannot directly fill the slot of a dative argument (Bayer *et al.* 2001: 471):

- (17) a. *Wir bestritten, (die Behauptung) _{acc} [dass wir verreisen wollten].*
 we denied.1PL the claim that we travel.away wanted
 'We denied (the claim) that we wanted to go away.'
 b. **Wir widersprachen, _{acc} [dass wir verreisen wollten].*
 we objected.1PL that we travel.away wanted
 'We denied that we wanted to go away.'
 c. *Wir widersprachen [der Behauptung, [dass wir verreisen wollten]].*
 we objected.1PL the-DAT claim that we travel.away wanted
 'We rejected the allegation that we wanted to go away.'

Since CPs cannot realize morphological case in German a DP has to be inserted to rescue the example. The non-oblique cases nominative and accusative do not require this extra licensing, inserting a DP is optional, cf. (17)a. Second, Topic Drop is only possible with subjects and direct objects, but not with datives, cf. Bayer *et al.* (2001: 489):

- (18) a. *[acc] Hab' ich schon gesehen* b. **[acc] Würde ich nicht vertrauen*
 have.1SG I already seen would.1SG I not trust
 'I have already seen (it).'
 'I wouldn't trust (him).'

Third, in comparatives, only direct arguments can be deleted, datives require resumptives, cf. Bayer (2002: 15):

- (19) a. [*Mehr Patienten*] sind gekommen als [*vor*] *behandelt werden konnten*.
 more patients are come than treated become could
 'More patients showed up than could be treated.'
 b. *Es kamen [mehr Patienten] als*
 there came more: patients than
*der Arzt [vor *(ihnen)] Medikamente geben konnte*.
 the doctor they.DAT medicine give could.3SG
 'More patients showed up than the doctor could give medicine to.'

All these observations hold for Zurich German as well (and other German and Swiss German dialects in general). The fact that the dative also stands out in Zurich German relativization thus comes as no surprise, dative resumptives are simply another reflex of the constraint that oblique case requires overt morphological licensing. The matching effects discussed in 4.2.1 provide independent evidence that dative resumption is linked to the recoverability of case. Obviously, the case on the external head is accessible inside the relative clause so that the morphological requirement can be satisfied without a resumptive (see Salzmann 2006a for analysis).

The fact that there are no resumptives for subjects and direct objects follows automatically: They are not oblique cases and therefore do not require any special morphological licensing.⁸

Ignoring the variation with dative resumptives for a moment, the pattern we have found in Zurich German is by no means exotic. Many languages use resumptives only from the dative object on downwards on the accessibility hierarchy by Keenan & Comrie (1977). For instance, this has been argued for restrictive relatives in Greek (Alexopoulou 2006: 63) and for colloquial Czech, cf. example (20), (Toman 1998: 305):

- (20) a. *To je ten nůž, co — byl na stole*.
 this is the knife C was on table
 'This is the knife that was on the table.'
 b. *To je ten nůž, co Petr našel — na stole*.
 this is the knife C Peter found — on table
 'This is the knife that Peter found on the table.'
 c. *To je ten chlap, co *(mu) každěj pomáhá*.
 this is the guy C he.DAT everyone helps
 'This is the guy everyone helps.'
- nominative
accusative
dative

⁸ Bayer *et al.*'s generalization is not without problems, cf. Salzmann (2009b: 156, fn. 718) for discussion.

- d. *To je la váza, co *(ji) zatřás*.
 this is the vase C it.INSTR shook
 'This is the vase that he shook.'
- genitive

The requirement to realize oblique case overtly explains how dative resumptives come about. However, it does not explain the variation described in sections 3–4. Given only this constraint we would expect dative resumptives to be obligatory (except in matching contexts), contrary to fact. This issue will be addressed in section 8.

6.3. Against previous explanations for dative resumptives

It is important to stress that the interface constraint referred to in the previous subsection refers to morphological, not syntactic properties: Oblique refers to certain cells in a morphological paradigm. In this section we will show that this is indeed the correct notion and that approaches that have linked dative resumptives to syntactic notions fail.

6.3.1. Alternative I: realizing inherent case

Bianchi (2004: 96) and Boeckx (2003: 80ff.) subsume datives and complements of prepositions under inherent case (without defining precisely what is meant by inherent case). Intuitively, this is quite attractive in that it seems to capture the class of peripheral relations, which often require resumptives in relativization. While the notions inherent and oblique case overlap to some extent, they are not co-extensive. For the Zurich German data, the notion inherent case can be shown to be inadequate to capture the distribution of resumptive pronouns:

First, only dative resumptives are subject to variability. This is unexpected if they have the same source as the other resumptives. Second, the notion „inherent case“ is quite controversial in German, especially for datives (cf. e.g. Gallmann 1992). Among the datives, only dative objects of ditransitive verbs with dative-accusative base order and unaccusative verbs with dative-nominative order have been considered structural while dative objects of monotransitive verbs (like *helfe* 'help') are normally classified as inherent. Importantly, the distribution of dative resumptives does not follow the putative structural/inherent divide: Resumptives occur readily with ditransitive verbs with dative-accusative base order and monotransitive verbs such as *helfe* 'help' alike. Third, and most convincingly: There is a small class of inherent accusatives. If resumptives were due to inherent case

one would expect inherent accusatives to require a resumptive in relativization. This is, however, not the case. The following triple illustrates the properties of the verb *fröge* 'ask', which takes two accusative objects. Only the first one is structural, as shown by the passivization facts:

- (21) a. *Ich ha di öppis gfröögt.*
I have.1SG you.ACC something.ACC asked
'I asked you something.'
- b. *Du bisch vo mir öppis gfröögt worde.*
You are by me.DAT something.acc2 asked become
'You were asked something by me.'
- c. **Öppis isch dich vo mir gfröögt worde.*
Something is you.ACC by me.DAT asked become
Lit.: 'Something was asked him.'

Importantly, a resumptive pronoun is impossible if the inherent accusative object is relativized:

- (22) *di vile Sache, won er (*si) mi di ganz Zitt fröögt*
the many things C he them me.ACC the whole time asks
'the many things that he asks me the whole time'

It seems safe to conclude from these facts that the notion inherent case – while possibly governing resumption in other languages – is irrelevant for the distribution of resumptives in Zurich and more generally Swiss German relativization.⁹

6.3.2. Alternative II: the dative as a PP

Van Riemsdijk (1989) presents a base-generation approach to resumption in Zurich German: resumptives are related to the head via binding. This is supposed to explain the insensitivity to islands and the fact that in contrast with *wh*-movement there are no gaps.

The distribution of resumptives, especially the lack of resumptives for subjects and direct objects, is argued to follow from an independently available process of cliticization: As in ordinary clauses, the pronouns are

⁹ The discussion in Toman (1998: 312–313) suggests that the morphological notion oblique is also crucial in colloquial Czech: He tries to analyze the distribution described in (20) in terms of structural vs. inherent case, but is then confused by the fact that adverbial accusatives, clearly inherent cases, do not require resumptives. Under the present account this is unsurprising given that accusatives are not oblique cases. For further support of the morphological notion, cf. Salzmann (2009b: 157, fn. 10).

fronted to a position high in the middle-field. In the relativization of subjects and direct objects the pronouns are deleted because their content can be recovered. Deletion is obligatory, a fact van Riemsdijk (1989) relates to the Avoid Pronoun Principle. The deletion process is subject to a locality requirement: only pronouns close to the relative complementizer *wo* can be deleted. Resumptives after prepositions as in (1d) are not deleted because PPs are not light enough to undergo cliticization. As a consequence, their pronominal complement cannot come close to the relative complementizer and therefore cannot undergo deletion, but instead cliticizes on them.

Since dative pronouns can be fronted, one would expect them to undergo deletion as well, contrary to fact (at least for those speakers that do have dative resumptives). Van Riemsdijk explains this by the assumption that weak dative pronouns are actually amalgamations of a locative preposition *a* plus a dative pronoun. Deletion of the resumptive is impossible due to the ban on recoverability of deletion because the content of the deleted preposition (that is part of the resumptive) would not be recoverable.

Despite its initial attractiveness treating dative resumptives as hidden PPs fails for empirical reasons (see Salzmann 2006b: 368ff., 2009b: 141f. for details). First, in several Swiss dialects dative is (or can be) expressed with the additional help of a preposition-like element *a* 'at' or *i* 'in', a case of so-called prepositional dative marking (PDM), cf. Seiler (2003):

- (23) *Ich han s Buech i/a de Mutter ggää.*
I have.1SG the book PRP the.DAT mother given
'I gave the book to the mother.'

For those dialects, it is highly unlikely that the dative pronoun also contains a preposition – it is hard to motivate two dummy prepositions. In addition, van Riemsdijk has to assume that it is possible to have a preposition governing another preposition e.g. when a preposition like *mit* 'with' assigns dative to a pronoun: *mit em* 'with he.DAT'. According to him it would actually govern a PP headed by the dummy-preposition *a*. Interestingly, this is exactly what happens to be impossible when dative is expressed by a preposition-like element: the dummy dative preposition is impossible, only the dative pronoun occurs, cf. Seiler (2002: 251, 2003: 128):

- (24) *[mit /*(i)a de*
with PRP the. DAT woman
'with the woman']
Frau]]

Finally, the variable occurrence of dative resumptives as discussed in sections 3-4 remains unaccounted for in van Riemsdijk's analysis since deletion should always be prohibited by recoverability, i.e. dative resumptives should occur as exceptionlessly as resumptives after prepositions, contrary to fact.¹⁰

7. Previous approaches to variation

Having determined *how* dative resumptives are inserted if they are inserted we have left open so far which mechanism in the grammar regulates *whether* they are inserted or not. Before we review earlier approaches to the intra-speaker variation problem (sections 7.1-7.3), we would briefly like to summarize the explananda for a convincing analysis of variation in Zurich German relatives: The analysis should provide a correct description of the facts, that is, it has to allow for optionality between resumptive and gap relatives in a single grammar (i.e. intra-speaker variation), and it should also express the fact that the matching context and the semantics of the external head lead to a preference for the gap variant. Additionally, the analysis should explain why variation is limited to datives.

7.1. Parallel grammars (pseudo-diglossia)

Kroch's (2000) work on historical English syntax discusses the issue that the Principles and Parameters framework does not generate variable outputs for principled reasons (a parameter cannot be switched on and off at the same time in the same grammar), whereas it is a fact that historical change is gradual, thus involving periods of variation. Kroch (2000) proposes that competing variants in fact belong to different, parallel grammars that are

¹⁰ The variation in dative resumption discussed in previous sections does not correlate at all with the distribution of prepositional dative marking. It is simply not the case that dative resumption is restricted to dialects/idioclects with PDM. Rather, variation in dative resumption is more pervasive. Nor is it the case that the variation can be linked to a different status of the dative in gap-dialects/idioclects: The dative has the same oblique position in the morphological paradigm and the same syntactic status with respect to the structural/inherent divide. Outside relativization, the dialects do not differ with respect to the realizational requirement.

both present in a speaker's mind, whereby each of those grammars itself is kept free of variation. Under this perspective, variation is seen as something like diglossia:

Given the assumptions of generative grammar, variation in syntax which corresponds to opposed settings for basic syntactic parameters must reflect the co-presence in a speaker of a speech community of mutually incompatible grammars. (Kroch 2000: 720)

To model this variation, it is necessary to allow for syntactic diglossia within individuals [...]. Again, this conclusion is a logical consequence of the general assumptions of generative theory regarding the categorical nature of grammatical parameters. (Kroch 2000: 722)

Once a community becomes diglossic with respect to a given parameter setting, every speaker will learn both settings. The choice of which criterion of well-formedness to apply in the production of a given utterance is one that falls in the domain of performance and so is not an issue for grammatical theory. (Kroch 2000: 722)

While the parallel grammar approach may be attractive to describe scenarios of syntactic change involving syntactic parameters, e.g. the shift from verb-final to verb-medial order in Old English (Kroch 2000: 709), we believe that it is inadequate, both empirically as well as conceptually, for the type of variation we are concerned with here.¹¹

Empirically, we are not dealing with variation that can be expressed by means of incompatible settings of crosslinguistic parameters. The variation in the Old English period could indeed be related to two grammars differing in the setting for the verb raising parameter, i.e., whether the verb leaves its clause-final base-position and moves to an intermediate position (the parameter would be set for "+") or remains in its base-position (the parameter setting would be "-"). The different parameter settings thus correspond to presence vs. absence of a syntactic operation. However, the variation in

¹¹ Recall from sections 2-4 above that there is no indication which of the variants - gap or resumptive - should be considered the conservative variant and which the innovative one. Both variants can be found in texts from the 19th century. We are obviously dealing with optionality in a synchronic system, not with two variants of the dialect belonging to different historical stages.

dative relativization is rather due to the co-presence of two independent constructions.

What the optionality seems to be based on instead is different requirements to express oblique case in relativization. The parallel grammar approach could posit an oblique case-parameter that is switched on in one grammar, leading to dative relatives, and switched off in the other, leading to gap relatives. Since the parameter involves a fundamental aspect of the language, the realizational requirement, it would predict the same variation for the other contexts where the realization of oblique case is at stake, recall the facts in 6.2.2 (cf. the various surface phenomena discussed in Kroch 2000: 720f. that covary with the rise of *do*-support). But crucially this is not what we find (recall fn. 10): The variation in the realizational requirement is restricted to dative relativization. In other contexts, dative has to be realized in all varieties.

Additionally, the parallel grammar approach cannot express the preferences for gap relatives in the environments described in 4.2.

Conceptually, the approach presupposes that there must exist some categorical grammars which the competing variants are taken from (otherwise the linguist would have to invent grammars that are not attested even in a single speaker's mind, as a mere artifact of *a priori* theoretical assumptions; we believe that this is certainly not the purpose of any science). In our case, no such categorical grammar exists independently: no dialect corresponds to one of the putative parallel grammars, instead, optionality for dative resumptives seems to be the basic pattern everywhere.^{12,13} Furthermore, in neighboring areas relative pronouns but no resumptives are used.

Also, the pseudo-diglossic approach makes it necessary to correlate variant choice with extralinguistic (performance) factors such as different registers and/or speech styles (unless one wants to postulate a 'meta-grammar' regulating the power of the parallel grammars). In our case no stylistic difference between dative resumptive and gap can be found. Instead, the most influential factors for variant choice are grammatical ones. Further-

¹² We do not know to what extent dative resumptives are possible in the dialects of Glarus and Oberrotweil, unfortunately.

¹³ Even though our solution in 8 below in terms of tied or overlapping constraints involves parallel grammars in a technical sense, it is very different from Kroch's conception where the competing grammars represent entire existing varieties/register/dialects.

more, we do not think it is a good idea to obscure the difference between diglossia and syntactic optionality. Although our speakers are diglossic (Swiss German vs. Standard German), the resumptive and gap variants both belong to the same variety, the dialect. The parallel grammars approach makes it impossible to distinguish formally between optionality (intra-speaker variation within one variety) and diglossia, which are two sociolinguistically very different phenomena (Seiler 2004). In sum, parallel grammars can perhaps be an adequate model for certain scenarios of syntactic change, but is not a plausible explanation for the variation we find in Swiss German dative relativization, because it denies the possibility of optionality within one linguistic system.

7.2. The same underlying grammar

Barbiers (2005) discusses variation in three-verb clusters in the Dutch language area. Of the logical six orders, all but one (2-3-1) can be found, the distribution partly being geographically determined. Many speakers accept two or more orders.

Barbiers presents an analysis in which the syntactic component generates exactly the five occurring orders: The lowest VP3 moves leftward to the specifier of the next higher verbal projection VP2. Then, VP3 moves to the Spec of VP1, pied-piping VP2. In Barbiers (2005) it was argued that VP-movement is optional so that the various orders could be derived. In more recent work (Barbiers 2009), optionality in movement is no longer taken to be a possibility. Rather, the optionality arises as the consequence of variable spell-out options (i.e. options of phonological realization). Applied to the case at hand: spelling out the moved VPs in their base-position will lead to the order 1-2-3, spelling them out in their landing site will lead to 3-2-1 etc.¹⁴ Importantly, the spell-out/movement options are not governed by parametric features. In principle, all spell-out/movement options are available to all speakers of the Dutch language area; in other words: they all have the same grammar with respect to this phenomenon. The geographical

¹⁴ A manuscript version of Barbiers (2009) contained an analysis of verbal clusters in exactly these terms while the final version does not deal with them anymore, but there seems to have been a general shift in Barbiers's view on the issue in that optionality of movement has been replaced by optionality in other domains, e.g. variable spell-out options or optionality in the size of the constituent affected by syntactic movement.

distribution – and this is the crucial point – is argued to be determined by extralinguistic factors (Barbiers 2005: 255): “All orders that the grammatical system allows are, in principle, available for each speaker in the Dutch language area, but which orders a speaker actually uses or reports to occur in his dialect depends on the input from the environment.”

The last part of the quote is rather bewildering for a generative approach: It has always been a basic tenet that the internalized grammar of an individual is shaped by the interaction between linguistic input and innate universal principles. Accordingly, if the speaker is sufficiently exposed to several variants he would be expected to acquire just these variants, which would then constitute part of his internalized knowledge of language. The variants would not be related to extralinguistic factors. It is the null assumption that when speakers are asked about their intuitions about certain structures these intuitions reveal something about the internalized grammar of those speakers, and not just which structures happen to be sociolinguistically more prominent than others. If a speaker rejects a certain order one would conclude that his internalized grammar cannot generate such a sentence.

Barbiers takes an explicitly different approach, drawing a distinction between unrealized und ungrammatical structures. Unrealized structures are structures which can be generated by the grammar of a speaker but which for extralinguistic factors are not used by that individual, as in the case of three-verb clusters. Ungrammatical structures, on the other hand, cannot be generated by the grammar. The distinction as such is certainly not implausible; however, it is empirically very difficult to distinguish the two notions “unrealized” vs. “ungrammatical” and, as a consequence, there is a certain danger that a large part of language variation is simply attributed to extralinguistic factors, rendering linguistic analysis unnecessary.

So far, the main diagnostic for unrealized structures (perhaps apart from chaotic geographic distribution) seems to be the impossibility to analyze the variation in current Minimalist terms. This is quite obvious in the case of three-verb clusters where, for instance, it seems very difficult to come up with a syntactic analysis that provides a straightforward account for the grammar of speakers who use a certain combination of variants, e.g. only 3-1-2 and 3-2-1. However, given that such a move is heavily theory-dependent, we refrain from adopting the unrealized-ungrammatical distinction and will instead continue to assume that such cases of inter-speaker variation

represent different grammatical systems and are therefore to be accounted for by linguistic theory even if this leads to a rather complicated description.

Applied to the Swiss and Zurich German data, we think it is undesirable to adopt Barbiers’s approach: As for generating optionality, relying on optional spell-out will not do for our purposes because resumptives are not the result of spell-out (of a trace of movement), cf. Salzmann (2009a: 34f., to appear), but rather regular pronouns. Speakers of Zurich German do not (freely) choose between different spell-out options, rather, they may optionally choose between very different derivations (movement vs. base-generation) to express dative relativization. As for the factors that govern variant choice, we have no evidence that the variation is governed by extralinguistic factors: As pointed out in 4.1 above, in neutral environments, the preference for gap vs. resumptive varies in ways that cannot be related to extralinguistic factors. On the other hand, there are environments where there is a clear preference for gaps, but there the factors are clearly grammatical in nature. We do not see a possibility to capture these preferences under Barbiers’s approach. Finally, even in neutral contexts we have identified a kind of dialectal variation in that Western speakers use dative resumptives more often than speakers in the East (cf. section 3). This implies for us that we are dealing with different internal grammars even though they differ only in the frequency of the use of a given variant.

7.3. Lexical variation theory: two inputs, two outputs

Next to approaches that link variation to spell-out options there are many approaches within the Minimalist Program (Chomsky 1995) that locate variation in the lexicon, i.e. by endowing lexical items with slightly different features. This works well for certain kinds of cross-linguistic variation where there is movement in language A but not in language B. The attracting lexical item (e.g. a complementizer) would carry a strong feature in language A and a weak feature in language B. However, as discussed e.g. in Henry (2005: 119), this does not work for optionality and preferences as found in intra-speaker variation. The default assumption is that a feature is either strong or weak but not optionally strong or strong to 70 % (but see Barbiers 2005 and Henry 2002 for Minimalist views that take such facts seriously and allow for optionality).

This is less problematic in the case at hand because we are dealing with variation that cannot be described in terms of presence or absence of move-

ment anyway. Rather, we have argued that gap and resumptive relatives involve very different derivations, i.e. movement vs. base-generation.

The variant of the lexical variation theory proposed in Adger & Smith (2005) and Adger (2006) seems at first sight better suited to handle optionality in intra-speaker variation. They propose that variation in grammar arises if a grammar contains two featurally different but semantically identical elements that – due to their feature difference – are realized differently in the morphological component. Importantly, the distribution of variants, i.e. the choice which lexical item is used for a particular derivation, is argued not to be governed by the grammar itself, but rather by processing or extralinguistic factors.

But again, given our analysis above, an approach that reduces the optionality essentially to spell-out factors cannot be successfully applied to the Swiss German data because the two optional variants involve very different derivations, movement or base-generation.¹⁵ In addition to failing to account for the optionality, Adger & Smith's approach cannot account for the preferences we have observed: The factors are soft: They do not categorically determine which variant must occur in a given environment but rather enhance the likelihood for it to occur. In the grammar of many speakers, the derivation does not crash if a gap relative is used with a specific head noun (and even if there is no matching configuration) or if a resumptive occurs in a matching context. Adger and Smith relegate the factors governing variant choice outside the grammar and thus must account for the preferences by means of extrasyntactic explanations. But this, again, seems very unattractive in our view since the variation we observe is affected by grammar-internal constraints (case, specificity/referentiality). Case-matching often leads to categorical effects in some languages (cf. e.g. Bayer 1984) so that one would certainly want to include those factors in the grammatical component. It seems inconsistent in our view to suddenly place them outside the grammar in other languages once their effects are no longer categorical but preferential. Finally, in section 3 we have identified a clear dialectal difference based on frequency, which we take to imply that we are dealing with different grammars.

¹⁵ Cf. Salzmann (2008: 126) for detailed technical discussion of the problems arising for the lexical variation approach.

7.4. Intermediate conclusion

The previous subsections have shown that previous approaches to intra-speaker variation fail to account for the two major explananda we identified above: They fail to provide an account for the basic optionality between gap and resumptive because they do not envisage optionality between syntactically rather different, but semantically equivalent derivations. They also fail to capture the preferences for gaps in certain environments because variant choice is relegated to extragrammatical factors while the factors at work in the case at hand are clearly grammatical in nature. We therefore conclude that a different approach is necessary.

8. Analysis

Recall the explananda from above: First, we want to be able to describe optionality within a single grammar. Second, we want to be able to express the preferences for gaps under matching and with certain external heads. Third, the analysis should explain why the variation is limited to datives.

8.1. The basic patterns

Before we address the variation facts, we will briefly describe the necessary ingredients to describe the three relevant scenarios: On the one hand, we have to distinguish between relativization into islands (6.2.1) and relativization into transparent domains. Within the latter class we have to distinguish between relativization of datives (6.2.2) and relativization of matrix subjects and direct objects (1)a/b.

Relativization into islands is straightforward: A movement derivation is impossible because – as shown in (13)b – extraction from islands is banned. The only alternative is a base-generation derivation because the binding relation between the operator and the resumptive is not subject to syntactic constraints.

Relativization of datives is similar (for expository purposes we will assume here that datives require resumptives): The realizational requirement on oblique case can be understood as an interface constraint that we will refer to as REALIZEOBL (cf. Pesetsky 1998). Under a movement derivation dative remains unexpressed, in violation of REALIZEOBL. As a consequence, a base-generation derivation is the only possibility, the resumptive is the means to express oblique case.

Relativization of subjects and direct objects is different. We argued above that there are no resumptives for subjects and direct objects because they are not necessary. This statement is, however, far less innocuous than it seems: Since nothing rules out base-generation for subjects and direct objects in principle, we must assume that gap relatives are more economical for these relations. We will assume that the crucial factor is structural economy: Gap relatives are more economical because they involve less structure. We will refer to the relevant constraint as *RES, a constraint that penalizes structures that involve resumptives.¹⁶

8.2. Variation and optionality

If there were no variation in dative relativization, the facts could arguably be described in a classical Minimalist model along the lines of the previous subsection. However, the variation in dative relativization shows that a different approach is necessary: Under a Minimalist setting, REALIZEOBL would have to be an inviolable constraint. As a consequence, dative relatives would be expected to always involve resumptives, contrary to fact. The mere fact that there are speakers who allow gaps in dative relativization, but otherwise adhere to the overt expression of oblique case shows that REALIZEOBL cannot be an inviolable constraint. Rather, it must be violable and it must be in conflict with another constraint for gaps to be possible. This state of affairs is symptomatic of a conflict between explicitness and economy requirements, whereby explicitness can be overridden under certain conditions. This state of affairs is a classical example of the kind of conflict Optimality Theory is built upon.

The constraints alluded to in the previous section thus have to be interpreted in Optimality-theoretic fashion, both are violable and ranked:

¹⁶ A more sophisticated answer to the question why resumptives are less economical than gaps is found in Salzmann (2009a, 2009c). The fact that gap and resumptive relatives compete with each other implies that base-generation and movement compete with each other. In Salzmann (2008, 2009a/c, to appear) it is shown that this requires the reference set, the set of derivations/representations that are compared, to be based on identical Logical Forms rather than identical sets of lexical items (numerations), as it is normally assumed. – Note incidentally that this implies that one cannot relate the optionality to differences in numerations as in Adger & Smith (2005). Since there is competition between gap and resumptive relatives for subjects and direct objects, we have to assume the same for datives.

- (25) a. REALIZEOBL: Oblique case must be overtly realized.
 (favors dative resumptives in all contexts)
 b. *RES:
 Avoid resumptives.
 (favors gaps in all contexts)

These two constraints are sufficient to derive grammars with or without dative resumptives, depending on the relative ranking: REALIZEOBL > *RES derives a grammar with dative resumptives, *RES > REALIZEOBL one without. However, they are not sufficient to capture the facts introduced in 4.2.1 where dative resumptives are dispreferred under matching. We follow Pesetsky (1998) in assuming that oblique cases are generally subject to a strict recoverability condition. Applied to the case at hand this means that recoverability of oblique cases is ensured if they are expressed a) directly by means of a resumptive or b) indirectly via matching. We will use the following general recoverability constraint and assume the recoverability conditions on oblique case mentioned above:¹⁷

- (26) a. RECOV: A syntactic unit with semantic content must be pronounced unless it has a sufficiently local antecedent
 (favors gaps for subjects and direct objects in all contexts, for datives only in matching contexts; otherwise it prefers resumptives for datives)

This may look like a duplication of REALIZEOBL. We cannot discard REALIZEOBL, however, because it will turn out to be relevant in the rare case where dative resumptives occur under matching, cf. 8.3 below.

As a first approximation, the tableaux in (27) demonstrate constraint interaction on the basis of a putative categorical grammar where the resumptive is never used with subject, direct object and dative object in matching contexts, but is obligatory with datives in non-matching contexts (but recall from sections 4–5 that for many speakers both resumptive and gap are grammatical encoding options for dative relatives, whereby (non)matching contexts correlate with a difference in preference only). The ranking RECOV > *RES > REALIZEOBL selects the resumptive variant for dative rela-

¹⁷ For reasons of space we will not analyze the effect of the semantic nature of the external head on the choice between gap and resumptive, cf. 4.2.2. The solution would involve another constraint that arguably is normally ranked above RECOV – since resumptives are dispreferred with negative heads even in non-matching contexts.

tives in non-matching contexts (27)a, the gap variant for dative relatives in matching contexts (27)b, and the gap variant for subject relatives (regardless of the context) (27)c:

(27) a. Input: Matrix = NOM, Rel = DAT: resumptive

	RECOV	*RES	REALIZEOBL
de Maa, won em		*	
de Maa, wo Ø(dat)	*!		*

b. Input: Matrix = DAT, Rel = DAT: gap

	RECOV	*RES	REALIZEOBL
em Maa, won em		*!	
em Maa, wo Ø(dat)			*

c. Input: Matrix = X, Rel = NOM: gap

	RECOV	*RES	REALIZEOBL
X, won er		*!	
X, wo Ø(nom)			

For a putative grammar which has only gaps in dative relativization, we can assume that *RES outranks RECOV:

(28) Input: Matrix = NOM, Rel = DAT: gap

	*RES	RECOV	REALIZEOBL
de Maa, won em	*!		
de Maa, wo Ø(dat)		*	*

So far, the analysis accommodates the two variants, but not within the same grammar. The design of such a grammar is the topic of the next subsection.¹⁸

¹⁸ The derivations are discussed in more (technical) detail in Salzmann (2008, 2009a, to appear), where it is explicitly shown that a classical Minimalist approach cannot even account for the basic variants, let alone for intra-speaker variation.

8.3. Optionality, frequencies and preferences as a part of grammar: Stochastic OT

In section 7 we have argued that the resumptive/gap variation in dative relatives must be rooted in the grammar itself. The grammar must be modelled in a way that it generates variable outputs exactly within the limits described above.

Mere optionality can in principle be handled by means of ties, which in the case at hand would involve a tie between RECOV and *RES:¹⁹

(29) Input: Matrix = NOM, Rel = DAT: resumptive

	RECOV	*RES	REALIZEOBL
de Maa, won em		*	
de Maa, wo Ø(dat)	*		*

However, since we also want to be able to express the preferences, a more powerful model is needed: Stochastic Optimality Theory (Boersma 1998, Boersma & Hayes 2001; Bresnan, Deo and Sharma 2007; Seiler 2004) is a competence model of grammar that accounts for categorical as well as for variable outputs. The basic idea is that constraints may partially overlap. Constraints are ranked on a continuous scale of real numbers such that the distances between constraints may differ. At each evaluation there is a small amount of random perturbation such that the actual ranking value of a constraint is slightly above or below its mean ranking value. If the distance between the mean ranking values of two constraints is rather small, reversed rankings are more likely to occur in actual evaluations. Stochastic OT is therefore able not only to model the co-occurrence of variants, but also to weigh the variants according to frequency/preference. Stochastic OT contains a Gradual Learning Algorithm which determines the mean ranking values of the relevant constraints on the basis of the variant frequencies in the learner environment. Since we do not have access to text frequencies, we illustrate this point with the following hypothetical, but very likely variant distributions. As for subject and direct object relatives, the gap

¹⁹ Importantly, for the analysis to work, we must assume a global tie where lower-ranked constraints do not play a role, cf. Müller (2000: 200ff.) for an overview over different types of ties. Under the stochastic interpretation below this problem vanishes.

strategy is obligatory (thus 0% resumptive). As for datives, there is a strong preference for the gap in matching contexts (for which we assume the resumptive to be inserted in 10% of the relevant cases) whereas in other contexts the variation seems to be largely unbiased (represented in the model by 50% resumptive). The Gradual Learning Algorithm contained in the software package OT Soft (Hayes, Tesar and Zuraw 2002) determines the following mean ranking values (1.000.000 test cycles):

(30)	101.956	RECOV
	101.324	*RES
	98.676	REALIZEOBL

(30) reads as follows. As for subjects and direct objects, only the *RES constraint is decisive. Regardless of its ranking value, any insertion of a resumptive is a fatal violation, which results in the categorical ungrammaticality of the subject and direct object resumptive (this example shows that Stochastic OT *can* predict categorical ungrammaticality if the constraint set is defined in an appropriate way). As for datives in non-matching contexts, the small ranking distance between RECOV and *RES predicts reversed rankings to occur relatively often, resulting in a balanced distribution of resumptives and gaps. In matching contexts, RECOV is irrelevant so that the interaction of the next constraints is decisive. The larger ranking distance from *RES to REALIZEOBL mirrors the strong preference for the gap variant in matching contexts.

A potentially serious criticism (which will, however, turn out to be irrelevant for our purposes) against the model of Stochastic OT as a whole is formulated by Vogel (2006). Vogel refers to a study by Bresnan *et al.* (2001) on the distribution of active and passive voices in English and Lummi. In both languages, "passives are avoided for structures with first and second person agents and they are more likely to occur with first and second person patients than with third person patients" (Vogel 2006: 260). The difference between English and Lummi lies in the fact that whereas this distribution is only a statistical tendency in English, it is categorical in Lummi. Bresnan *et al.* account for these facts in terms of Stochastic OT grammars for each of the languages. In English but not in Lummi the relevant constraints are close enough from each other that in individual evaluations the reversed ranking may occur, favoring the otherwise dispreferred pattern (in Lummi the much greater ranking distance between the constraints makes

reversed rankings extremely unlikely, not to say impossible). Vogel's (2006) argument is as follows. What is counted by Bresnan *et al.* and modeled by means of a stochastic grammar are actually not frequencies of competing outputs for a given input, but rather frequencies of different inputs. In other words, Vogel assumes that the choice between active and passive voices is ultimately a semantic or pragmatic one. Once the speaker is determined to utter a passive sentence (for some extra-syntactic, communicative reason), the grammar will produce a well-formed passive sentence in 100% of the relevant cases (the same is, of course, true for active sentences): "Is it really the case that the rarity of passives with first and second person *by*-phrases is the result of a grammatical constraint, or is it not rather the result of the rarity of the communicative situation in which such a passive would be appropriate? It seems that a constraint system that is designed to directly derive frequency patterns runs into the danger of interpreting properties of the 'world' as properties of the grammar" (Vogel 2006: 261). We take this criticism very seriously, as it might formulate (if it is right) a major drawback of much quantitative work on syntax in general. However, we reject it for two reasons, a concrete and a principled one. As for our concrete case, variation of resumptive vs. gap in dative relatives, we have shown that there is clearly no semantic or pragmatic difference involved. Under otherwise equal circumstances, speakers produce both variants, but with different frequencies according to which smaller dialect area they belong to and whether there is a case matching environment or not. If we wanted to trace back the competition to two different inputs, we were to construct *ad hoc* a semantic or pragmatic difference. And this is exactly our caveat on more principled grounds: If we do not accept variable outputs for a given input in our grammar at all, we are forced to *always* construct some difference on the level of the input whenever we encounter competing variants. The circularity of this kind of reasoning is obvious. The procedure is highly reminiscent of (indeed, identical with) approaches in the spirit of lexical variation theory as discussed in section 7.2 above.

8.4. Constraining variation

One weakness of the way the analysis is set up so far is that it does not explain why the variation is limited to datives (cf. Salzmann 2008 for detailed discussion). For instance, it must be ruled out that gaps appear inside islands. Under a Minimalist approach where movement out of islands is

ruled out by an inviolable derivational constraint this follows automatically. Under an OT-approach, however, this is less clear, especially if locality constraints are handled by the same ranked and violable constraints. The fact that we find resumptives inside islands would then be due to the putative ranking LOCALITY > *RES, meaning that it is more important to respect locality than to avoid resumptives. However, once we have these two constraints, it is easy to come up with constraint combinations that lead to patterns that in all likelihood will never occur in the world's languages. Suppose the following ranking: REALIZEOBL > *RES > LOCALITY: In this language, dative resumptives would be obligatory, while there would be no (non-dative) resumptives inside islands (which implies that there would be movement out of islands). This is very undesirable. In similar vein, one could model very unlikely types of variation, for instances a tie between LOCALITY and *RES would imply that resumptives are optional within islands. So it seems that an unconstrained OT-approach is able to model basically any kind of variation. A possible way of avoiding these undesirable consequences, is proposed by Salzmann (2008) who locates (arguably) inviolable locality constraints in the universal structure generating component GEN so that structures violating them cannot be generated in the first place.²⁰

8.5. Consequences: variation and change

We have found that there are two ways of expressing an indirect object relative in Swiss German, namely with a resumptive or a gap. The only factors that bias the variation are the dialect area (Western dialects use the resumptive more frequently), case matching and the semantics of the head noun. The factors are 'soft' insofar as they do not trigger clear grammaticality contrasts but rather quantitative and preferential asymmetries. The co-existence of variants as well as 'soft' preferences must be represented somehow in a model of the speaker's competence. We have arrived at a negative assessment of both pseudo-diglossic and sociolinguistic explanations for this kind of variation, arguing instead that the variation is rooted in the grammar itself, an idea which is formally implemented in the model of Stochastic Optimality Theory.

²⁰ This view is directly compatible with the Derivations and Evaluations model by Broekhuis (2008), cf. Salzmann (2008) for discussion.

Relativization is not an isolated case. Other examples displaying similar patterns of variation include prepositional dative marking (Seiler 2002, 2003, 2006, 2007), verb clusters (Seiler 2004, 2007), purposive infinitives (Seiler 2005), do-periphrasis, doubling phenomena (Frey 2005, Frey and Glaser 2006). Those studies constitute evidence of a more plastic structure of the knowledge of grammar (perhaps especially in nonstandard languages), the grammar being sensitive to variant frequencies in the utterance environment of the speaker. Bresnan (2006) provides experimental evidence for intuitions about variant probabilities in speakers' judgments, whereby the intuitions match the actual text frequencies. Thus, if it is correct that the knowledge of grammar shares properties of a plastic, dynamical system (see also Culicover and Nowak 2003), some quite unexpected, therefore largely unexplored questions follow. As for the relationship between language variation and change, it is a standard assumption that variation is the synchronic reflex of change in progress. However, if variation is rooted in the internal structure of the competence grammar already, the relationship between variation and change appears to be reversed. The question arises how it is possible that (balanced) variation converts into change, now understood as the epidemic accumulation of individual selections of variants. As for language acquisition, under the plasticity hypothesis it is not necessary to assume that first language acquisition is ever completed for intrinsic reasons. Rather, the acquisition process freezes as soon as the speaker's I-grammar is in congruency with the variant distribution in his utterance environment. Yet later changes in the utterance environment cause adjustments in the I-grammar. If this is correct, it would be the first explanation of the existence of gradual dialect-geographical variant spread based on the internal architecture of linguistic competence: changes in variant frequency in the utterance environment cause small adjustments of a speaker's grammar, and thus in his production, which in turn will create a slight change in other speakers' utterance environment, etc., resulting in gradual spread of variants across an area.

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