

Retraction patterns and Self-Repair in German and Swedish Prepositional Phrases

Karin Birkner (University of Bayreuth)
Sofie Henricson (University of Helsinki)
Camilla Lindholm (University of Helsinki)
Martin C. Pfeiffer (University of Freiburg)

Abstract	2
1 Introduction	2
2 Theoretical background	3
2.1 Analysis of syntax of spoken language	3
2.2 Repair and retraction in spoken language	3
3 Data and methodology	5
3.1 Presentation of data	5
3.2 Methodology	5
3.3 Categories of analysis	6
4 Structure of prepositional phrases in German and Swedish	8
4.1 The prepositional phrase in German	8
4.2 The prepositional phrase in Swedish	10
4.3 Short summary and comparison of German and Swedish	12
5 Empirical analysis of retraction patterns	13
5.1 Retraction patterns in German	13
5.1.1 Break-off point	13
5.1.2 Point of retraction	13
5.1.3 Retraction patterns	14
5.1.4 Discussion	15
5.2 Retraction patterns in Swedish	16
5.2.1 Break-off point	16
5.2.2 Point of retraction	17
5.2.3 Retraction patterns	17
5.2.4 Discussion	19
6 Comparison of German and Swedish retraction patterns	20
6.1 Similarities	21
6.1.1 Break-off after preposition, retraction to pre-positioned element: A0	21
6.1.2 Break-off after preposition, adjective and after/within noun, retraction to preposition: A1, C1, D1	21
6.2 Differences	21
6.2.1 Break-off after determiner, retraction to preposition: B1	21
6.2.2 Break-off after/within noun, retraction to noun: D4	22
6.3 Type of Repair	23
7 Summary	24
8 References	26
9 Appendix	28
9.1 Transcription conventions (Selting et al. 2009)	28
9.2 Statistical analysis	29
9.3 Retraction patterns in Swedish and German	31
9.4 Type of Repair in the German and Swedish data	32

Abstract

The article presents the results of a German-Swedish comparative study on retraction within prepositional phrases. Retraction, i.e. when a speaker returns to an earlier point within an unfolding grammatical structure, is a common resource used by both German and Swedish speakers e.g. to substitute, delete, insert, or repeat parts of an utterance. However, this resource is not necessarily used in the same way in German and Swedish. Typological differences in the languages, such as word order and morphosyntactic characteristics, can affect the pattern of retraction (cf. Fox/Maschler/Uhmann 2009). The paper addresses the question whether grammatical differences in German and Swedish affect the retraction patterns in the respective languages.

1 Introduction*

When a preposition is uttered in German or Swedish, it calls for a pragmatically or semantically suitable complement (i.e. usually a noun phrase). In Swedish this complement is not strongly marked grammatically. On the contrary, the preposition in German determines which case form the following NP will take. In addition, prepositions and articles can be cliticized into one unit in German (e.g. *in dem > im*). The fact that German prepositional phrases are grammatically more specified with regard to case, number, and gender than in Swedish suggests that German prepositional phrases are grammatically “heavy” units which speakers and listeners need to pay special attention to (e.g. in case of repair in a prepositional phrase, adjustments to the form may frequently be necessary). In comparison, in Swedish there is less grammatical information projected by the preposition, although some studies have shown that prepositional phrases are fairly strong units in Swedish as well (Bockgård 2003: 73; Lindström 2008: 170-171). Prepositional phrases in both German and Swedish usually include a noun phrase, but the morphosyntactic marking of definiteness in the noun phrase differs between the languages. These observations lead us to the general research question addressed in this paper: Do the grammatical differences between the prepositional phrase (and the noun phrase within it) in German and Swedish affect the retraction patterns in the respective languages?

We will commence by giving an overview of the theoretical background of our study, concentrating on the state of research on syntax of spoken language (chapter 2.1) and repair and retraction (chapter 2.2). The theoretical part is followed by a descriptive section on data and methodology (chapter 3) and an introduction to the prepositional phrase in German and Swedish (chapter 4). Thereafter we proceed to the empirical analysis of the data: We first present the results for the respective languages (chapter 5) and then take a contrastive approach, comparing differences and similarities in German and Swedish (chapter 6). The summary in chapter 7 presents our central findings and makes suggestions for further research.

* This study was carried out as part of the Syntax of Spoken Swedish and German project, financed by the DAAD and the Academy of Finland from 2007-2009, between the University of Helsinki, Department of Scandinavian Languages and Literature (Prof. Dr. Jan Lindström, Dr. Camilla Lindholm, Dr. Camilla Wide, Sofie Henricson) and the German Department of the University of Freiburg (Prof. Dr. Peter Auer, Prof. Dr. Karin Birkner, Dr. Anja Stukenbrock, Dr. des. Oliver Ehmer, Dr. des. Christine Mertzlufft, Martin Pfeiffer). The project investigates contrastive aspects of spoken Swedish and German, with a mainly syntactical focus.

We would like to thank the members of the project as well as the participants of the workshop "[Swedish and German spoken syntax compared](#)", held at the Freiburg Institute for Advanced Studies on the 17th of December 2009, for their feedback. Special thanks go to Dr. Göz Kaufmann for his statistical advice.

2 Theoretical background

2.1 Analysis of syntax of spoken language

In the study of spoken language, syntax should not be perceived as a product, but rather as an ongoing process (Ono/Thompson 1995: 251; Steensig 2001: 73-74; Lindström 2008: 43-44). When syntax is looked upon as a process, this means that constructions and utterances cannot be studied as ready and fixed units, but rather as modifiable units that are created and molded in interaction (Lindström 2008: 43). In conversation, this process during which syntax is formed is visible (Lindström 2008: 43-44). Thus, spoken language is seen as an emergent process and a social phenomenon that takes place in real time, and can therefore never be considered a fixed and established object (Hopper 1988, 1998). Auer (2005, 2009) has developed this thought further, discussing spoken language syntax as an *on-line syntax*, a view that is adopted within the current study as well. Auer (2009) points out that a theory of syntax of spoken language must pay particular attention to the temporality of oral communication, which is one of the most characteristic features that differentiate spoken from written language. The transitoriness mentioned above is only one possible perspective of viewing the temporality of spoken language (Auer 2009). Another important aspect of temporality is irreversibility, “the simple yet consequential fact of spoken language is that what is said is said and cannot be undone” (Auer 2009: 3). A third characteristic Auer mentions is synchronization, i.e. the streams of consciousness of the speaker and the hearer being closely coordinated in face-to-face interaction.

Synchronization in interaction relates back to language understanding: The hearer processes the utterance of the speaker almost simultaneously. In order to facilitate the processing of language, a permanent (but unconscious) attempt of the hearer takes place to infer from the already produced syntactic structure how the utterance will continue. Due to his/her knowledge about the regularities in the respective language, the hearer can anticipate a reduced number of possible continuations. The first basic operation of on-line syntax, through which “the speaker creates expectations in the listener about the further development of the emerging syntactic pattern,” is called syntactic *projection* (Auer 2009: 4). Another type of basic operation is *expansion*. The use of expansions is a second possibility for the speaker to add syntactic elements to the unfolding utterance. The elements used for expansion (e.g. particles in the German middle field, cf. Auer 2009: 7) neither project constituents nor fulfill projections of other constituents. The third basic operation of spoken syntax is called *retraction*. Contrary to speaking time, retractions refer back to a certain syntactic slot and take up an already produced syntactic structure in order to change it. Regarding the research phenomenon of our study, retractions will play a major role in the empirical analyses of the present paper.

2.2 Repair and retraction in spoken language

In everyday conversation, there are various sources of trouble in the process of speech production that can lead to problems in interaction. The main function of the speakers’ monitor is to detect these problems in the not-yet-produced phonetic plan or in already articulated parts of the utterance (cf. Levelt 1983, 1989). Given the preference for self-repair (Sche gloff/Jefferson/Sacks 1977), the speaker usually carries out the process of repair immediately upon detection by applying the syntactic operation of retraction¹, responding to the error or inappropriateness detected by the monitor. This preference for self-repair seems to be an im-

¹ The present paper focuses on retractions, but of course the speaker has other options for dealing with trouble, e.g. sound lengthening or pauses to delay the ongoing talk.

portant and widespread feature of conversational organization in many different languages (among the first contributions, see e.g. Schegloff/Jefferson/Sacks 1977; Moerman 1977). Apart from a fresh start, the speaker can reactivate a previous syntactic slot and apply different repair strategies, ranging from single repetitions, substitutions, insertions and deletions to multiple retractions or various combinations of the types of repair. Retractions that aim at solving any kind of problem occurring in speech production by manipulating the syntactic structure of the utterance in one of the four ways mentioned above (i.e. repetition, substitution, insertion, deletion), are called same-sentence self-initiated self-repairs.² In its broadest definition, self-repair can be perceived as a large range of features, from minimally marked hesitations to error corrections (Schegloff/Jefferson/Sacks 1977). However, as this covers a great variety of different processes, more linguistically oriented researchers have defined repair in more narrow terms. They consider the term repair to cover those instances where syntax is manipulated, even if only by repetition (e.g. Fox/Jasperson 1995: 81). There is the additional possibility of defining repair according to cognitive features. Psycholinguistically oriented linguists (e.g. Levelt 1983; Schade/Berg/Laubenstein 2003) take into account whether self-repair is carried out before the problematic part of the utterance has actually been articulated, i.e. during early stages of speech production planning. These early self-repairs that do not contain an obvious repairable are therefore called “covert repairs” as opposed to “overt repairs”, where “morphemes are changed, added or deleted” (Levelt 1983: 44).

Since Schegloff (1979) pointed out the relevance of studying repair from a syntactic point of view, i.e. with a focus on linguistic form, many researchers have been occupied with the relation between repair and syntax and the patterns of how syntax and repair affect each other. One of the first syntactic explorations of repair is a study by Fox/Jasperson (1995). In this study, repair and syntactic units (such as noun phrases and prepositional phrases) in English conversation are explored. It gives insight into what repair reveals about speaker orientation towards certain syntactic units. In addition, it supports the idea that cross-linguistic studies on syntax and repair can gain insight into syntactic differences between languages (see also Fox et al. 2009). As these studies show, the syntactic retraction patterns of repair vary in different languages (e.g. Fox/Hayashi/Jasperson 1996; Rieger 2003; Fox/Maschler/Uhmann 2009).

The first studies on the syntactic structure of self-repair in German were carried out by Uhmann (1997, 2001, 2006). Her main observations are summarized in the Extended Head Rule, a rule for the syntactic design of self-repairs in German based on introspection (cf. Uhmann 1997, 2001) and empirical analysis (cf. Uhmann 2006). The Extended Head Rule, which is based on principles of Generative Grammar (e.g. Chomsky 1965), identifies the structure of self-repair as being determined by one specific syntactic feature: the functional head of the phrase containing the repairable. Besides several theoretical problems concerning the formulation of the Extended Head Rule, there is empirical counter-evidence against this formalistic view which suggests that the emerging structure of self-repair is influenced by not only syntactic, but also important functional factors (cf. Pfeiffer 2008; submitted). Nevertheless, the importance of Uhmann’s (2006) analyses for the present investigation is the finding that carrying out of self-repair in German prepositional phrases usually starts with the preposition, while systematically ignoring the determiner as a possible point of retraction.

There are only few general descriptions on repair in spoken Swedish (e.g. Norrby 2004; Lindström 2008), and some case studies of repair in Swedish conversations (both as L1 and L2) (e.g. Lehti-Eklund 2006). Only Lindström (2008) has a clear focus on repair from a syntactic perspective. In his introduction to Swedish spoken syntax and to research within the field of Interactional Linguistics, Lindström (2008) addresses some syntactic regularities of repair in spoken Swedish. Among these is the observation that repair initiation consistently

² In the following we will refer to this phenomenon with the term “self-repair”. Cf. Pfeiffer (2008) for a similar definition of self-repair.

occurs after a preposition (Lindström 2008: 170). Even if there are only some findings on syntactic patterns in Swedish repair sequences, helpful information can be found in studies on syntactic units in spoken Swedish. Here, we mainly refer to Bockgård's research on collaborative productions (2003, 2004). In these studies, Bockgård finds prepositional phrases to be fairly strong syntactic units in spoken Swedish.

3 Data and methodology

The question we discuss in this paper is how speakers retrace within prepositional phrases in spoken German and Swedish. Based on syntactic differences in German and Swedish prepositional phrases (cf. overview in 4), we expect to find correlating dissimilarities in the retraction patterns in these two languages. We will search for an answer to this question by means of a quantitative analysis of a collection, drawn from a corpus which is presented in the following chapter.

3.1 Presentation of data

The German and Swedish data used for the study stem from informal interviews and doctor-patient interaction. The German data consists of the following corpora collected at the University of Freiburg (approx. 46 hours).

- Therapist-patient interaction (10 hours)
- Doctor-patient interaction and interviews with chronic pain patients (approx. 10 hours)
- Dialect interviews (speakers from Hamburg and Munich, approx. 3 hours)
- Recordings of the TV-Show Big Brother (approx. 23 hours)

The Swedish data are excerpts from the following corpora (approx. 51 hours):

- Interaction in an institutional context (Interaktion i en institutionell kontext, INK) (approx. 13 hours)
- The Language and Music Worlds of High School Students (Gymnasisters språk- och musikvärldar, GSM) (approx. 20 hours)
- The language and language attitudes of Swedish-speaking teenagers in Helsinki (Språk och attityder bland helsingforsvenska ungdomar, HUSA) (approx. 12 hours)
- Language Dynamics and Management of Diversity, DYLAN (approx. 6 hours)

3.2 Methodology

In order to render quantitative comparisons possible we collected 300 examples in each language of retraction within prepositional phrases. Naturally, we used comparable data and mutual collection criteria (see 3.2 and 3.3 for details). These collections were then inserted into two Excel files (one for German and one for Swedish) with similar structure. In these files, each retraction was analyzed according to the position of break-off point and the point of retraction, together constituting the retraction pattern. We also performed an analysis of what is done during the retraction, dividing the examples into four types: *insertion*, *deletion*, *substitution* and *repetition*. In addition, some other features were examined, e.g. which element (if any) can be seen as the repairable, and which structural positions of the prepositional phrase are filled in the original utterance.

A certain type of retraction pattern occurs in such cases where there is more than one retraction within the same prepositional phrase. These instances are called multiple retractions. In our data, we classified all the examples according to the number of retractions that occur in the respective self-repair, i.e. one retraction (single retractions, like in *wegen der- (--) wegen*

der DURCHfälle ‘because of the- (–) because of the diarrhea’) or more than one retraction within a PP (multiple retractions). We classified the cases of multiples according to the positions of the retraction, which can be the same slot, e.g. *von der- (-) von (-) [der- von UNSerer abteilung* ‘from the- (-) from (-) [the- from our department’ or different slots, like *in die HINTER// die hinterste hintere REIhe erstmal* ‘in the back// the backmost back row first’.

As a first step, each language was analyzed separately. The results from these analyses were discussed within the repair research group and the entire project team, singling out the most important tendencies within each language. Thereafter we proceeded to a comparative analysis of German and Swedish, focussing on differences and similarities between the two languages. Here, we concentrated on those differences and similarities which appear to be consistent with or contradictory to what could be expected in light of the differences between the prepositional phrases in the respective languages (see 4 for details).

Since we take a form-based syntactic perspective rather than a functional one as a starting point, in this study we focus on retraction within prepositional phrases as a specific syntactic unit. In order to be systematically applicable and suitable for a contrastive approach, syntactically based definitions are required. Unfortunately, while these restrictions make repair phenomena accessible for syntactic research, they simultaneously divide functionally coherent categories into artificial groups. Therefore, in the present paper, with the intention of achieving methodological coherence, we primarily study *retraction patterns* and only thereafter consider some of these retractions as instances of repair.

3.3 Categories of analysis

We took into account the *break-off point*, the *point of retraction*, and more importantly, the combination of these two features, i.e. the *retraction pattern*.³ The *break-off point* includes all positions within a prepositional phrase where a speaker can interrupt the phrase under construction and retrace back to an earlier point of the phrase. *Point of retraction* specifies those positions of the prepositional phrase to which the speaker can retrace.⁴ Here, the possible positions are dependent on the point of the phrase at which the speaker has arrived. Hence, in Table 1, only the positions that are possible in combination with the break-off point are filled. X marks impossible combinations, since the speaker cannot retrace to a position that has not yet been reached in the production of the prepositional phrase. For example, if a speaker has uttered the uncompleted prepositional phrase *with the old*, he/she can retrace back to the last filled slot (*old*, i.e. C), to one of the previous slots (*the*, i.e. B; or *with*, i.e. A) or to a point before the prepositional phrase. The term *retraction pattern* is defined as a certain combination of *break-off point* and *point of retraction* in self-repair. The *break-off point* is named A-D, while the point of retraction is marked by numbers (0-4). The retraction pattern B1 would mean that a prepositional phrase is interrupted after a determiner and retraces back to the preposition as in: with the* *with the old bicycle*.

³ Cf. Pfeiffer (2008) for an application of this methodology in a classification of self-repair syntax in German.

⁴ Although the pre-positioned element is part of the prepositional phrase, it is not included as a break-off point in Table 1. Speakers can break off after the pre-positioned element, but at that point it is not clear whether the produced element is intended to be part of a prepositional phrase. Therefore it also remains unclear whether a prepositional phrase is projected at all.

Table 1: Theoretical possibilities of retraction patterns

→ break-off point ↓ point of retraction	A after Preposition	B after Determiner	C after Adjective	D after/within Noun
0 Pre-PP/Spec	<u>with*</u> par-ticularly with the old bicycle	<u>with the*</u> par-ticularly with the old bicycle	<u>with the old*</u> particularly with the old bicycle	<u>with the old bi*</u> particularly with the old bicycle
1 Preposition	<u>with*</u> with the old bi-cycle	<u>with the*</u> with the old bicycle	<u>with the old*</u> with the old bi-cycle	<u>with the old bi*</u> with the old bicycle
2 Determiner	X	with <u>the*</u> the old bicycle	<u>with the old*</u> the old bicycle	<u>with the old bi*</u> the old bicycle
3 Adjective	X	X	with the <u>old*</u> old bicycle	<u>with the old bi*</u> old bicycle
4 Noun	X	X	X	<u>with the old bi*</u> bicycle

Table 1 offers an illustration of how the retraction patterns might appear using the constructed prepositional phrase *with the old bicycle*. An asterisk (*) marks the point of interruption (break-off point). Elements of the prepositional phrase produced before the break-off are placed left of the asterisk and underlined, while those produced after the break-off are found to the right. Hence, the first element after the asterisk shows the position which the speaker retraces back to. As an example, the retraction pattern B1 means that the speaker has arrived at the determiner before the construction is interrupted and he/she retraces back to the preposition. In the constructed example above, the speaker in B1 utters *with the* and then retraces back to the beginning of the prepositional phrase and produces the entire phrase *with the old bicycle*.⁵

We have counted each retraction within a prepositional phrase as one instance. This includes both those cases where there is only one retraction and those with multiple instances of differing retraction scopes. This division of complex repair sequences was necessary in order to carry out quantitative comparisons.

As we are interested in how speakers orient towards prepositional phrases, we have only considered those sequences that deal with the prepositional phrase itself. This means that we have excluded retractions that start with a break-off within the prepositional phrase, but address problems on another level, such as the verb phrase or the sentence. We have only included retractions within a TCU. The cases that were excluded on this ground are mostly list constructions (cf. Jefferson 1991).

In addition, we categorized the examples according to what the speaker does when retracting: *insertion*, *deletion*, *substitution* and *repetition*. The following examples illustrate the categories:

- insertion *with bi* with old bicycles*
- deletion *with old bi* with bicycles*

⁵ Naturally, there can also be a change in the wording, which is not illustrated in the example, e.g. *with the old* with the new bicycle*. This is a question of what type of repair is carried out after the retraction (a substitution in this case).

- substitution *with** by bicycle
- repetition *with** with bicycles

Contrary to more functional categories, such as word search, correction and specification, these more syntactically-defined types do not involve a definition based on speaker intentions. Hence, these structural categories are less ambiguous and provide a common ground for quantitative comparison.

4 Structure of prepositional phrases in German and Swedish

4.1 The prepositional phrase in German

The form a prepositional phrase in German takes depends on number, gender, case, (in)definiteness and facultative adjectival constituents. The following table illustrates the possibilities with the constructed example used in Table 1. As you can see in Table 2 where the preposition requires a dative complement, not all syntactic positions of the complement noun phrase need to be filled.

Table 2: The structure of the prepositional phrase in German

Ex.	(Pre-P) Pre-positioned element	A Prepo sition	B Determiner	(C) Adjective	D Noun	
I	(besonders) <i>particularly</i>	mit <i>with</i>		(alten und rostigen) <i>old and rusty</i>	Fahrräder <i>bicycles</i>	<i>indef Pl</i>
II	"	mit <i>with</i>	einem <i>a</i>	"	Fahrrad <i>bicycle</i>	<i>indef Sg</i>
III	"	mit <i>with</i>	den/unseren/ diesen <i>the/our/ these</i>	"	Fahrräder <i>bicycles</i>	<i>def Pl</i>
IV	"	mit <i>with</i>	dem/unserem/ diesem <i>a/our/this</i>	"	Fahrrad <i>bicycle</i>	<i>def Sg</i>

The preposition in German always requires an embedded phrase, usually a noun phrase,⁶ as a complement. Hence, the only slots of the prepositional phrase that must be filled obligatorily are A (preposition) and D (noun) (see Example I). The adjective position can always be filled with a (more or less complex) adjective phrase, as indicated by the parentheses in Example I). The determiner position (B) can be empty (Example I), filled with an indefinite article (Example II) or a definite article, a possessive or a demonstrative pronoun (Example III) in plural or singular (Example IV). The two syntactic patterns I and II are by far the most common in spontaneous.

⁶ Prepositions can also take adjective phrases (e.g.: Ich halte Ottos Vorschlag für sehr riskant 'I think Ottos proposal is very risky') and adverbial phrases (e.g.: Die Zuschauer eilten nach vorn 'The spectators rushed forward') as complements (Duden Grammatik 2006: 849). However, we did not include them in our corpus because of their low frequency of occurrence in our data.

In our analysis, the distinction between numeral adjectives and indefinite articles in German is based upon combinatorial and inflective criteria (Gallmann/Lindauer 1994: 10 et seq.):

1. If a definite article can be inserted (*manche Bücher/*die manchen Bücher* ‘*some books/*the some books*’ vs. *viele Bücher/die vielen Bücher* ‘*many books/the many books*’) the respective constituent must be classified as an adjective.
2. If the respective constituent declenches weak inflection of adjectives (*keine klugen Bücher* ‘*no intelligent books*’ vs. *viele kluge/*klugen Bücher* ‘*many intelligent [weak inflection]/intelligent [strong inflection] books*’), it must be classified as an indefinite article.⁷

With respect to the comparative analysis of German and Swedish, two grammatical features of the German prepositional phrase that differentiate the two languages are worth mentioning. The first one is the possibility of cliticization of the preposition and the determiner (Uhmann 2001). In German, there is a strong bond between the preposition and the article (Fox/Maschler/Uhmann 2009) which becomes obvious in forms like *im* (= *in + dem*) or *zur* (= *zu + der*), where the preposition and the definite article are fused phonologically and orthographically.

The second feature is the occurrence of two-way prepositions (*Wechselpräpositionen*). Some of the most frequent prepositions in German (*an, auf, hinter, in, neben über, unter, vor, zwischen*) can take both a dative and an accusative complement phrase, depending on the verb and the spatial meaning of the utterance, e.g. *Ich stehe im Garten* (‘I am standing in the garden’) (dative complement, cliticization of preposition + definite article) vs. *Ich gehe in den Garten* (‘I am going into the garden’) (accusative complement, non-cliticized form). The dative marking of a complement phrase of a *Wechselpräposition* indicates that the subject in the above examples is situated statically at a certain place (⇒ location), whereas accusative marking indicates that the subject is moving towards a place (⇒ direction).

The preposition governs the complement noun phrase by determining its case. The cases projected by German prepositions are dative, accusative and genitive, whereas nominative is never projected. The dative is the most common case, followed by the less frequent accusative and the rare genitive (Duden Grammatik 2006: 848). The congruence of case, number and gender leads to the following:

⁷ The same holds for Swedish. 1) Can a determiner be added in front of B/C? If not, B/C is classified as a determiner (e.g.: *på vilket sätt *på det vilket sätt*, ‘in which way’ *‘in that which way’). If yes, B/C is classified as an adjective (e.g.: *två böcker, de två böckerna*, ‘two books’, ‘the two books’). 2) In flexible cases: ^{A)} If a determiner is added in front of B/C, then B/C is modified. In this case, B/C is classified as a determiner (e.g.: *en bok, den ena boken, *den en bok*, ‘a/one book’ ‘that one book’, *‘the a/one book’). ^{B)} If a determiner is added in front of B/C, then B/C does not need to change. In this case, B/C is classified as an adjective (e.g.: *i liten skala, i en liten skala*, ‘on small scale’, ‘on a small scale’).

Table 3

Feminine noun				
Case required by verb	Singular def	Singular indef	Plural def	Plural indef
Accusative (Ich gehe/ <i>I am going</i>)	in die Küche <i>into the kitchen</i>	in eine Küche <i>into a kitchen</i>	in die Küchen <i>into the kitchens</i>	in Küchen <i>into kitchens</i>
Dative (Ich stehe/ <i>I am standing</i>)	in der Küche <i>in the kitchen</i>	in einer Küche <i>in a kitchen</i>	in den Küchen <i>in the kitchens</i>	in Küchen <i>in kitchens</i>
Masculine noun				
Case required by verb	Singular def	Singular indef	Plural def	Plural indef
Accusative (Ich gehe/ <i>I am going</i>)	in den Garten <i>into the garden</i>	in einen Garten <i>into a garden</i>	in die Gärten <i>into the gardens</i>	in Gärten <i>into gardens</i>
Dative (Ich stehe/ <i>I am standing</i>)	in dem/im Garten <i>in the garden</i>	in einem Garten <i>in a garden</i>	in den Gärten <i>in the gardens</i>	in Gärten <i>in gardens</i>
Neuter noun				
Case required by verb	Singular def	Singular indef	Plural def	Plural indef
Accusative (Ich gehe/ <i>I am going</i>)	in das Haus <i>into the house</i>	in ein Haus <i>into a house</i>	in die Häuser <i>into the houses</i>	in Häuser <i>into houses</i>
Dative (Ich stehe/ <i>I am standing</i>)	in dem/im Haus <i>in the house</i>	in einem Haus <i>in a house</i>	in den Häusern <i>in the houses</i>	in Häusern <i>in houses</i>

In the following section, we will turn to the structure of the Swedish prepositional phrase and its grammatical characteristics.

4.2 The prepositional phrase in Swedish

The minimal Swedish prepositional phrase consists of a preposition and a noun in a bare form (as in *med cykel*, ‘with bicycle’, and *med cyklar*, ‘with bicycles’). Bare nouns as a complement is very common, as the Swedish reference grammar (SAG 3: 25 § 2) describes and the Swedish data collected for this study confirms. The only obligatory slots of the prepositional phrase are A (preposition) and D (noun). All other slots are optional, and are filled in different ways depending on whether the noun phrase is indefinite or definite. Thus, position B (determiner) can be empty. If filled, it can contain elements such as indefinite and definite articles, possessive pronouns, and demonstratives. Adjectives referring to the noun are not counted as determiners, but as adjectives (C). (See 4.1 concerning rules that were followed with unclear cases of B/C.) In indefinite noun phrases (I and II), position B (determiner) can either be empty (as in *med cykel*, ‘with bicycle’, and *med cyklar*, ‘with bicycles’) or filled with an indefinite article, which is a freestanding function word preceding the noun (as in *med en cykel*, ‘with a bicycle’). In indefinite plural forms (I), position B always remains unfilled (like in the example *med cyklar*, ‘with bicycles’). When the noun phrase is indefinite, position C (adjective) can always optionally be filled with an adjective phrase.

Table 4 gives an overview of the structure of the Swedish prepositional phrase, prototypically consisting of a preposition and a noun phrase.⁸ In Table 4, the optional elements are marked by brackets. X marks impossible positions, and the number sign # indicates that the position is possible if the preceding position B is filled. All other elements are obligatory.

Table 4: The structure of the prepositional phrase in Swedish

Ex.	Pre-P Pre-positioned element	A Preposition	B Determiner	C Adjective	D Noun	
I	(speciellt) <i>particularly</i>	med <i>with</i>	X	(gamla och rostiga) <i>old and rusty</i>	cyklar <i>bicycles</i>	<i>indef Pl</i>
II	"	med <i>with</i>	(en) <i>an</i>	(gammal och rostig) <i>old and rusty</i>	cykel <i>bicycle</i>	<i>indef Sg</i>
IIIa	"	med <i>with</i>	(de) <i>the</i>	(gamla och rostiga) # <i>old and rusty</i>	cyklarna <i>bicycles</i>	<i>def Pl</i>
IIIb	"	med <i>with</i>	(våra) <i>our</i>	(gamla och rostiga) # <i>old and rusty</i>	cyklar <i>bicycles</i>	
IVa	"	med <i>with</i>	(den) <i>the/this</i>	(gamla och rostiga) # <i>old and rusty</i>	cykeln <i>bicycle</i>	<i>def Sg</i>
IVb	"	med <i>with</i>	(vår) <i>our</i>	(gamla och rostiga) # <i>old and rusty</i>	cykel <i>bicycle</i>	

Definiteness in Swedish noun phrases can be marked in two different ways: (1) as a suffix to the noun (*cykel-n*, ‘bicycle + def.suff.sg.’, *cyklar-na*, ‘bicycle + def.suff.pl.’) and (2) as double definite marking, with both a freestanding definite article in front of the adjective and a definite suffix added to the noun (*den gamla cykel-n*, ‘the old bicycle + def.suff.sg.’, *de gamla cyklar-na*, ‘the old bicycle + def.suff.pl.’). Double definite marking is obligatory when a definite noun has an adjectival attribute. In cases of double definite marking without an attribute (*den cykel-n*, ‘the bicycle + def.suff.sg.’, *de cyklar-na*, ‘the bicycle + def.suff.pl.’), the determiner functions as a demonstrative pronoun. When the determiner in the definite Swedish noun phrase is a possessive pronoun, no suffix is added to the noun (*vår cykel*, ‘our bicycle’, *våra cyklar*, ‘our bicycles’), and hence the noun has the same form as in indefinite noun phrases. Finally, the scheme contains one optional position, i.e. Pre-P for pre-positioned ele-

⁸ Other possible complements are subordinate clauses with noun-like function, infinitive clauses initiated by *att*, ‘that’, adjective- or participle phrases, prepositional phrases and adverb phrases, and adverb clauses. Sometimes, the preposition stands alone and the object of the preposition is missing (*genom att arbeta*, lit. ‘through to work (inf.)’ ‘by working’, *genom att vi arbetade*, lit: ‘through that we worked’ ‘by working’. However, prepositional phrases with other complements besides noun phrases were not included, as they are found very infrequently in spoken Swedish (like in German, see footnote 6).

ments sometimes preceding the preposition (*Speciellt med vår gamla och rostiga cykel*, ‘Particularly with our old and rusty bicycle’).⁹

Besides definiteness, there are two declensions of gender (non-neuter and neuter) and number (singular and plural). The rule in Swedish, with some exceptions, is that living (animate) beings usually take non-neuter gender. Further, about three-fourths of Swedish nouns are non-neuter gender. The following table shows the forms determiners take in congruence with gender.

Table 5

Non-neuter noun			
Singular def	Singular indef	Plural def	Plural indef
med (den) cykeln with the/that bicy- cle	med (en) cykel with a bicycle	med (de) cyklarna with the/those bicy- cles	med cyklar with bicycles
Neuter noun			
Singular def	Singular indef	Plural def	Plural indef
i (det) paketet in the/that parcel	i (ett) paket in a parcel	i (de) paketen in the/those parcels	i paket in parcels

4.3 Short summary and comparison of German and Swedish

In both German and Swedish, the prepositional phrase is usually composed of a preposition and a noun phrase (i.e. minimally a noun), e.g. *mit Fahrrädern*, *med cyklar*, ‘with bicycles’. In both languages, the preposition normally precedes its complement. In neither language do all positions of the noun phrase need to be filled; instead the prepositional phrase can, and frequently does, consist of only a preposition and a noun.

In Swedish, a preposition frequently takes a noun in “bare form” as a complement, that is, a noun with no article at all (e.g. *med cykel*, ‘with bicycle’). In German, only plural bare forms exist, e.g. *mit Fahrrädern*, ‘with bicycles’.

With regard to the noun phrase, there are also some differences in the marking of definiteness in the languages concerned. In German, the definite article is placed as a freestanding word in front of the noun, whereas in Swedish the definite article appears as a suffix to the noun, e.g. *cykel-n*, ‘bicycle + det.suff.’. In some cases Swedish definiteness is marked twice, e.g. when a definite noun has an adjectival attribute. In double definite marking there is both a freestanding definite article in front of the adjective as well as a definite suffix added to the noun, e.g. *den gamla cykel-n*, ‘the old bicycle + def.suff.’. This is not possible in German.

Thus, there is a general difference between the languages regarding how much grammatical information is projected by the preposition. In German, the preposition determines the case form of the noun phrase, although with some prepositions (*Wechselpräpositionen*) the case form depends on the verb and the spatial meaning of the utterance. In contrast to German, Swedish prepositions do not project case marking. As prepositions in German are linked to specific case forms, there is also a strong bond between the preposition and the article. This becomes particularly apparent in the cliticized forms of prepositions and determiners, e.g. *im* for *in dem*, ‘in the’, which are common in German. In Swedish, cliticization of preposition and determiner does not occur.

⁹ In addition, potential modifiers can be placed after the noun (*Med vår gamla och rostiga cykel i garaget*, ‘With our old and rusty bicycle in the garage’). These are not illustrated in Table 4, but are included in our corpus.

5 Empirical analysis of retraction patterns

5.1 Retraction patterns in German

In the following section, we present the results of our analysis of retraction patterns in German. In doing so, we respect the successive progression of the process of repair within the prepositional phrase as it unfolds in real-time: We start by presenting the results for the break-off point, followed by the point of retraction, and finally the combination of these two criteria.

5.1.1 Break-off point

As can be seen in Table 4, there are two major positions in the German prepositional phrase where the speaker interrupts himself/herself: after the preposition (type A, 45%) and after the determiner (type B, 36%). On the other hand, break-off occurs much less frequently within or after the production of the adjective (type C, 7%) and the noun (type D, 12%).

The following table shows the frequency with which the break-off points occur in the German data.

Table 6: Break-off point (German)

Position	N =	%
A (prep)	136	45.3
B (det)	107	35.7
C (adj)	20	6.7
D (noun)	37	12.3
<i>total</i>	300	100

5.1.2 Point of retraction

After having interrupted the emerging syntactic structure, the speaker must go back to some point within the already produced part of the sentence in order to carry out self-repair. Within the prepositional phrase, there are five different positions for retraction (type 0 = pre-positioned element, type 1 = preposition, type 2 = determiner, type 3 = adjective, type 4 = noun). There are clear differences in the frequencies of use of each position as the target point of a retraction.

Table 7: Point of retraction (German)

Position	number	%
0 (pre-p)	24	8.0
1 (prep)	246	82.0
2 (det)	14	4.7
3 (adj)	5	1.7
4 (noun)	11	3.7
<i>total</i>	300	100

As Table 7 shows, the preposition is by far the most common target point of retraction in German, making up 82% of all the retractions. The remaining 18% are split up among the other positions, with the largest number of retractions for pre-positioned elements (8%).

5.1.3 Retraction patterns

Looking at the possible combinations of break-off point and point of retraction in German, some patterns seem to be very common while others are practically not used at all.¹⁰ The patterns A1 ($P \rightarrow P$) and B1 ($\text{Det} \rightarrow P$) are by far the most frequent patterns. Taken together, they make up 70% of all the patterns that occur in our data. In contrast, the patterns C0, C2, C3, D0, D2, and D3 only constitute about 3% of all the retraction patterns.

Table 8:German retraction patterns

Type	Description	N =	%
A0	$P \rightarrow \text{Pre-p}$	13	4.3
A1	$P \rightarrow P$	123	41.0
B0	$\text{Det} \rightarrow \text{Pre-p}$	8	2.7
B1	$\text{Det} \rightarrow P$	87	29.0
B2	$\text{Det} \rightarrow \text{Det}$	12	4.0
C0	$\text{Adj} \rightarrow \text{Pre-p}$	2	0.7
C1	$\text{Adj} \rightarrow P$	14	4.7
C2	$\text{Adj} \rightarrow \text{Det}$	1	0.3
C3	$\text{Adj} \rightarrow \text{Adj}$	3	1.0
D0	$N \rightarrow \text{Pre-p}$	1	0.3
D1	$N \rightarrow P$	22	7.3
D2	$N \rightarrow \text{Det}$	1	0.3
D3	$N \rightarrow \text{Adj}$	2	0.7
D4	$N \rightarrow N$	11	3.7
	<i>Total</i>	300	100

After having uttered the preposition, speakers have two possibilities for retraction. They can either go back to the preposition (A1) or even further back to a pre-positioned element (A0). The former possibility is clearly the preferred alternative. In 41% of all retractions in our corpus, speakers chose to restart the utterance at the preposition after which they had interrupted the utterance. In these cases, the speaker normally recycles the preposition (*in (.) in allen situationen* (fem, pl. dat.) ‘in (.) in all situations’). With regard to type of repair, repetitions are about five times more frequent than substitutions for this retraction pattern (see Table 19, appendix).

The retraction to the pre-positioned element (A0) is used quite rarely (4%). In nearly all of these instances the pre-positioned element is inserted (*in- (.) irgendwo in madrid* ‘in- (.) somewhere in madrid’), there are only two repetitions of the pre-positioned element and no substitutions at all. In this example, the speaker decides to add *irgendwo* ‘somewhere’, a specifier of the prepositional phrase, after having already produced the preposition.

When the speaker breaks off the syntactic construction after the determiner, there is the additional possibility of retracing directly to the determiner. This alternative is only selected in 4% of our data, i.e. the speaker rarely makes use of the minimal span of retracing in these cases. Instead, nearly all the instances of break-offs after the determiner are combined with a retraction to the preposition (B1).

¹⁰ The tables only show the distribution of occurrences in the corpora. As a matter of course, the distribution of the different patterns is influenced by the frequency of the respective constituents. For example, since the adjective is a facultative constituent, it is used only in a small number of the PPs so that breaking off after the adjective (position C) as well as retracing to the adjective (type 3) are scarcely used options (see Table 1). The same holds for the determiner, of course.

In about half of these examples, the speaker recycles the preposition and the determiner (*nach der (-) nach der grenzöffnung* ‘after the (-) after the falling of the wall’). These instances are repetitions, most likely resolving planning troubles, comparable to the recycling of the preposition in the A1 pattern. In the other half of the B1 examples, the speaker substitutes either the preposition or the determiner, whereas the determiner is replaced three times more often than the preposition (*in der (-) in dem hauptgebäude* ‘in the [f.] (-) in the [n.] main building’). Finally, there is always the possibility of retracing to the slot of a pre-positioned element (B0). However, this is the least frequent option for interruptions after the determiner.

Interruptions after or within the adjective occur in only 7% of cases in our corpus. If the speaker gets to the adjective slot before breaking off, there is – just like for the other points of interruption – a tendency to retrace back to the preposition (C1). The other possibilities of retraction do occur, but only in 1% of all cases or less.

Speakers reach the noun position of the German prepositional phrase in only 12% of all examples. Having arrived at this point, all the possibilities of retracing are theoretically possible. However, the pre-positioned element, the determiner and the adjective are practically never used as restarting points – the noun (D4), i.e. the minimal span of retracing, and the preposition (D1) are the only slots that are actually used. For this point of interruption, we find the same pattern as for all other positions: The preposition is the predominant target point of retracing and is used twice as often for retraction as the noun.

Single retractions occur in 88% of self-repairs in our data and are therefore the most common type of retraction. Multiple retractions are quite infrequent, reaching only a total of 35 cases (12%) in our data. The most frequent type of multiple ($n = 30$ out of 35; 86%) contains only retractions to the same slot, i.e. the preposition. Multiple retractions to different slots are thus very rare ($n = 5$; 14% of all the multiples).

5.1.4 Discussion

As the analysis of the German data shows, the most frequent break-off points are located after the preposition (A) and after the determiner (B) which reveals the clear tendency of speakers to interrupt the utterance as early as possible within the production of the prepositional phrase. The preference for breaking off the utterance as soon as possible after detecting the repairable has already been observed in previous work on self-repair (cf. Main Interruption Rule, Levelt 1983). In addition to this tendency, the fact that some positions in the phrase are filled more frequently than others partly influences the number of break-offs after a certain constituent. Since the preposition is the head of the prepositional phrase, it occurs in every instance which – together with the preference for early repair initiation – increases the probability of interruption after this constituent. The relatively high number of break-offs after the determiner can primarily be explained by its early positioning in the prepositional phrase. Moreover, this position is rarely empty in German, which in turn increases the probability of break-off after this position. The number of interruptions after the adjective, which is the second facultative position, is quite low. However, in our corpus the occurrence of adjectives is not very frequent ($n = 25$), which automatically leads to a drop in the number of interruptions after this position. The second obligatory constituent in every prepositional phrase of our corpus is the noun. Interestingly, interruption of the utterance occurs almost four times more often after the preposition (i.e. the other obligatory constituent of the phrase) than after or within the production of the noun (position A vs. D). This means that in most cases speakers of German do not reach the noun when there is the need for repair during the production of the prepositional phrase. Even if the noun itself causes trouble in speech planning, the speaker can initiate repair before overtly producing the noun. This often results in a repetition of one or more of the elements in position A, B and C (i.e. covert repair, see Chapter 2.2) or in a

substitution (and rarely a deletion) of the determiner in order to change one of the nominal categories dependent on the noun (gender and number).

The description of retraction patterns in the last section has revealed a strong orientation to the preposition as the main starting point for carrying out repair. Why is this the case? Firstly, speakers tend to retrace to phrase boundaries.¹¹ But this general observation does not explain why speakers systematically ignore the determiner position as a starting point (cf. Uhmann 2001, 2006). The high number of retractions to the preposition and the low number of retractions to the determiner suggest that there is a strong bond between the preposition and the article (cf. Fox/Maschler/Uhmann 2009). This bond becomes obvious in the strong tendency of German prepositions and the definite articles to fuse (e.g. *in + dem* → *im* ‘in + the [def, sg, m/n]’) (cf. Uhmann 2001: 394). Additional to this tendency to cliticize, German prepositions project the case of the complement noun phrase that they govern. The great grammatical significance of German prepositions evident in cliticized forms and case projection seems to be cognitively represented and therefore respected in the process of retraction in self-repair (cf. Pfeiffer 2008).

Thus, there is a strong tendency in German to retrace to the preposition. This concerns both single and multiple retractions. Despite the general trend of breaking off the utterance immediately after or even within the repairable, speakers usually do not choose the minimal retraction span in order to start directly at the preceding slot. Instead, they retrace to the preposition in the overwhelming majority of cases.

Concerning the analysis of types of repair, repetitions of the preposition or the preposition and determiner are the most frequent type, followed by substitutions of the determiner which actually occur twice as often as substitutions of the noun in German. This finding contests the general assumption made in analyses of self-repair in other languages (e.g. English) that function words are repeated whereas content words are substituted. Consequently, this claim cannot be simply transferred to German.

The predominant pattern of repeating the beginning of the phrase can also be found in multiple retractions. The retraction patterns of multiples seem to confirm the grammatical importance of the preposition in German. In the process of carrying out self-repair involving multiple retractions, speakers use the preposition, i.e. the head of the syntactic constituent, as a stalling position for gaining additional planning time. Apparently, in these cases, more than one single retraction is necessary to resolve the problem.

5.2 Retraction patterns in Swedish

In this section, a brief overview of the retraction patterns in the Swedish data is presented, following the same order as in the German overview in 5.1, starting with the break-off point, followed by the point of retraction and the retraction patterns.

5.2.1 Break-off point

The most common break-off point is the first element of the prepositional phrase, i.e. the preposition (54%). The next most frequent point of break-off is after the noun (29%), while determiners and adjectives are less frequently used as positions for repair initiation (9% and 8%, respectively).

¹¹ However, this tendency has only limited explanatory power because the probability of a random retraction to a phrase boundary would be around 90% in right-branching languages (cf. Levelt 1983).

Table 9: Break off point (Swedish)

Position	N =	%
A (prep)	164	54.7
B (det)	27	9.0
C (adj)	23	7.7
D (noun)	86	28.7
<i>total</i>	300	100

In more than half of all cases, the speaker breaks off after the first element of the prepositional phrase, i.e. the preposition itself. When a speaker breaks off after the determiner, this is still early in the prepositional phrase, although the projected noun is defined by determiner, for example concerning gender and number (see 4.2 above). However, in comparison to German, much less grammatical projection is included at this point of the prepositional phrase.

With break-off after the adjective, in most cases the adjective is the second element of the prepositional phrase, without a preceding determiner. This holds for 18 of the 23 cases, while only five include a determiner.

Besides the preposition, another frequent break-off point is the noun (D), i.e. breaking off after or within the noun. When breaking off after or within the noun, the repairable is commonly also the noun. In the current data, this often applies to examples where the prepositional phrase only consists of a preposition and a noun (in 64 out of 86 cases, i.e. 74%, c.f. overview of Swedish prepositional phrases). At the point of break-off, frequently only a preposition and a non-completed noun are uttered ($n = 44$; 51%). Occasionally, the noun is preceded by a determiner and/or an adjective.

5.2.2 Point of retraction

The following table shows the distribution of the point of retractions in the Swedish data.

Table 10: Point of retraction (Swedish)

Position	number	%
0 (pre-P)	21	7.0
1 (prep)	213	71.0
2 (det)	16	5.3
3 (adj)	16	5.3
4 (noun)	34	11.3
<i>total</i>	300	100

In the majority of cases, the retraction goes back to the beginning of the prepositional phrase, i.e. the preposition (71%). The noun is the second locus of retraction with 11.3%, whereas the possibility of retracing back to the determiner or adjective preceding the noun is used in only 5.3% of cases. Sometimes a speaker might retrace back to a position in front of the preposition, adding or modifying a pre-positioned element to the initiated prepositional phrase (position 0); at 7%, this occurs slightly more often than the retraction back to position 2 or 3.

5.2.3 Retraction patterns

The study of the retraction patterns in Swedish show, as in German, that some patterns are used very frequently, while others are almost never used at all. In Swedish, the most common pattern by far is A1 (49.3%), followed by D1 (12.7%) and D4 (11.3%). On the other hand, the patterns C0, B0, C2, and D0 are extremely rare.

Table 11: Swedish retraction patterns

Type	Description	N =	%
A0	P → Pre-p	16	5.3
A1	P → P	148	49.3
B0	Det → Pre-p	1	0.3
B1	Det → P	17	5.7
B2	Det → Det	9	3.0
C0	Adj → Pre-p	0	0.0
C1	Adj → P	10	3.3
C2	Adj → Det	2	0.7
C3	Adj → Adj	11	3.7
D0	N → Pre-p	4	1.3
D1	N → P	38	12.7
D2	N → Det	5	1.7
D3	N → Adj	5	1.7
D4	N → N	34	11.3
<i>total</i>		300	100

Once a speaker has uttered a preposition, there is the possibility of retracing back either to the preposition (A1) or to a pre-positioned element (A0). Overall, the combination of breaking off after the preposition and retracing back to the preposition is the most frequent retraction pattern, amounting to almost half of all cases of retraction patterns. Occasionally, speakers retrace back to a usually unfilled position, thus inserting a specifying or modifying element (*på ganska mycke på finska* ‘in quite a lot in Finnish’).

Once a speaker has reached the determiner, there is the possibility of retracing back to the determiner (B2), the preposition (B1), or a pre-positioned element (B0). In our data the retraction usually goes back to the preposition, even though the preposition is usually simply repeated. If there is an obvious repairable it is often the determiner itself – for instance, change of gender or number (*för den här (.) för di här symtomen* ‘for this (.) for these symptoms’). If both the preposition and the determiner are recycled without modification, these cases are very similar to the recycling of function words, and appear to be covert repair sequences (*ti en (.) ti en reumatolog*; ‘to a (.) to a rheumatologist’). The same can be said about recycling only the determiner. The determiner can also be substituted by simply retracing back one step to the slot of the determiner (*i er era föräldrarars ålder* ‘at your (sing.) your (plur.) parents’ age’).

Having arrived at the adjective, speakers tend to retrace back either to the preposition (C1) or to the adjective (C3). This is as expected, since usually no other elements have been uttered at this point. When retracing back to the preposition, either the preposition or the adjective is often substituted, with no clear preference for either of these alternatives. Retracing back only to the adjective may be followed by a substitution or repetition of the adjective. In addition, there are cases of insertion (additional adjective, determiner) in both retraction patterns.

The noun in position D is usually the last element of the prepositional phrase and the speaker therefore has the possibility of retracing back to all previous slots. However, two positions are preferred, i.e. the preposition (D1) and the noun (D4). Having arrived at the noun, the repair is often a substitution (54/86). The noun is the repairable in almost all substitutions (46/54), but there are single instances where the preposition, determiner or adjective is substituted. In addition, there are some repetitions (18/86) and insertions (12/86), but almost no deletions (2/86). It is common that the noun is cut off before completion.

When the speaker breaks off after the noun and retraces back to the preposition (D1), there are some instances of repetition, though most are substitutions of nouns, while the preposition

is simply recycled. Among the substitutions of nouns, we find phonetics errors (*i princin- (.) i princip* ‘in princin- (.) in principle’) and lexical substitutions from the same category (e.g. *från hand- från tummen* ‘from hand- from thumb.def.’). On the other hand, when the preposition is substituted, there is obviously a need to retrace back to that position (*på musi- i musikbranschen* ‘at musi- in music business.def.’).

Retracing back only to the noun (D4), the speaker tends to substitute the noun. Among these substitutions, there are phonetics errors (e.g. *på fens- svenska å finska* ‘in Fens- Swedish and Finnish’), lexical substitutions from the same category (*i Ku- Turkie* ‘in Ku- Turkey’) or cases where the speaker changes the noun from a more general term to a more specific term (e.g. *i Fi- Helsingfors* ‘in Fi- Helsinki’, *ti sko- (.) kockskola* ‘to scho- (.) restaurant school’). Cases of mere repetition appear to be stuttering (*på le- leder* ‘at jo- joints’). As these examples show, there is often a cut-off within the noun.

Almost half of all retractions in the Swedish data are part of longer sequences of multiple retractions. The Swedish data include 45 instances of multiple retractions, consisting of 136 retractions. A majority ($n = 30$; two-thirds) of these multiple retractions only include retractions to the preposition (*i i (.) i i axelpartierna* ‘in in (.) in in shoulder regions.def.’). In the remaining 15 multiples (one-third of all multiples), at least one of the retractions goes back to the preposition (*me en me en elak .h elak tumör* ‘with a with a malignant (.) malignant tumor’).

5.2.4 Discussion

Throughout the Swedish data, there is a tendency to break-off as early as possible – that is, as soon as the repairable is uttered or even before that.¹² Another frequent pattern is that speakers tend to retrace back only as far as needed, thus minimizing the point of retraction. For example, in more than half of all Swedish examples, the break-off and the retraction occupies the same slot of the prepositional phrase.

However, there also appears to be a counteracting drift of speaker orientation towards prepositional phrases as relevant syntactic units in conversation, as speakers strive to keep prepositional phrases intact. In his study of collaborative productions in Swedish, Bockgård (2004: 233, 258, 261) has found the prepositional phrase to be the strongest phrasal unit in Swedish, e.g. in comparison with the noun phrase. In studies of other languages as well, prepositional phrases have often been considered fairly strong syntactic units (for English, c.f. Fox / Jasperson 1995: 103; Szczepk 2000: 20). An orientation towards the prepositional phrase as a strong unit in Swedish becomes particularly apparent when the retraction goes back to the preposition, although the break-off and the repairable are at another, later point in the prepositional phrase (e.g. D1, C1, B1). Nonetheless, in Swedish retraction back to the preposition is not such a dominant pattern as in German. For example, in German multiple retractions as a rule retrace to the preposition, whereas the Swedish data contain more cases of multiple retractions to different slots as well.

Function words, such as prepositions, tend to be recycled and content words substituted in our Swedish data. The tendency to recycle function words becomes particularly apparent in the majority of all cases in category A1, consisting of a recycled preposition. In multiple retractions, too, speakers retrace back several times within the projected prepositional phrase, often recycling the preposition. Within the prepositional phrase, the noun is the element with the most semantic weight, and indeed is the element that is usually substituted (often following patterns D1 and D4). Prepositions are sometimes substituted, although in these cases, it is often not possible to determine whether the entire prepositional phrase is substituted, or only

¹² In cases where the speakers appear to break off before the repairable is uttered, repetitions of prepositions seem to act as covert repair.

the preposition within it. In any case, compared to all repetitions of prepositions, the substitution of this element is very infrequent.

This finding is in accordance with previous research on several languages. For instance, Fox/Maschler/Uhmann (2009) have shown that in English, German and Hebrew, content words are substituted, but function words are recycled. In their study, speakers tend to have no problems finding function words – rather, the repetition of function words is used when a speaker has difficulties finding a projected content word. This is partly explained by the fact that function words in English, German and Hebrew, as in Swedish, typically precede content words. As recycling is the most frequent type of retraction in the data, this also shows a preference for covert repair.

The structure of the Swedish prepositional phrase starts off with semantically light function words and increasing semantic weight at the end, finishing with the most substantial content word, i.e. the noun. In synchrony with the tendency to recycle function words and substitute content words, the general pattern is that recycling occurs in the beginning of the prepositional phrase, while substitutions increase towards the end of the unit. Overall, retraction and editing within the prepositional phrase is concentrated among the initial elements of the structure. Naturally, this is partly self-given, as the initial elements are always uttered before the final parts of the prepositional phrase. However, the high number of phrase-initial repair indicates a tendency towards covert and early repair.

6 Comparison of German and Swedish retraction patterns

After the separate analysis of the retraction patterns in German and Swedish, we now turn to a contrastive analysis of both languages. The following table gives an overview of the retraction patterns for German and Swedish:

Table 12: Retraction patterns in Swedish and German (bold face = significant difference between the languages)

Type	Description	German n =	%	Swedish n =	%
A0	P → Pre-p	13	4.3	16	5.3
A1	P → P	123	41.0	148	49.3
B0	Det → Pre-p	8	2.7	1	0.3
B1	Det → P	87	29.0	17	5.7
B2	Det → Det	12	4.0	9	3.0
C0	Adj → Pre-p	2	0.7	0	0.0
C1	Adj → P	14	4.7	10	3.3
C2	Adj → Det	1	0.3	2	0.7
C3	Adj → Adj	3	1.0	11	3.7
D0	N → Pre-p	1	0.3	4	1.3
D1	N → P	22	7.3	38	12.7
D2	N → Det	1	0.3	5	1.7
D3	N → Adj	2	0.7	5	1.7
D4	N → N	11	3.7	34	11.3
	<i>total</i>	<i>300</i>	<i>100</i>	<i>300</i>	<i>100</i>

The aim of the contrastive discussion in the following sections is to explain the similarities and especially the main differences in retraction patterns between the languages. A statistical analysis (chi-square test, see appendix for details) revealed major differences between the retraction patterns: B1, D4 and B0 varied most between languages. The pattern B0, however,

is not included in the discussion of differences (section 6.2) due to the low number of tokens and the heterogeneity of pre-positioned elements found in our corpus.

6.1 Similarities

6.1.1 Break-off after preposition, retraction to pre-positioned element: A0

In Swedish as well as in German, speakers occasionally place an element in front of the preposition. In most of the cases in A0, an adverbial specifier that was not uttered in the original utterance is inserted, thereby specifying the prepositional phrase. In both Swedish and German, this pattern of self-repair makes up the major part of insertions.

6.1.2 Break-off after preposition, adjective and after/within noun, retraction to preposition: A1, C1, D1

It is obvious that the similarities between German and Swedish center around the fact that the point of retraction in German and Swedish is very often the preposition. There is a similar overall distribution in our corpus with regard to the retraction back to the preposition after the three break-off points A (after the preposition), C (after the adjective) and D (after/within the noun). Therefore in both languages, as we have already observed in the language-specific parts of this paper, the preposition is the most important target point for retraction within the prepositional phrase (see 5.1.4 and 5.2.4 for explanations). Conversely, other theoretically possible points of retraction, such as determiner (position 2) and adjective (position 3), are very rarely used.

In both languages, there are few repair initiations after the adjective (C). This finding is due to the relatively low number of examples, since in both languages the adjective is a facultative constituent of the prepositional phrase (see Chapter 4, Tables 2 and 4), and therefore is filled less often than obligatory slots. Both languages provide different syntactic resources (e.g. post-nominal relative clauses) for expressing a modification of the noun that can be used instead of pre-nominal adjective phrases.

D1, which represents a break-off after the noun and retraction back to preposition, is rare in both languages, though Swedish uses this option slightly more than German. This tendency in the German data of avoiding repair of the noun in the noun slot becomes stronger in position D4, when compared to Swedish (see 6.2).

6.2 Differences

6.2.1 Break-off after determiner, retraction to preposition: B1

A major difference between German and Swedish is the number of break-offs after the determiner (B). While German speakers interrupt themselves after the determiner in 35.7% of all cases, this occurs about four times less often in Swedish (9.0%) (see Tables 6 and 9).

Table 13: Break-off point after determiner

	Break-off after det	total PP with det
German	107 (74%)	144 (100%)
Swedish	27 (60%)	45 (100%)

Another important observation that sheds light on the difference between the languages in B1 is the number of repaired determiners. As Table 14 shows, determiners are repaired more than three times more often in German than in Swedish.

Table 14: Repairables

	Preposition	Determiner	Adjective	Noun
German	34	48	6	21
Swedish	29	14	10	47

Firstly, the contrast in B1 is due to the fact that determiners in German prepositional phrases occur about three times more often than front articles in Swedish (see Table 9). This can partly be explained by the different structural organization of the prepositional phrase (and the noun phrase within it) in German and Swedish (see Chapter 4). One of the major differences between the two languages is the fact that the Swedish embedded noun phrase has post-positioned determiners, while German does not. For example, such post-positioned determiners can be used for assigning definiteness to the noun without using a front article, whereas German lacks this possibility and has to use pre-positioned determiners for any kind of grammatical marking.

Additionally, Swedish front articles are less likely to be substituted (Table 14) because they generally do not project as much grammatical information as German determiners. A Swedish speaker can produce a determiner without having decided on the noun to follow (with the exception of determiners of non-neuter gender projecting animate nouns, see 4.2). The determiner slot in German, however, which structurally corresponds to the front article in Swedish, is the most important position for grammatical marking (case, gender, number, definiteness). Therefore, German determiners are frequently subject to self-repair activities in prepositional phrases. The grammatical information projected by the German determiner often has to be revised during the production of the prepositional phrase when the “new” intended noun no longer matches the projected one. When such a repair is carried out, the preferred point of repair initiation is directly after the repairable, i.e. the determiner. This finding is in line with the general observation in the language-specific sections that there is a tendency to break off in the vicinity of the repairable.

To summarize, Swedish pre-positioned articles are not only produced less often in prepositional phrases compared to German, but are also less likely to be repaired, because they generally involve less grammatical projection than German determiners.

6.2.2 Break-off after/within noun, retraction to noun: D4

The second difference we found between the languages is the retraction pattern D4, i.e. breaking off after or even within the noun and retracing directly to the beginning of the noun slot. In German, speakers generally orient to the preposition in all self-repairs. However, there is the additional possibility of retracing to the noun in Swedish when repair is initiated towards the end of the production of the prepositional phrase.

Indeed, there is an interrelation between this finding and the distribution of repairables in the two languages mentioned above (Table 14), as the numbers of repaired determiners and nouns in the two languages are diametrically opposed to each other: In German, repair is initiated and carried out more often in the determiner position because more determiners are being repaired. This reduces the need for breaking off the utterance during or after the production of the noun. Conversely, speakers break off less often after the production of pre-positioned arti-

cles in Swedish, which increases the need for repair toward the end of the prepositional phrase and hence for initiating repair during and after the noun.

In Swedish, the retraction pattern D4 occurs three times more often than in German. This result suggests that in German the speaker usually has not yet reached the noun at the point of repair in prepositional phrases, whereas in Swedish this happens more often. Taking into account the types of repair that can be found for the retraction pattern, D4 can provide a more accurate insight into this finding.

Table 15: Type of repair in retraction pattern D4

	repetition	substitution	deletion	insertion	total
German	6	55%	5	45%	0
Swedish	8	22%	26	72%	0

When a speaker makes use of the retraction pattern D4, there are generally two possible types of repair that can be carried out: repetition of (a part of) the noun or substitution of the noun. Interestingly, in German 55% of self-repairs that follow the retraction pattern D4 are repetitions, whereas in Swedish 72% of self-repairs following the same pattern are substitutions of the noun. This result gives rise to the hypothesis that certain speech planning activities take place at different temporal stages in the two languages. As the low number of substitutions of nouns for D4 in German indicates, the selection of a specific noun apparently must be realized earlier in speech production, i.e. at the latest when the determiner, whose grammatical form is partly dependent on the noun, is uttered. This interpretation is corroborated by the finding that nearly all of the repair work that is done after the production of the determiner does not concern semantic problems, but rather articulation problems in German: In only two of the D4 repairs in German is there a lexical noun repairable, whereas all the others ($n = 9$) are articulation problems.

Conversely, the noun slot in the Swedish prepositional phrase is still a potential locus for the conceptual planning processes involved in noun selection. In contrast to German, there are 72% lexical substitutions in D4, but only 22% represent articulation repairs. The front article in Swedish does not project any rigid grammatical constraints and therefore allows for a rather late choice out of a morphosyntactically non-restricted and semantically varied range of nouns.

6.3 Type of Repair

The following table gives an overview of the distribution of repair types in German and Swedish.

Table 16: Type of repair in German and Swedish

	repetition	%	substitution	%	deletion	%	insertion	%	total
German	173	58	102	34	5	2	20	7	300
Swedish	164	54.7	99	33	4	1.3	33	11	300

It is obvious that the overall picture is quite similar. In both German and Swedish, repetition is by far the most frequent type of repair, followed by substitution, insertion and deletion (see Table 19 in the appendix for more information). While the frequency of the four types of repair shows similar patterns in German and Swedish, there are some interesting differences regarding the repetition of function words and substitution of content words that have been reported in other languages.

As we have seen above, in both languages category A1 (consisting mainly of the repetition of prepositions) is the most frequent repair, which may support the general tendency mentioned above. The greatest difference is in the elements that are substituted. In Swedish, the noun is the element that is most frequently substituted (see the substitutions in categories D1 and D4). In German, on the other hand, determiners are substituted twice as often as nouns. German, unlike Swedish, appears to not follow the rule of substituting content words, at least not in prepositional phrases. In addition, the determiner position is more often filled in German than in Swedish, which can partly be explained by the typological difference that Swedish – unlike German – has a suffixed definite article in simple nominal phrases.

As both languages show a tendency to initiate and carry out repair as early as possible, the point where a speaker acknowledges a problem with the noun might be placed earlier in a German prepositional phrase than in its Swedish counterpart. Nouns are also substituted more often in Swedish than in German, which supports the hypothesis that German speakers address problems with the noun already when uttering the determiner, in contrast to Swedish speakers.

7 Summary

As a starting point for this study, we raised the question whether the grammatical differences between the prepositional phrase in German and Swedish (e.g. concerning the preposition's potential of grammatical marking) affect the retraction patterns in the respective languages. Generally, our analysis gives reason to confirm that the grammatical differences do indeed result in different retraction patterns. Nonetheless, many general tendencies are shared in both German and Swedish – and perhaps in many other languages as well. In this concluding section we will briefly summarize the central findings that have been presented and discussed in earlier parts, including both general and language-specific tendencies.

In both German and Swedish, speakers tend to break off after the preposition (45% in German, 54% in Swedish). In both languages this implies a preference for addressing problems in the prepositional phrase as early as possible, thus confirming a tendency that has been noted in previous research (e.g. Schegloff/Jefferson/Sacks 1977; Levelt 1983). In practice, this tendency becomes apparent when speakers address problems even before they articulate the problematic part (covert repair). The high frequency of preposition and determiner repetition found in both languages further supports this finding. With regard to German, the frequent substitution of determiners, i.e. of already projected nouns, also underlines the tendency towards early repair.

In addition to being the most frequent break-off point, the preposition (i.e. usually the first element of the prepositional phrase) is the main locus of retraction (82% in German, 71% in Swedish). In both languages, this further supports the idea that prepositional phrases are strong units of spoken German and Swedish. In German, this tendency is strengthened by the strong bond between the preposition and the article, which e.g. appears as cliticized forms of prepositions and definite articles.

In Swedish there appears to be a clear preference for minimizing the scope of retraction, shown e.g. by high frequencies of retracing only one step. In contrast, in German this same preference is often overridden by an orientation to the preposition. At least in the cases where the break-off comes after the determiner, this can be explained by the strong bond between the preposition and the following nominal phrase. The minimal retractions that only retrace one single step mostly follow the pattern A1 ($P \rightarrow P$) in both German and Swedish. However, in Swedish a minimal retraction can also include the noun position D4 ($N \rightarrow N$). Indeed, this is the third most frequent retraction pattern in the Swedish data. In contrast, in German this pattern is rarely used.

In both German and Swedish, repetition is by far the most frequent type of repair, followed by substitution, insertion and deletion. The greater number of repetitions in general and the frequency of repeated prepositions in particular (A1 being the most frequent retraction pattern in both languages) demonstrate the tendency to carry out repair as early as possible.

As a consequence of the preference for early initiation and the sequential unfolding of the prepositional phrase (moving from position A to D, thus always including the initial positions), the initial stages of the prepositional phrase are common loci of retraction. Accordingly, towards the end of the prepositional phrase retractions become less frequent. This tendency is stronger in German, where the retractions tend to occur in the earlier stages, even when the (covert) repairable lies at the end, i.e. the noun. In Swedish, on the other hand, the speaker might retrace to the noun when repair is initiated towards the end of the prepositional phrase, thus minimizing the scope of retraction.

Since the prepositional phrase in both languages increases its semantic weight towards the end, the type of repair may correlate with the actual stage of the prepositional phrase, as well as with the elements being repaired. Indeed, the point of break-off appears to be connected with the type of repair to follow. The more the speaker advances with the production of the prepositional phrase, the higher the probability for substitution. Consequently, the earlier repair is initiated, the higher the probability for repetition.

This is connected to the fact that the repair process often circles around the element of the prepositional phrase with most semantic content, i.e. the noun. Retractions at an early stage are frequently repetitions and can in some instances be considered covert repair of the noun to follow. If the utterance is interrupted before the noun in German, this is followed either by repetition or a substitution. However, in German the substitution of determiners can be interpreted as processing the noun to follow, and suggests that in German, the speaker usually addresses problems of speech production involving the noun already before overtly producing it. This is connected to the grammatical structure of German prepositional phrases whereby a specific noun must be selected when choosing the determiner, at the latest. In Swedish, interruptions before the noun generally result in repetition, while interruptions after the noun lead to substitution. As much less grammatical projection is included in Swedish prepositions and determiners, speakers can proceed to the noun position before having to decide on the noun itself. Thus, the repair centers around the choice of noun in both languages, but there are differences in retraction patterns and the distribution of types of repair due to the different grammatical properties of the languages. As we have shown in the comparative discussion, the number of retractions to the noun in relation to the type of repair that is carried out in this position suggests a different timing of speech planning activities in both languages. While the noun selection in German takes place during earlier stages of the prepositional phrase, the grammar of the Swedish prepositional phrase allows for a rather late selection of the noun.

Previous research has shown that a pattern of recycling function words and substituting content words is found in several languages (e.g. Fox/Maschler/Uhmann 2009; Rieger 2003). For prepositional phrases, this would imply moving from repetition to substitution when advancing in the production. Indeed, as our study indicates, this tendency holds for Swedish as well. On the other hand, this claim does not hold as well in German. While prepositions are mostly repeated in both languages and nouns are often substituted in Swedish, in German determiners are substituted much more often than nouns. Added together, the number of substituted nouns and determiners arrive at similar figures in German and Swedish, but the internal division of the repaired elements shows opposite distributions (German 21 nouns and 48 determiners, Swedish 47 nouns and 14 determiners). Taking into account the difference in the grammatical projection of determiners, this implies that in German – in contrast to Swedish – speakers address and adjust the noun already when uttering and substituting the preceding determiner.

In the current study, we have decided to study retraction patterns from a quantitative approach. This approach has made it possible to distinguish structural differences and similarities in the retraction patterns of the two languages. As the quantitative results can be explained by and related to the grammatical structure in the respective languages, they have also given us a clearer insight into both general and language-specific characteristics of retraction within Swedish and German prepositional phrases. Nonetheless, in this stage of the process, features such as the interactional functions of the analyzed repair sequences have been neglected. Future research areas include an in-depth sequential analysis as well as a prosodic study of the collected sequences.

8 References

- Auer, Peter (2005): Projection in interaction and projection in grammar. In: *Text* 25, 1, 7-36.
- Auer, Peter (2009): On-line syntax: Thoughts on the temporality of spoken language. In: *Language Sciences* 31, 1-13.
- Bockgård, Gustav (2003): Samtalets byggstenar – ett teoretiskt och empiriskt bidrag till beskrivningen av olika syntaktiska enheters relevans i samtal. In: *Folkmålsstudier* 42, 41-80.
- Bockgård, Gustav (2004): *Syntax som social resurs. En studie av samkonstruktionssekvensers form och funktion i svenska samtal*. Skrifter utgivna av institutionen för nordiska språk vid Uppsala universitet 64. Uppsala.
- Chomsky, Noam (1965): Aspects of the theory of syntax. Cambridge, Cambridge: MIT Press.
- Duden (2006)⁷ Die Grammatik (DUDEN-Reihe Bd. 4), Mannheim/Leipzig/Wien/Zürich: Dudenverlag.
- Ford, Cecilia E. / Thompson, Sandra A. (1996): Interactional units in conversation. Syntactic, intonational and pragmatic resources for the management of turns. In: Ochs, Elinor / Schegloff, Emanuel A. / Thompson, Sandra A. (Eds.): *Interaction and Grammar*. Cambridge: Cambridge University Press, 134-184.
- Fox, Barbara A. / Hayashi, Makoto / Jasperson, Robert (1996): Resources and Repair: A Cross-Linguistic Study of Syntax and Repair. In: Ochs, Elinor / Schegloff, Emanuel A. / Thompson, Sandra (Eds.): *Interaction and Grammar*. Cambridge: Cambridge University Press, 185-237.
- Fox, Barbara A. / Jasperson, Robert (1995): A Syntactic Exploration of Repair in English Conversation. In: Davis, Phillip W. (Ed.): *Alternative Linguistics. Descriptive and Theoretical Modes*. Amsterdam, Philadelphia: John Benjamins, 77-134.
- Fox, Barbara A. / Maschler, Yael / Uhmann, Susanne (2009): Morpho-syntactic resources for the organization of same-turn self-repair: Cross-linguistic variation in English, German and Hebrew. In: *Gesprächsforschung – Online-Zeitschrift zur verbalen Interaktion* 10, 245-291.
- Fox, Barbara A. / Wouk, Fay / Hayashi, Makoto / Fincke, Steven / Tao, Liang / Sorjonen, Marja-Leena / Laakso, Minna / Hernandez, Wilfrido Flores (2009): A cross-linguistic investigation of the site of initiation in same-turn self-repair. In: Sidnell, Jack (Ed.): *Conversation Analysis. Comparative Perspectives*. Cambridge: Cambridge University Press, 60-103.
- Gallmann, Peter / Lindauer, Thomas (1994): Funktionale Kategorien in Nominalphrasen. In: *Beiträge zur Geschichte der Deutschen Sprache und Literatur*, 116, 1-27.
- Hopper, Paul (1988): Emergent Grammar and the A Priori Grammar Postulate. In: Tannen, Deborah (Ed.): *Linguistics in context: Connecting observation and understanding*. Lectures from the 1985 LSA/TESOL and NEH institutes. Norwood: Ablex Publishing Corporation, 117-134.

- Hopper, Paul (1998): Emergent grammar. In: Tomasello, Michael (Ed.): *The new psychology of language. Cognitive and functional approaches to language structure*. Mahwah: Lawrence Erlbaum Associates, 155-175.
- Jefferson, Gail (1991): List construction as a task and resource. In: Psathas, George (Ed.): *Interactional competence*. New York, NY: Irvington Publishers, 63-92.
- Lehti-Eklund, Hanna (2006): Att planera och reparera. Skillnader mellan talare av svenska som förstaspråk och andraspråk. In: Ask, Sofia / Byrman, Gunilla / Hammarbäck, Solveig / Lindgren, Maria / Stille, Per (Eds.): *Lekt och lärt. Vänskrift till Jan Einarsson*. Rapporter från Växjö universitet 16. Växjö: Växjö University Press, 120-131.
- Levelt, Willem J.M. (1983): Monitoring and self-repair in speech. In: *Cognition* 14, 41-104.
- Lindström, Jan (2008): Tur och ordning. Introduktion till svensk samtalsgrammatik. Stockholm: Norstedts akademiska förlag.
- Moerman, Michael (1977): The preference for self-correction in a Tai conversational corpus. In: *Language* 53, 872-882.
- Norrby, Catrin (2004): Samtalsanalys – så gör vi när vi pratar med varandra. 2:a upplagan. Lund: Studentlitteratur.
- Ono, Tsuyoshi / Thompson, Sandra A. (1995): What can Conversation Tell us about Syntax? In: Davis, Philip W. (Ed.): *Alternative Linguistics: Descriptive and Theoretical Modes*. Amsterdam: Benjamins, 213-271.
- Pfeiffer, Martin C. (2008): Reparaturen vor syntaktischem Abschluss im gesprochenen Deutsch. Unpublished Master's thesis, University of Freiburg.
- Pfeiffer, Martin C. (submitted): Zur syntaktischen Struktur von Selbstreparaturen im Deutschen.
- Rieger, Caroline L. (2003): Repetitions as self-repair strategies in English and German conversations. *Journal of Pragmatics* 35, 47-69.
- Schade, Ulrich / Berg, Thomas / Laubenstein, Uwe (2003). Versprecher und ihre Reparaturen. In: Rickheit, Gert / Herrmann, Theo / Deutsch, Werner (Eds.): *Psycholinguistik - Psycholinguistics* (Handbücher zur Sprach- und Kommunikationswissenschaft). Berlin: Mouton de Gruyter, 317-338.
- Schegloff, Emanuel A. (1979): The Relevance of Repair to Syntax-for-Conversation. In: Givón, Talmy (Ed.): *Discourse and Syntax. Syntax and Semantics* 12. New York: Academic Press, 261-286.
- Schegloff, Emanuel A. / Jefferson, Gail / Sacks, Harvey (1977): The Preference for Self-Correction in the Organization of Repair in Conversation. In: *Language* 53, 361-382.
- Selting, Margret / Auer, Peter / Barth-Weingarten, Dagmar / Bergmann, Jörg / Birkner, Karin / Couper-Kuhlen, Elizabeth / Deppermann, Arnulf / Gilles, Peter / Günthner, Susanne / Hartung, Martin / Kern, Friederike / Mertzlufft, Christine / Meyer, Christian / Morek, Miriam / Oberzaucher, Frank / Peters, Jörg / Quasthoff, Uta / Schütte, Wilfried / Stukenbrock, Anja / Uhmann, Susanne (2009): Gesprächsanalytisches Transkriptionssystem (GAT 2). In: *Gesprächsforschung – Online-Zeitschrift zur verbalen Interaktion* 10, 152-183.
- Steensig, Jakob (2001): *Sprog i virkeligheden. Bidrag til en interaktionel lingvistik*. Århus: Aarhus Universitetsforlag.
- Uhmann, Susanne (1997): *Grammatische Regeln und konversationelle Strategien. Fallstudien aus Syntax und Phonologie*. Tübingen: Niemeyer.
- Uhmann, Susanne (2001): Some arguments for the relevance of syntax to same-sentence self-repair in everyday German conversation. In: Selting, Margret / Couper-Kuhlen, Elizabeth (Eds.): *Studies in Interactional Linguistics*. Amsterdam: John Benjamins, 373-404.

Uhmann, Susanne (2006): Grammatik und Interaktion: Form follows function? Function follows form? In: Deppermann, Arnulf / Spranz-Fogasy, Thomas / Fiehler, Reinhart (Eds.): *Grammatik und Interaktion*. Radolfzell: Verlag für Gesprächsforschung, 95-122.

9 Appendix

9.1 Transcription conventions (*Selting et al. 2009*)

()	Unintelligible talk
((coughs))	Commentary
((...))	Longer omission
word [word]	Overlapping talk
[word] word	
wo'	Truncation
=	Latching
.h	Inbreaths
'h	Outbreaths
(.)	Micropause
(-) (--) (---)	Pause up to one second (0.25, 0.5, 0.75)
(2.5)	Pause of indicated length
wo:rd	Lengthened segment
NEver	Accented syllable, primary accent
nEver	Secondary accent
<<f> >, <<ff> >	Loud/very loud <from & until>
<<p> >, <<pp> >	Soft/very soft <from & until>
<<all> >	Fast/faster <from & until>
<<len> >	Slow/slower <from & until>
<<t> >	Deep pitch <from & until>
<<h> >	High pitch <from & until>
(hehe)	Laugh particles
mhm	Minimal feedback
eh, ehm	Hesitation particles
word?	Strongly rising tone
word,	Slight rising tone
word;	Slightly falling tone
word.	Slightly falling, final tone
word-	level intonation

9.2 Statistical analysis

We carried out a statistical analysis (chi-square test) shown in Table 12, which presents the quantitative distribution of the different retraction patterns in both languages.

For the purpose of statistical analysis, the retraction patterns C0, C2, D0, D2 and D3 were excluded because of their low frequency of occurrence (less than seven tokens). The remaining nine retraction patterns were included in the analysis:

Table 15: Pairwise analysis of differences between the retraction patterns.

Leftmost column: number of points (= strength of difference) is given in brackets, ns = not significant, p = probability of error, V = Value, df = degree of freedom.

	A0	A1	B0	B1	B2	C1	C3	D1	D4
A0 (7)		ns	p=0.02* V = 5.4 df 1	p=0*** V = 16.6 df 1	ns	ns	ns	ns	p=0.059(*) V = 3.6 df 1
A1 (10)			p=0.014* V = 6.1 df 1	p=0*** V = 37.2 df 1	ns	ns	p=0.06(*) V = 3.5 df 1	ns	p=0.003** V = 8.6 df 1
B0 (16)				ns	p=0.091(*) V = 2.9 df 1	p=0.077(*) V = 3.1 df 1	p=0.002** V = 10 df 1	p=0.004** V = 8.4 df 1	p=0*** V = 14.1 df 1
B1 (23)					0.01* V = 6.6 df 1	p=0.005** V = 8 df 1	p=0*** V = 24.5 df 1	p=0*** V = 33.6 df 1	p=0*** V = 46.8 df 1
B2 (8)						ns	p=0.036* V = 4.4 df 1	ns	p=0.008** V = 7.1 df 1
C1 (9)							p=0.037* V = 4.4 df 1	ns	p=0.007** V = 7.3 df 1
C3 (12)								ns	ns
D1 (7)									ns
D4 (18)									

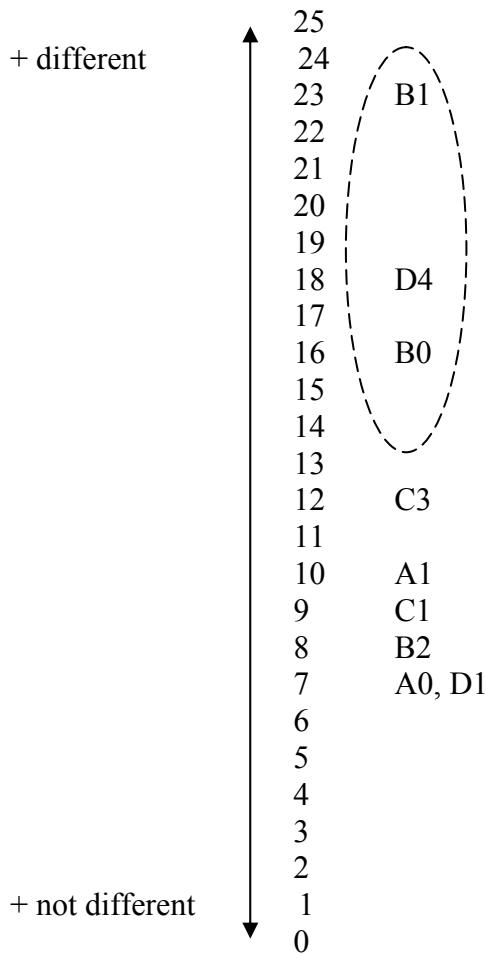
The first important result is that there is a highly significant general difference between the Swedish and German retraction patterns (p=0*** / Value 70 / df 8).

Given a general difference between the languages, the question arises which retraction patterns are used more often for self-repair in the respective languages. In order to answer this question, points (from 7 to 23) were given according to the number of significant differences between one retraction pattern in German and Swedish and all the others (pairwise comparison, see Table 15). For example, the difference between A1 (n = 123 in German, n = 148 in Swedish) and C1 (n = 10 in German, n = 14 in Swedish) is not significant, because the quantitative ratio 123:148 is similar to 10:14. The degree of difference was rated as follows:

- Not significant, ns = 0 points
- Statistical tendency (*) = 1 point
- Significant * = 2 points
- Highly significant ** = 3 points
- Very highly significant *** = 4 points

For a better overview, the sum of the points given for each of the pairwise comparisons is listed on scale 1 below:

Table 17: Degree of difference between retraction patterns



As scale 1 shows, the patterns A1, C1, B2, A0 and D1 are not significantly different, but each is different from the patterns B1, D4 and B0 (with the exception of D1 vs. D4, where there actually is a difference between the patterns).

This leads to the formation of “difference group”. The patterns B1, D4 and B0 are not only different from the patterns outside of the “difference group”, but also different from each other (with the exception of B0 vs. B1). This means that each of these three patterns is somehow different from (nearly) all the other retraction patterns.

As the difference between the two languages must be the reason for the difference between the retraction patterns, the patterns B1, D4 and B0 can be interpreted as significant differences between German and Swedish.

9.3 Retraction patterns in Swedish and German

Table 18: Retraction patterns in Swedish and German (bold face = significant difference between the languages)

Type	Description	German n=	%	Swedish n=	%
A0	P → Pre-PP/Spec	13	4.3	16	5.3
A1	P → P	123	41.0	148	49.3
B0	Det → Pre-PP/Spec	8	2.7	1	0.3
B1	Det → P	87	29.0	17	5.7
B2	Det → Det	12	4.0	9	3.0
C0	Adj → Pre-PP/Spec	2	0.7	0	0.0
C1	Adj → P	14	4.7	10	3.3
C2	Adj → Det	1	0.3	2	0.7
C3	Adj → Adj	3	1.0	11	3.7
D0	N → Pre-PP/Spec	1	0.3	4	1.3
D1	N → P	22	7.3	38	12.7
D2	N → Det	1	0.3	5	1.7
D3	N → Adj	2	0.7	5	1.7
D4	N → N	11	3.7	34	11.3
	<i>total</i>	300	100	300	100

9.4 Type of Repair in the German and Swedish data

Table 19: Analysis of type of repair (German and Swedish)

	German					Swedish				
	repetition	substitution	deletion	insertion	total	repetition	substitution	deletion	insertion	total
A0	2	0	0	11	13	1	1	0	14	16
B0	1	2	0	5	8	0	0	0	1	1
C0	2	0	0	0	2	0	0	0	0	0
D0	0	1	0	0	1	1	0	0	3	4
total position 0	5	3	0	16	24	2	1	0	18	21
A1	101	21	1	0	123	128	17	1	0	146
B1	43	41	3	0	87	7	9	1	0	17
C1	5	8	1	0	14	1	5	0	5	11
D1	4	16	0	2	22	9	24	2	2	37
total position 1	153	86	5	2	246	144	56	4	7	211
B2	7	4	0	1	12	4	5	0	0	9
C2	1	0	0	0	1	0	2	0	1	3
D2	0	1	0	0	1	0	2	0	2	4
total position 2	8	5	0	1	14	4	9	0	3	16
C3	1	2	0	0	3	5	5	0	1	11
D3	0	1	0	1	2	1	0	0	4	5
total position 3	1	3	0	1	5	6	5	0	5	16
D4	6	5	0	0	11	9	26	0	1	36
total position 4	6	5	0	0	11	8	26	0	2	36
total	173	102	5	20	300	166	96	4	34	300