

The syntax of self-repair in German: An explanatory model

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Abstract

This study from the field of interactional linguistics deals with the structure of self-initiated self-repair in German. Based on over 2,500 self-repairs from spontaneous interaction, it develops a highly predictive model that explains the destination of recycling as the outcome of a struggle between competing motivations. The most important motivation that shapes the structure of self-repair is rapidity, a factor closely linked to the conversational preference for progressivity. Speakers tend to carry out self-repair as quickly as possible, often choosing the minimal span of retraction, that is, going back directly to the repairable. When speakers go back beyond the repairable, this can often be explained by other motivations, such as ensuring the processability of the repair for the recipient or, in line with previous research on the syntax of self-repair, preserving a tight syntactic bond between the constituents. On the one hand, the study demonstrates that the destination of recycling in self-repair allows insights into the syntax of German in a general sense. On the other hand, it shows that grammatical factors are not sufficient for comprehensively explaining the destination of recycling in German. Rather, the structure of self-repair seems to be shaped by an interplay of grammatical, interactional and cognitive factors.

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1. Interactional linguistics and self-repair

This paper deals with the phenomenon of “self-initiated self-repair” (Schegloff et al., 1977:364), a practice used by speakers to deal with (potential) interactional problems related to the current turn. Ever since self-repair aroused the interest of interactional linguists in the 1990s (cf. Fox and Jasperson, 1995; Fox et al., 1996), a main focus of research in this area has been on “recycling” (cf. Schegloff, 1987; Fox et al., 1996:186), that is, on examining how far speakers go back within the original syntactic structure when carrying out self-repair.

Numerous studies in interactional linguistics have shown that the grammar of a particular language influences the scope of recycling in important ways (cf. Fox and Jasperson, 1995; Fox et al., 1996, 2009a, 2010; Zhang, 1998; Fincke, 1999; Uhmann, 2001, 2006; Rieger, 2003; Wouk, 2005; Birkner et al., 2012). Generally, across the investigated languages, one of the main findings is that the strength of the syntactic bonds between constituents plays a major role in recycling.

Regarding self-repair in German more specifically, it has been shown that not only – as claimed by Uhmann (2001, 2006) – formal factors from grammar, but also functional factors from interaction and cognition have an influence on the scope of recycling (cf. Pfeiffer, 2010, 2014). The present study seeks to extend the observations of Pfeiffer (2014), which are limited to the prepositional phrase, to all syntactic domains and presents an explanatory model that predicts the scope of recycling in self-repair in German with high accuracy.

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2. Theoretical and terminological preliminaries

This section describes key terminological and theoretical background for dealing with both the structure of self-repair and the syntax of German.

First, let us have a look at the phenomenon to be investigated¹:

(1)

01 hh04: wir ham ja keinen Einfluss auf **das*** °hh auf **die** entSTEHung
 we have PTCL no influence on the.N* on the.F enactment
 der gesetze.
 of laws

We have no influence on the enactment of laws

In this instance of self-repair, the speaker substitutes the neuter article *das* ('the') with the feminine article *die* ('the'), which corresponds to the following feminine noun *entSTEHung* ('enactment'). Before carrying out the substitution, however, he goes back to the beginning of the prepositional phrase and repeats the preposition *auf* ('on').

In the present paper, the syntactic position the speaker goes back to when carrying out self-repair – in example (1) the preposition *auf* ('on') – will be called the *point of retraction*. This term is related to the basic operation of on-line syntax called *retraction*: "Retractions refer back in time to already existing syntactic structures which they reactivate and change" (Auer, 2009:7). Most studies do not use the term 'retraction' to refer to this aspect of the syntax of self-repair, but the term "recycling", first used by Schegloff (1987). I prefer the term 'retraction', however, for two reasons. First, 'retraction' can express the close relationship of the analyses presented here to "on-line syntax" (Auer, 2000, 2009), which serves as the theoretical framework of this study. Second, in interactional linguistics, different aspects of the structural organization of self-repair are subsumed under the term 'recycling'. Most commonly, it is used as a synonym for repetition (e.g. Fox and Jasperson, 1995:89f; Rieger, 2003:51; Egbert, 2009:61f.).² Yet, in several studies, there is no independent term for referring to the mere process of "jumping back" in self-repair. Instead, formulations like "recycle back to" (Fox et al., 1996:187) or "recycling to" (Fox et al., 2009a:251) are used to describe the process of "going back", and the expression "destination of recycling" (e.g. Fox et al., 2010:2489) is used to refer to the end point of this process. However, as going back to a previous constituent can occur with or without subsequently repeating a part of the syntactic structure (cf. Fox and Jasperson, 1995:89f; Auer and Pfänder, 2007:61f.), these – obviously independent – processes should also be distinguished terminologically. Therefore, in this paper, the terms 'retraction' and 'repetition' will be used instead of 'recycling'.

As speakers usually have – just like in example (1) – several options for selecting the point of retraction, the question arises as to how speakers decide on whether to go back directly to the repairable (*das* 'the') or to an earlier constituent (for example, the preposition *auf* 'on' or the noun *Einfluss* 'influence'). In going back directly to the repairable, speakers use a *minimal span of retraction*. If they go back beyond the repairable and repeat a part of the utterance subsequent to the retraction, the repeated part of the syntactic structure is called a *syntactic anchor*: "The anchor marks the paradigmatic slot in which the retraction is produced" (Auer and Pfänder, 2007:61). This term is used to indicate that this kind of repetition can serve as a resource for the listener to integrate some kind of alteration into the original utterance.

As the analysis of the point of retraction in self-repair from a linguistic perspective is directly related to, or may even coincide with, the analysis of the respective syntactic position of the utterance, a few words on the syntax of German are in order. It is widely accepted that the syntactic structure of German utterances can be analyzed according to the 'model of topological fields' (cf. Drach, 1937). One of the benefits of this model is that it reflects the on-line character of spoken language, i.e. the linear progression of syntactic structures in time. Central to this model is the so-called 'sentence brace' (cf. Auer, 1996:62), consisting of the two parts of a composite verb form that often do not immediately follow one another, but are separated by other constituents. The left brace contains the finite verb; the right brace is occupied by the infinite elements of the verb complex, such as past participles (Table 1, example III), infinitives, verb particles (example II), or nominal and prepositional phrases occurring as a part of an idiomatic expression (e.g. *Stellung nehmen* 'to take a stand')

¹ Transcription follows the conventions of GAT 2 (Selting et al., 2011). Bold face indicates alteration of the original utterance, and asterisks mark the points of interruption. Interlinear glosses are provided only for the parts of the structure that contain the self-repair.

² However, for example, in Fox et al. (1996: 186, see endnote 3) "recycling" not only refers to repetitions of a part of the utterance, but also to self-repairs including additions and deletions.

Table 1
The topological fields in German.

Ex.	Pre-front field	Front field	Left brace	Middle field	Right brace	Post-field
I		da there	fehlt misses	dann irgendwas then something		
II	'Something is missing then.' die fünfhundert millionen von dem investor the five hundred million of the investor 'The five hundred million of the investor flow into the construction of the stadium.'	des they	fließt flow	ja in den stadionausbau PTCL into the construction of the stadium	nei VERB PTCL	
III		dann then	hab have	ich also I so	umgesattelt switched	auf betriebswirtschaftslehre to business economics
IV			weil because	er he	angerufen hatte called had	
	'Because he had called.'					

and *ins Leben rufen* 'to bring into being'). If the predicate consists only of a finite verb (in the left brace) without an additional infinite verbal part, the right brace is empty (example I). In subordinate clauses, in which the subordinating element occupies the left brace, all the verbal elements, including the finite verb, are located in the right brace (example IV). By means of the sentence brace, we can divide the syntactic structure of utterances into three main fields: the 'front field', the 'middle field', and the 'post-field'.

The front field, which precedes the left brace, can contain precisely one syntactic constituent (examples I–III) but can also remain unfilled in subordinate clauses, in which the subordinating element occupies the left brace (example IV). Sometimes, for example in left dislocations, additional constituents can occupy a syntactic position preceding the front field, the so-called 'pre-front field' (example II). The topological field that separates the left from the right sentence brace, the 'middle field', can contain, theoretically, an infinite number of elements. The field after the right brace, the 'post-field', can be filled with subordinated clauses or syntactic expansions (example III).

3. Data

The observations in this paper are based on 1165 instances of self-repair from three different data sources: informal interviews with urban dialect speakers, psychotherapeutic interactions, and spontaneous, unscripted conversations from a Reality TV show.

All instances of self-initiated self-repair initiated both before possible turn completion ($n = 1120$; 96%) and at a "transition-relevance place" (Sacks et al., 1974:703) ($n = 45$; 4%) were collected. All the different repair operations – substitutions as well as insertions or deletions of parts of the utterance – were included. Only repetitions of parts of the structure, which do not exhibit a clearly identifiable repairable, were excluded.

All self-repairs were coded for the type of repair (e.g., semantic repair, phonological repair, turn-taking repair, see section 4.1.2), the repair operation (i.e., substitution, insertion, or deletion), the complexity of the repairable (i.e., one word vs. several words), the syntactic form and syntactic function of the repairable, the syntactic context (i.e., phrase or clause in which the repairable is embedded), and the syntactic position of the point of retraction (i.e., a topological field or a certain constituent within a phrase).³

4. Explanatory model

This section presents an explanatory model which transfers the idea of "competing motivations" (Du Bois, 1985) to the structure of self-repair in order to explain and predict the point of retraction in self-initiated self-repair in German.⁴

Various studies within functional linguistics show that linguistic structure can be conceived of as a result of "competing motivations" (cf. Du Bois, 1985, 2014; MacWhinney et al., 2014). From this point of view, language in general – and the

³ Additionally, a part of the data (substitutions of the verb in second position) was coded for the type of action carried out by the turn that contains the self-repair as well as its sequential position (first vs. second pair part). However, no influence of these factors on the point of retraction (specifically regarding the question of whether monosyllabic front-field constituents get repeated or not, see section 4.3.5) could be determined.

⁴ The following sections 4 and 5 are based on my dissertation (Pfeiffer, 2015, especially chapters 8.2 and 9).

structure of self-repair in particular – is shaped in large part by the conflicting fundamental needs of the interactants. The present study adopts the perspective that the origin of these different motivations is found in the interactional and cognitive requirements of language use. The speaker- and hearer-related demands create a pressure that the speaker tries to comply with: The motivations compete on a conscious or – as is presumably more often the case with self-repair – an unconscious cognitive level.

Following Moravcsik (2014:2), the model presented below was constructed with the assumption that competing motivations should be understood as “generalizations” that make conflicting predictions. With regard to self-repair, examples of generalizations of this kind are the two tendencies ‘carry out repair as quickly as possible’ and ‘preserve tight syntactic bonds’, the first working toward a minimal span of retraction (e.g., a retraction to the noun when repairing the noun within a prepositional phrase, see example 2) and the second often leading to a non-minimal span of retraction (e.g., a retraction to the preposition when repairing a noun within a prepositional phrase, see example 3).

(2)

01 Tba: ich wusste nich dass man aus **kartOffenscha**’*
*I didn’t know that you of potato peel**
kartOffelschalen ne SUPpe machen kann.
potato peelings a soup make can
 I didn’t know you can cook a soup out of potato peelings

(3)

01 k07: un wir sin immer hInter den **RUSS-**’*
*and we are always behind the russ**
 ->02 hInter den **ameriKAnern** her,
behind the americans VERB PTCL
 And we always kept following the Americans

Both motivations compete with each other because they motivate different structural realizations of self-repair.

What are the competing motivations that shape the structure of self-repair? Various studies have shown that language-specific morphosyntactic properties exert a decisive influence on the organization of self-repair (cf. Fox et al., 1996; Fincke, 1999; Uhmman, 2001, 2006; Rieger, 2003; Fox et al., 2009a; Birkner et al., 2012). However, other factors that motivate the structure of self-repair have not been investigated systematically (cf. Pfeiffer, 2014).

The model presented here aims to describe the central grammatical and non-grammatical factors that influence the process of retraction in self-repair. This model differs from Uhmman’s *Head Rule* (2001, 2006) in the assumption that it is not one single formal factor (the functional head of a phrase) that determines the structure of self-repair, but an interplay of formal (grammatical) and functional (interactional and cognitive) factors.⁵

Fig. 1 shows the explanatory model for the point of retraction in self-repair in German. The model includes, contrary to Uhmman’s *Head Rule* (2001, 2006), non-modifying insertions and complex repairables, which comprise more than one constituent. In complex repairables, the model refers to the constituent of the repairable produced earliest. Additionally, the model includes instances of self-repair that involve only one retraction but two self-repair operations ($n = 67$). In these cases, too, the model refers to the constituent repaired earliest.

Before turning to a detailed description and discussion of this explanatory model (from top to bottom), let us first consider the four motivations that play a crucial role in it:

1. Rapidity of carrying out repair
2. Processability of repair
3. Preservation of tight syntactic bond
4. Analogy to obligatory retraction pattern

⁵ See Pfeiffer (2015:355–376) for a detailed theoretical and empirical analysis of Uhmman’s *Head Rule*.

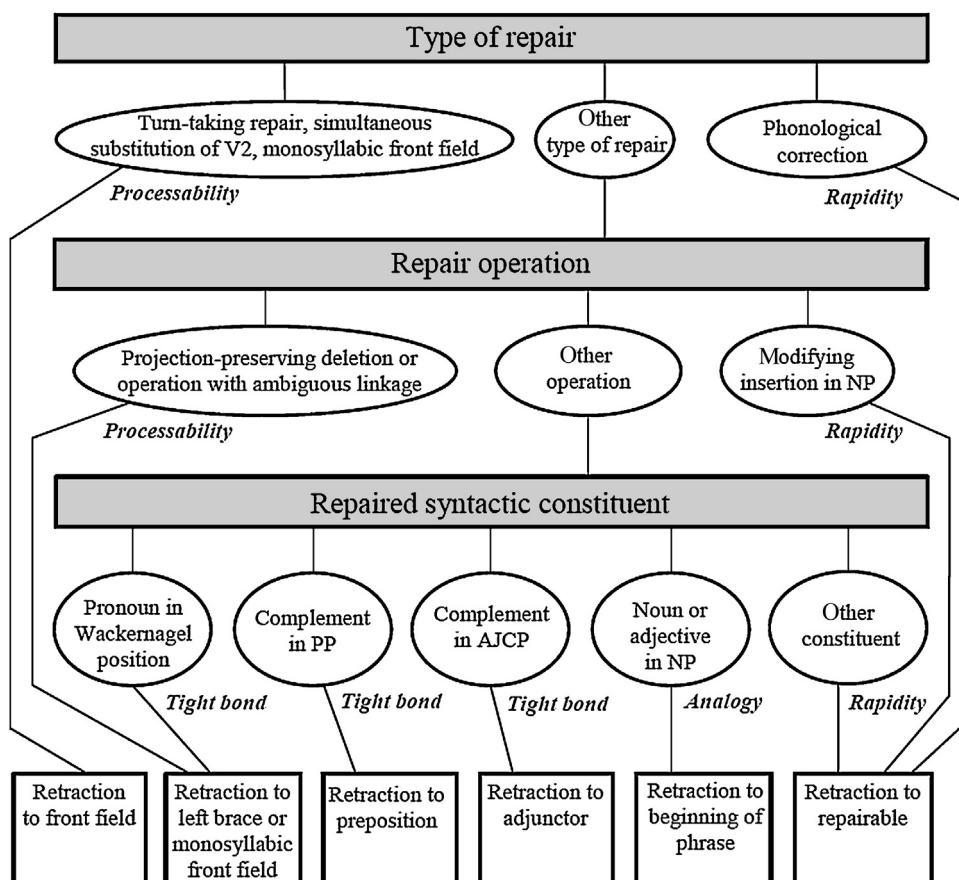


Fig. 1. Explanatory model for the point of retraction in self-repair in German.

These motivations (**bold and italic in Fig. 1**) are responsible for the selection of the point of retraction and will be explained in the following paragraphs.

The motivation *rapidity of carrying out repair* is the most fundamental motivation for the structure of self-repair. As conversational language use is a “joint action” and, thus, conversational time is joint time of all the participants (cf. Clark, 1996), speakers do not allow themselves long periods of time to deal with problems in conversation. Rather, they strive to be economical with the joint resource ‘conversational time’, as noted by Schegloff (1979:277): “I only want to note that repair aims for success and is overwhelmingly successful at achieving it quickly. For the most part, a single repair effort deals with a single trouble-source.” The rapidity of carrying out repair is not reflected only in the fact that single retractions are usually sufficient for dealing with a repairable and that multiple retractions occur much less frequently (cf. Schegloff, 1979:277; see also Pfeiffer, 2015:235, who makes the same observation). The motivation of rapidity is also reflected in the syntactic organization of self-repair: Speakers tend to both initiate self-repair as quickly as possible (cf. Fox et al., 2009b; Pfeiffer, 2015) and carry out repair as quickly as possible, which is reflected in the high number of minimal spans of retraction ($n = 751$; 64.5%). Furthermore, prosodic repair markers (e.g. pauses, sound lengthening) as well as mono- and bi-syllabic repair markers (e.g. *äh* ‘uh’, *ähm* ‘uhm’, *oder* ‘or’, *also* ‘well’) are employed much more often than more “time-consuming” markers, such as meta-comments (e.g., *sagen wir mal* ‘let’s say’, *wie soll ich sagen* ‘how can I say’) (cf. Pfeiffer, 2015:161). Moreover, self-initiated self-repair is often associated with a higher speech rate both in German (cf. Uhmann, 1992) and in Dutch (cf. Plug, 2006).

What is the origin of the motivation ‘rapidity’ for the structure of self-repair? It seems plausible that this motivation arises from the participants’ need to resolve (potential) interactional problems as quickly as possible. This endeavor appears to be closely linked to a principle of interactional organization, the *preference for progressivity*, which operates on different levels of granularity (cf. Schegloff, 2007:14f; 2013:43). On the one hand, participants orient to the progressivity of the current turn by making an effort to produce the next element (cf. Schegloff, 1979:277f.; Lerner, 1996:261ff.; Goodwin and Goodwin, 1986). On the other hand, orientation to progressivity is reflected in the fact that interactants strive for

continuation of the current activity (cf. [Stivers and Robinson, 2006](#)). In his analysis of self-repaired references to persons and places, [Heritage \(2007\)](#) shows that the principle of progressivity can be in conflict with the principle of intersubjectivity.

Speakers encountering a difficulty in the management of recognitional reference, and initiating same-turn repair in that context, must perforce disrupt the progressivity of the turn in progress. Here, the very fact of repair means that the principle of intersubjectivity (in the form of recognitional reference) has trumped the principle of progressivity ([Heritage, 2007:260f.](#))

The speaker's dilemma of being forced to disrupt progressivity concerns not only reference repair, but also self-repair in general. However, by initiating and carrying out self-repair as quickly as possible, interactants seem to have found a way to minimize this dilemma. The motivation of rapidity works toward selecting – among all the possible repair structures – the structure that is least in conflict with the principle of progressivity. The faster the problem is resolved by self-repair, the faster the current turn as well as the sequence the participants are involved in can be continued and eventually brought to completion. The syntactic structure of self-repair seems to be crucially shaped by the interactional pressure exerted by the preference for progressivity.

Against this background, the present model assumes that a time-saving retraction directly to the repairable is the standard case from which speakers deviate only in certain circumstances and that cases in which speakers use syntactic anchors (i.e., go back beyond the repairable to repeat a part of the syntactic structure before dealing with the problem itself) can be explained by the three other motivations presented below.

The motivation *processability of repair* is directly related to the conversational principle of recipient design and involves two facets. First, it refers to the basic need of the recipient to be able to cognitively process the self-repair, meaning that the self-repair must be designed in such a way that the repairable can be identified. Second, the speaker must ensure that the self-repair can be processed auditively – it must be hearable. When the repairable may not be identifiable or hearable with a retraction to the repairable, the motivation 'processability' outweighs 'rapidity' and leads to the use of a syntactic anchor.

The motivation *preservation of tight syntactic bond* refers to the tendency of speakers not to separate certain constituents when carrying out repair. This tendency has been shown to exist in various languages and can be explained by language-specific grammatical properties (cf. [Fox and Jaspersen, 1995](#) for English; [Fox et al., 1996](#) for English and Japanese; [Uhmman, 2001, 2006](#) and [Pfeiffer, 2014](#) for German; [Rieger, 2003](#) for German and English; [Fox et al., 2009a, 2010](#) for English, German, and Hebrew; [Birkner et al., 2012](#) for German and Swedish). When selecting the point of retraction, speakers tend to take into account close syntactic relationships, which can be due to, for example, the agreement of morphosyntactic categories, a government relationship, or the frequent succession of constituents. The tight bond between elements that tend to cliticize is taken into account as well when selecting the point of retraction (cf. [Fox et al., 2010:2503](#)). There is evidence to suggest that the phonological process of cliticization also reflects – at least in German – a tight syntactic bond between the elements concerned (see section 4.3). The motivation 'preservation of tight syntactic bond' presumably has – like the other motivations – not only a speaker-related, but also a hearer-related origin. It seems plausible that the preservation of particularly frequent successions of constituents (preposition → complement; article → noun; adjunct → complement; V2/subjunction/relative element → pronoun) facilitates the processing of self-repair for the hearer.

The motivation *analogy to obligatory retraction pattern* causes an obligatory retraction pattern to spread to other cases within the same syntactic context, in which the selection of this point of retraction is facultative. An example of an obligatory retraction pattern is the substitution of a noun with an alteration of a nominal category (gender, number, case).

(4)

01 P23: weil (-) **die krämpfe** fast nicht zu stopp* also (--)
 because the cramps.M.PL almost not to stop* well
der Anfall nicht zu STOPpen war;
 the seizure.M.SG not to stop was
 Because the seizure could not be stopped

In German, articles agree with their nouns in case, number, and gender. If a noun replacement involves an alteration of a nominal category, the article needs to be marked for the "new" nominal category (singular instead of plural in example 4), as well. Therefore, in these instances of repair, the speaker must (at least) retract to the article when substituting the noun (cf. [Fox et al., 2010:2499f.](#)).

In substitutions of the noun without alteration of a nominal category, on the other hand, retractions directly to the noun are possible, meaning retraction to the article is facultative. Nevertheless, in these cases, speakers regularly choose to retract to the article, analogous to the obligatory retraction pattern shown in example 4. This phenomenon cannot be explained by the motivation 'preservation of tight syntactic bond' alone, because the tendency to retract to the article is

restricted to semantic repair of the noun. In phonological repair of the noun, speakers go back directly to the noun in almost all cases, following the motivation of rapidity (see section 4.1).

The origin of the motivation ‘analogy to obligatory retraction pattern’ may be rooted in its advantage to the listener arising from the tendency to use similar repair structures for similar problems (that is, syntactic anchors for semantic problems and minimal spans of retracting for phonological problems).

The model (Fig. 1) describes from top to bottom the process of selecting the point of retraction, depicting the cognitive routines that speakers follow in the selection process and indicating the most important motivation for each individual case. Fig. 1 does not show the weighting process itself, but the result of the resolved conflict between the motivations described. Therefore, the explanations given in the running text are an integral component of the model, as they outline the weighting of the motivations that leads to the selection of a certain point of retraction.

The different points of retraction are depicted by the boxes at the bottom edge of the model. The gray bars represent the *motivation-weighting factors*, which are ordered hierarchically according to their influence in the selection process and which constitute the criteria that are relevant for the weighting of the motivations. Each motivation-weighting factor is comprised of specific *motivation-weighting features*, which are depicted as ellipses below the respective motivation-weighting factor.

For the motivation-weighting factor ‘type of repair’, for instance, the motivation-weighting feature ‘phonological correction’ causes the motivation ‘rapidity’ to be weighted the strongest. The motivation which has been weighted strongest by the respective feature is crucial for the selection of the point of retraction. The label of this motivation (‘rapidity’) is placed at the position in the model where it prompts the speaker to decide on a certain point of retraction (‘retraction to repairable’). With this decision, the selection process is complete, which is illustrated by the line connecting the respective motivation-weighting feature and one of the points of retraction.

On each level of the model, precisely one feature applies. In the example mentioned above, the selection process “skips” the bottom two levels, because one of the features on the most influential top level ‘type of repair’ causes one of the motivations to be weighted strongest. If, however, one of the “ineffective” features ‘other type of repair’ or ‘other operation’ applies, the respective motivation-weighting factor is not relevant for this particular instance of self-repair, that is, no motivation is weighted stronger than the others on this level. In this case, the process continues with the next motivation-weighting factor on the level below until the point of retraction is selected.

To summarize, all four motivations operate simultaneously in every selection process and are weighted differently according to the type of repair, repair operation, and repaired syntactic constituent. The strongest motivation determines the point of retraction. The model correctly predicts 86.1% ($n = 1003$) of the points of retraction, whereas 13.9% ($n = 162$) cannot be explained by the model.⁶ In contrast, Uhmman’s (2006) model correctly predicts only 70.1% of the points of retraction (cf. Pfeiffer, 2015:371).

In the following, the motivation-weighting factors – that is, the different levels of the model – and the motivations which lead to the selection of a specific point of retraction on each level are presented in more detail. In particular, we will show how the hierarchization of the motivation-weighting factors and the effectiveness of the motivations as well as their weighting can be inferred inductively from the data.

4.1. Type of repair

The most influential motivation-weighting factor is the *type of repair*. This factor comprises two motivation-weighting features, that is, two types of repair: phonological correction and turn-taking repair.

4.1.1. Phonological corrections

Let us begin with the motivation-weighting feature ‘phonological correction’, which weights the motivation ‘rapidity of carrying out repair’ strongest. This feature applies to 58 instances of self-repair, out of which 54 (93.1%) exhibit a retraction to the repairable and, hence, follow the motivation ‘rapidity’, whereas four self-repairs (6.9%), against the prediction of the model, are carried out with a syntactic anchor.

The frequent retraction to the repairable in phonological repair corresponds to Nooteboom’s (1980:92–93) observations. It is important to note that in phonological corrections, speakers almost always retract to the repairable across all syntactic contexts, regardless of whether the phonologically problematic element is a noun or adjective in a nominal or prepositional phrase, a verb in first, second, or last position, or an adverb.

⁶ See the following sections for detailed quantitative information about confirming and contradicting examples.

In the following example, the speaker carries out a phonological correction of a noun in a nominal phrase:

(5)

01 des war der **NETSCHner**'* (.) ne'* **NETZwerkmanager**,
that was the netnor ne* network manager*
 That was the network manager

The observation that speakers regularly retract to the repairable when carrying out phonological corrections irrespective of the syntactic constituent concerned provides evidence of the fact that the motivation-weighting factor 'type of repair' is stronger than the factor 'repaired syntactic constituent', which weights the motivations according to syntactic properties of the repair context.

We are now faced with the question of why only self-repairs on the phonological level are associated with retractions to the repairable, but not self-repairs on another level, say, the semantic level of the utterance. One possible explanation is that phonological repair only concerns the articulatory level, whereas self-repair on other linguistic levels can also involve changes of the syntactic structure of the utterance, which may result in going back beyond the repairable. For example, a semantic repair of a noun with alteration of a nominal category entails – as mentioned above – an obligatory retraction to the article. However, when speakers carry out a phonological correction, which only deals with an articulatory problem, the syntactic form of the utterance has already been decided on cognitively and does not have to be changed. Therefore, speakers can be certain that a retraction "beyond" the repairable will never become necessary in dealing with a phonological problem. In the case of phonological repair, which, from a syntactic perspective, does not necessitate the use of an anchor, the basic motivation 'rapidity' dominates and leads to a retraction to the repairable in nearly all cases. In some cases, this motivation actually leads the speaker to retract to the incorrectly articulated morpheme within a word (cf. Pfeiffer, 2015:328–331), without repeating the correctly articulated word-initial morphemes, so that the repairable can be dealt with even more quickly. Retractions in phonological repair provide strong evidence against the *Head Rule* (Uhmman, 2001, 2006).

4.1.2. Turn-taking repair

The second feature on the level 'type of repair' is turn-taking repair with a simultaneous substitution of the verb in second position as well as a front field filled with a monosyllabic constituent. This feature weights the motivation 'processability of repair' strongest and was found in nine cases of self-repair. In all nine cases, the motivation 'processability' causes the speaker to use a syntactic anchor, that is, to repeat the monosyllabic front field constituent located "left" of the verb.

In the following conversation, fr01b complains about the large number of carnival societies dressing as witches instead of choosing another disguise:

(6)

01 fr01b: [die nemme überHAND-
 They gain the upper hand
 ->02 und des **find ich*** (.)] des **GFÄLLT**_ma net.
and that find I that pleases me not*
 and I don't like that
 03 fr01a: [ja gibt MEHrere hExe;=ja_jA,]
 Yes there are several witches yes

This instance of self-repair deals with two problems: overlapping talk and the verb in second position. In such cases, speakers regularly make hearable the overlapped part of the utterance as well as the substitution of the verb by repeating the front field constituent (*des* 'that', l. 02) and thereby delaying the substitution of the verb. In these instances of self-repair, the motivation to make hearable the overlapped beginning of a turn-constructive unit (cf. Schegloff, 1987) (l. 02) is stronger than the motivation to carry out the substitution as quickly as possible (by using a retraction to the verb).

4.2. Repair operation

Let us now turn to the motivation-weighting factor 'repair operation' on the second level of the explanatory model. This level concerns 1098 self-repairs – the cases in which 'other type of repair' applies on the top level of the model. The factor

'repair operation' comprises the motivation-weighting features 'modifying insertion in nominal phrase' and 'projection-preserving deletion or operation with ambiguous linkage'.⁷

4.2.1. Modifying insertions in nominal phrases

First, let us consider the feature 'modifying insertion in nominal phrase', which weights the motivation 'rapidity' strongest. This feature applies to 15 instances of self-repair, out of which 13 (86.7%) follow this motivation with a retraction to the repairable. Two (13.3%) use a syntactic anchor, meaning they contradict the model. The following example shows an example that confirms the model's prediction:

(7)

```
01 dd01a:  und und da      hatte der mir DRINnen schon,
           and and there had he me inside already
02          °h noch      en LEISTungs:-*
           in addition a performance*
->03       fuffzehnprozentigen LEistungszuschlach;
           fifteen percent performance payment
04          °h geGEBem.
           given
           And inside he had already given me a fifteen percent performance payment
```

In l.03, the speaker retracts directly to the insertion slot – the syntactic position in which the adjective *fuffzehnprozentigen* ('fifteen percent', l.03) is to be inserted – without repeating the article *en* ('a', l.02) prior to the insertion. As predicted by the model, we find a retraction directly to the repairable, that is, to the (interrupted) noun *LEISTungs*: ('performance', l.02) to be modified by the inserted adjective.

The frequency with which retractions to the repairable occur in modifying insertions in the nominal phrase is particularly noteworthy. Here, speakers often have the possibility of repeating an article or an adjective ($n = 12$) – a tendency which is quite strong for instances of semantic repair in the nominal phrase occurring as substitutions. The observation that only two of the 12 cases (16.7%) use retractions to the beginning of the phrase provides evidence that modifying insertions in the nominal phrase behave differently from substitutions (see also section 4.3.2).

Why do speakers retract to the repairable in modifying insertions in nominal phrases? As mentioned in the analysis of example 4, a retraction to the article (or adjective, if no article is present) is obligatory in substitutions of the noun with alteration of a nominal category. In these instances, the article (or the adjective) needs to be changed as well, so that the speaker must retract at least to the beginning of the nominal phrase. In retrospective modifications of a constituent of the nominal phrase, however, just like in phonological repair, the speaker is never forced to carry out additional changes. The syntactic position of the modifying constituent is an inherent part of the nominal phrase; it is already "there" and is filled retrospectively by the self-repair. As there are no particular circumstances that prompt the speaker to use a syntactic anchor, the basic motivation 'rapidity' prevails in most of these cases and leads to a retraction to the repairable.

4.2.2. Projection-preserving deletions or operations with ambiguous linkage

We will now turn to the second motivation-weighting feature: 'projection-preserving deletion or operation with ambiguous linkage'. This feature concerns self-repair operations that would not (projection-preserving deletions) or not unambiguously (operations with ambiguous linkage) be processable by the recipient without a syntactic anchor ($n = 39$).

In projection-preserving deletions ($n = 21$), the anchor is necessary to make the difference between the original and the new version of the utterance perceivable, which involves the deletion of a constituent. Not using a syntactic anchor in these cases would be equivalent to continuing the original structure without having carried out repair.

⁷ See Pfeiffer (2015:96–127) for a typology of self-repair operations in German. As only the two operations 'modifying insertion' and 'projection-preserving deletion' play a role in the explanatory model for the point of retraction, the other operations are disregarded here.

(8)

01 Tba: wir können **ja** die au* wir können die auch vOrher schon
 we can PTCL it PTCL* we can it PTCL earlier already
 FAHren lassen;=ne,
 go let can't we
 We can already let it go earlier can't we

In this example, the speaker deletes the modal particle *ja* by retracting to the beginning of the turn and repeating the front field constituent and the finite verb (*wir können* 'we can').

This operation regularly involves either a retraction to the left brace or – if it is filled with a monosyllabic constituent – to the front field. There are only two exceptions that deviate from this pattern with a retraction directly to the repairable. In both cases, the element to be deleted is marked by a word interruption, so that processability is ensured in these cases as well.

The term 'operation with ambiguous linkage' refers to operations that would be processable as retractive practices even without a syntactic anchor, but could also be misunderstood as "regular" continuations of the syntactic structure ($n = 18$). In this point they differ from other instances of self-repair without syntactic anchors, which usually provide a clear indication of how the repair operation is linked to the original utterance.

The following example shows an operation with ambiguous linkage. The speaker recounts her experience hiking, when she and her family approached a fiery red thing that turned out to be a blackberry bush:

(9)

01 dd01b: immer nÄher immer NÄHer,
 Closer and closer
 02 und da war des_n BROMbeerstrAuch-
 and then it was a brambleberry bush
 03 der °h **noch NIE:-=hier;***
 that never before here*
 that never before
 ->04 de:r (.) **eben rOte [BEErn] drAn hatte.**
 that PTCL red berries on it had
 that had red berries on it
 05 i-dd01: [ja?]
 Really

In l.04, the speaker deletes the adverbs *noch NIE:-= hier;* ('never before here') within the relative clause by continuing the relative clause with the alternative construction *eben rOte BEErn drAn hatte* ('had red berries on it'). The repetition of the relative pronoun *der* ('that', l.04) as a syntactic anchor avoids the possibility of interpreting the deleting structure as a continuation of the original utterance (*der °h noch NIE:-= hier;eben rOte [BEErn] drAn hatte* 'that never before had red berries on it (here)').

In this example, the two readings (self-repair vs. continuation of the structure) would be quite different semantopragmatically, which corroborates the assumption that this repair structure is motivated by 'processability'. This is also supported by another observation: adverbs whose processability is ensured without a syntactic anchor are regularly repaired without such an anchor (see section 4.3.1).

The motivation 'processability' may cause the speaker to use a syntactic anchor, but it differs from the other motivations in that it does not determine how far s/he goes back within the original structure. Hence, in the selection of the point of retraction in projection-preserving deletions and operations with ambiguous linkage, motivations other than processability must be involved. The data indicate that a syntactic motivation has the second-strongest influence: The left brace and the front field as syntactic positions that bring into play strong projections are the preferred points of retraction in carrying out these repair operations.

4.3. Repaired syntactic constituent

Let us now turn to the motivation-weighting factor 'repaired syntactic constituent' on the third level of the explanatory model. This level concerns 1044 self-repairs – the cases to which the features 'other type of repair' and 'other operation'

apply on the upper two levels. The factor ‘repaired syntactic constituent’ comprises five motivation-weighting features, each of whom constitutes a repairable in a certain syntactic context. Four of the features – ‘pronoun in Wackernagel position’ (see below), ‘complement in prepositional phrase’, ‘complement in adjunct phrase’, and ‘noun or adjective in nominal phrase’ – weight the motivations in a way that leads to the use of a syntactic anchor. The fifth feature – the category ‘other constituent’ – weights the basic motivation ‘rapidity’ strongest, so speakers retract to the repairable in these cases. The following sections outline how the structure of self-repair is organized by the syntactic properties of German.

4.3.1. Pronouns in the “Wackernagel position”

First, we will examine self-repairs of pronouns in the first position of the middle field, the so-called “Wackernagel position”. This position is named after Jacob Wackernagel, who, in his studies of word order in Indogermanic languages, examined the “treatment of weakly accented personal pronouns in Modern High German” (Wackernagel, 1892:405, translation MP), finding that personal pronouns and other weakly accented pronouns tend to occupy the position directly after the left brace (cf. also Gallmann, 2006:884). In repairs of pronouns in the Wackernagel position, the motivation ‘preservation of tight syntactic bond’ is weighted strongest, leading to a retraction to the left brace, or – if it is filled with a monosyllabic constituent – to the front field.

Seventy-four instances of self-repair of pronouns in the Wackernagel position are present in the data, including substitutions, deletions, and insertions of pronouns in this position. A total of 70 self-repairs (90.6%) correspond to the model’s prediction by using a syntactic anchor, with only four retractions (5.4%) going back directly to the pronoun that needs repair. Overall, constituents of the left brace and subsequent pronouns are treated as a unit in self-repair. This applies to all the pronouns repaired in the Wackernagel position – regardless of whether it is a personal, demonstrative, indefinite, or reflexive pronoun and regardless of the syntactic function it fulfills.

Why do speakers – in seeming contradiction to the basic motivation ‘rapidity’ – almost always use a syntactic anchor when repairing pronouns in the Wackernagel position? As the succession of constituents ‘left brace → unaccented pronoun’ occurs frequently in spoken language, one can assume that the process of “entrenchment” (cf. Langacker, 1987:59f.) has led to a strong cognitive representation of this serialization of elements: The more frequently two elements are produced adjacent to each other, the stronger their “constituency” (cf. Bybee and Scheibman, 1999), that is, the bond between them.

The strong syntactic bond between finite verbs, subordinations, or relative elements and succeeding pronouns is also reflected in the phonological process of cliticization of constituents of the left brace with pronouns ($n = 10$; 13.5% of all the pronouns in the Wackernagel position).

In cases without cliticization, too, speakers respect the tight bond between the two constituents by preferably producing them together when carrying out repair:

(10)

```
->01 hh04: ja dann muss man:* muss der STAAT eben: (---)
             yes then must you* must the state actually
             Yes then the state must actually
    02       auf ANDere weise zu gEld kommen,
             come into money otherwise
```

(11)

```
01 i-mu:     wenn so noch so_a boden DA is,
             If such a floor is still there
->02        is eimfach:* (.) is des eimfach erHALten[swert;=ja-]
             is simply* is it simply worthy of preservation yes
             it is simply worthy of preservation
```

In example 10, the pronoun *man*: (‘you’, l.01) in the Wackernagel position is substituted with the nominal phrase *der STAAT* (‘the state’). In example 11, the speaker inserts the pronoun *des* (‘that’, l.02) into the Wackernagel position. In both cases, although the retraction could go directly to the repairable or to the insertion slot, the constituent in the left brace, the finite verb, is repeated in the self-repair.

Self-repairs of pronouns in the middle field that are not produced in the Wackernagel position, however, are carried out without a syntactic anchor in nine of eleven cases (81.8%). These pronouns produced later in the middle field are, of course – just like pronouns in the Wackernagel position – governed by the finite verb. Nevertheless, there seems to be a stronger syntactic relationship between the left brace and pronouns in the Wackernagel position than between the left

brace and pronouns positioned later in the middle field, meaning that the basic motivation ‘rapidity of carrying out repair’ prevails in self-repairs of these latter pronouns and leads to a retraction to the repairable.

It is important to note that speakers only use a syntactic anchor if the repairable in the Wackernagel position is a pronoun. If the constituent to be repaired is, for example, an adverb, speakers regularly retract to the repairable, regardless of whether the adverb is located in the Wackernagel position, as shown in the following example, or in a later position of the middle field.

(12)

```

01 Tba: gestern Abend war haarKNAPP;*
        yesterday evening was by a hair's width*
->02 haarscharf dran vorBEI==
        by a hair's breadth
03 =dass ich nich die BULLen geholt hab.
        that I PTCL the cops called have
        Yesterday evening I almost called the cops

```

In the beginning of I.02, Tabea retracts directly to the uncommon adverb *haarKNAPP* (‘by a hair’s width’, I.01) and substitutes it with the more common form *haarscharf* (‘by a hair’s breadth’, I.02). She does not use an anchor, although the finite verb *war* (‘was’, I.01) directly precedes the repairable. In 38 self-repairs of adverbs in the middle field (substitutions, deletions, and insertions of adverbs), speakers retract to the repairable in 34 cases (89.5%). In only four cases (10.5%) is the model contradicted by going back to a monosyllabic front field constituent.

There are at least three factors that contribute to explaining this retraction pattern. First, adverbs commonly are – contrary to most pronouns – not complements of the verb, so in this respect, the syntactic bond between the left brace and adverb is not as strong as between the left brace and pronoun. Second, adverbs cannot cliticize with constituents of the left brace, so unlike pronouns, adverbs cannot adopt this retraction pattern through analogy. Third – a point that cannot be empirically attested to in the present study – adverbs presumably occur less frequently in the Wackernagel position than pronouns, so frequency effects cannot lead to an equally close relationship between the two elements.

4.3.2. Nouns or adjectives in nominal phrases

In the following, we will examine self-repairs of adjectives and nouns within nominal phrases ($n = 76$). The instances of self-repairs of the noun on this level of the model primarily involve semantic repairs. In this type of repair, the possibility for change in a nominal category (i.e., in case, number, gender, or definiteness) exists. When a nominal category is altered, as shown in example 4, a retraction to the beginning of the phrase is obligatory in order to reestablish agreement of the determiner or the adjective, respectively, with the “new” noun. These self-repairs of the entire nominal phrase with obligatory retraction to the beginning of the phrase are subsumed under the feature ‘other constituent’ and will be discussed in section 4.3.5.

In what follows, we will turn exclusively to the cases in which the old and the new noun have the same gender and, moreover, no other nominal category is changed. As will be shown, no additional morphosyntactic adjustments have to be carried out in the beginning of the phrase and, therefore, speakers have the option of retracting directly to the noun. We will also examine self-repairs of adjectives in which speakers can retract directly to the repairable without going back to the article. It is these instances where the feature ‘noun or adjective in a nominal phrase’ applies ($n = 76$). Of the 56 repairs of nouns and the 20 repairs of adjectives, a semantic repair is carried out in most of the cases ($n = 67$; 88.2%). Out of the 55 cases in which the repairable is preceded by another element of the nominal phrase (i.e., the repairable does not coincide with the beginning of the nominal phrase), 38 cases (70.4%) involve a retraction to the beginning of the nominal phrase.

The following example illustrates the general tendency of retracting to the beginning of the phrase, even if the retraction could go directly to the repairable:

(13)

```

->01 T: wollen sie die beschwErden nochmal* oder die SCHMERzen nochmal
        want you the discomforts again* or the pains again
        n bisschen- °h (-)
        a little
02 nochmal genAuer noch beSCHREIben,=
        again more precisely describe
        Would you describe your pains again a little more precisely

```

The fact that the entire nominal phrase is regularly repeated in substitutions of the noun demonstrates a close syntactic relationship between the elements of the nominal phrase. This tight bond is also reflected in the morphosyntactic agreement (in case, number, and gender) of the elements of the phrase. The distribution of the points of retraction, therefore, displays that speakers tend not to follow the basic motivation ‘rapidity of carrying out repair’, which would lead to a retraction to the repairable, but the motivation ‘preservation of a tight syntactic bond’.

This motivation, however, cannot be solely responsible. The motivation ‘analogy to obligatory retraction pattern’ also seems to play a crucial role in the selection of the point of retraction. Repairs of the noun can – as mentioned above – involve an alteration of nominal categories, so that in addition to the substitution of the noun, a substitution of the article or the adjective becomes necessary for reestablishing agreement. In these cases, a retraction to the beginning of the phrase is obligatory. Apparently, the mere potential of semantic substitutions of the noun to cause an alteration of a nominal category has led to a generalization of retracting to the beginning of the phrase in semantic repairs of the noun. The retraction to the beginning of the phrase, which is obligatory in a certain group of semantic repair, seems to have spread, by analogy, to those semantic repairs of the noun in which no nominal category is changed at all. In phonological repairs of the noun, by contrast, we find a different retraction pattern because no phonological repair carries the potential of changing nominal categories. This association of different repair structures with different types of problems (or, respectively, the same structure with the same type of repair) might be advantageous for the recipient. Presumably, the point of retraction can bring into play – similar to the point of interruption and repair markers (cf. Pfeiffer, 2015:320f, 350) – projections as to what kind of change in the emergent turn can be expected.

Another motivation for retractions to the beginning of the nominal phrase in semantic repair, an explanation that is compatible with the explanation given above, concerns the cognitive level of language production. In view of the different spans of retraction in semantic and phonological repair within the nominal phrase, it seems plausible that speakers need more time for semantic repairs, which comprise conceptualization processes, than for phonological repairs, which only concern the level of articulation. In other words, a retraction to the beginning of the phrase provides the speaker with more time than a retraction to the repairable. This interpretation is in line with the observation that multiple retractions seem to be associated in particular with semantic planning (cf. Pfeiffer, 2015:332f.). Taking into consideration this additional motivation does not mean, however, that the syntactic motivations ‘preservation of tight syntactic bond’ and ‘analogy to obligatory retraction pattern’ can be excluded from the model. Only they can explain why speakers retract to the beginning of the phrase and not to the adjective (if an article is also present) or to a constituent preceding the nominal phrase.

4.3.3. *Complements in prepositional phrases*

Let us now turn to the repairables to which the feature ‘complement in prepositional phrase’ applies. This section deals only with self-repairs in the prepositional phrase in which the preposition is not part of the repairable and, therefore, is not changed. The only exception is the alteration of a preposition through cliticization with an article. Overall, 142 instances of self-repair of complements of prepositions were present in the data – 140 nominal phrases and two adverbial phrases.

Within the prepositional phrase, different options are available for selecting the point of retraction, depending on the elements the complement is composed of (cf. Birkner et al., 2012). The only option given in every repair is retraction to the preposition. If the complement is a nominal phrase without an article, the speaker can, alternatively, also retract to the noun, or if the complement includes an article, the speaker can retract to it. If a nominal category is changed in a self-repair of the complement nominal phrase with an article, the article must be replaced as well because of the agreement in nominal phrases. In this case, the noun is ruled out as a possible point of retraction and the speaker can go back either to the article or to the preposition. If the complement nominal phrase includes an adjective, this constitutes another possible point of retraction.

Overall, the preposition is clearly the preferred point of retraction: 119 self-repairs (83.8%) exhibit a retraction to the preposition (see ex. 1 and 3).⁸ These retractions follow the motivation ‘preservation of tight syntactic bond’, which is weighted strongest, and, therefore, are in line with the explanatory model. Out of the 23 other cases (16.2%) which contradict the model, speakers retract to the article in 12 cases – that is, they virtually ignore the article (cf. Uhmman, 2006:189) – and to the noun in nine cases. Of the remaining two counterexamples, one retraction goes back to an adjective and one to a subjunction.

A possible explanation for the preference to use the preposition as a syntactic anchor can be found in, first, the tight morphosyntactic and phonological bond between the preposition and its complement in German, reflected in case assignment and the tendency of prepositions and articles to cliticize (cf. Fox et al., 2009a: 285). Second, it is possible that the motivation ‘analogy to obligatory retraction pattern’ works toward a retraction to the preposition as well, similar to retractions to the article in nominal phrases (see section 4.3.2). In the prepositional phrase as well as in the nominal

⁸ Even in repairs in which no nominal category is changed and, theoretically, the retraction can go directly to the noun, retracting to the preposition is clearly the preferred alternative (37 out of 50 cases; 74.0%).

phrase, there is a tendency to design all the semantic self-repairs in a structurally identical way, which distinguishes this group from instances of phonological self-repair.

Third, just as with the nominal phrase, the motivation to gain additional time for carrying out a semantic change provides another possible explanation for the retraction to the beginning of the phrase.

4.3.4. Complements in adjunctor phrases

We now turn to repairs of complements in adjunctor phrases ($n = 13$). These phrases consist of the adjunctor *wie* ('like') or *als* ('as') and a complement phrase, typically a nominal phrase (cf. Zifonun et al., 1997:79). In adjunctor phrases, four pronouns, four nouns, four articles, and one adjective are repaired. The following example shows one of the substitutions of a noun:

(14)

```
01 P23: dass er jetzt auch drüber REden kann;
        That he is able to talk about it now
02 T14: [<<leise> ja,>]
        <<soft voice> yes>
->03 P23: [          wenn] er mal als va'* äh als mUttermörder (.)
          if      he once as fa*  uh as mother murderer
          dann die ganze zeit im dorf          beSCHIMPFT wird-
          then all the time in the village insulted gets
          that he was constantly called 'mother killer' in his village
```

In twelve cases (92.2%), the speaker retracts – as shown in the example – to the adjunctor. In only one case (7.7%) does the retraction go back to an embedded single noun without repeating the adjunctor.

This distribution of points of retraction indicates that the motivation 'preservation of tight syntactic bond' has a strong influence in this syntactic context as well. This tight bond can be attributed to three properties. First, adjunctors are primarily followed by articles and pronouns, so a close relationship between these two syntactic constituents can be assumed (cf. Bybee and Scheibman, 1999). Second, there is a tendency of pronouns to enclitically fuse with the preceding adjunctor. The third property has to do with the preceding constituent adjunctor phrases refer to. Adjunctors themselves do not assign case to the embedded phrase, but the adjunctor phrase – if it has the capacity to do so at all – adopts the case of the constituent it refers to (Eggs, 2007:193). In these instances, case assignment is "mediated by the adjunctor as the operative connecting device" (Zifonun et al., 1997:80, translation MP). The adjunctor provides for "case matching" (Zifonun et al., 1997:80, translation MP). In the example, *als* ('as') passes on the nominative case of *er* ('he') to *mUttermörder* ('mother killer'). This case-mediating characteristic which puts adjunctors in the vicinity of prepositions seems to contribute to adjunctors and prepositions being treated as equal with regard to the point of retraction.

4.3.5. Other constituents

The last part of the explanatory model concerns self-repairs of the remaining syntactic constituents ($n = 739$). In these cases, no particular circumstances lead speakers to use a syntactic anchor, so they follow the basic motivation 'rapidity of carrying out repair' and retract to the repairable in most cases ($n = 636$; 86.1%). Self-repairs with the feature 'other constituent' that – against the motivation of rapidity – involve a retraction to an earlier point within the structure occur only rarely ($n = 103$; 13.9%).

This section is organized according to the temporal emergence of the syntactic structure. Therefore, we begin with the repaired constituents of the front field, which are predominantly pronouns. An interesting observation in self-repair of pronouns in the front field is that speakers nearly always retract to the repairable but almost never to a preceding constituent of the pre-front field. This result supports the assertion that a rather strong syntactic boundary exists between the pre-front field and the front field (cf. Auer, 1997:55).

In self-repairs of verbs in second position, the motivation 'rapidity' applies as well. In most cases, the retraction goes to the repairable ($n = 151$; 69.6%), and, more rarely, to a monosyllabic constituent of the front field ($n = 66$; 30.4%). This suggests that no particularly close syntactic relationship exists between the front field and the left brace. This is presumably due to the comparatively free constituent order in German, which permits virtually every constituent to occupy the front field (cf. Fox et al., 2009a:275f.). The weak bond is also reflected in the lack of cliticization of pronouns and subsequent verbs.

At this point, we have yet to consider the question of why only monosyllabic front field constituents are repeated in self-repairs of verbs. On the one hand, the motivation 'rapidity' seems to play an important role in avoiding bi- and polysyllabic anchors in the front field. On the other hand, the frequency of the combination of the front field constituent and the following

verb presumably has an influence on whether speakers treat the two elements as a unit in carrying out repair or not. The repeated monosyllabic constituents in the front field are exclusively pronouns and adverbs, which are all frequently used words. In the entire data collection, only one monosyllabic noun occupies the front field in self-repairs of verbs in second position and does not get repeated. A larger corpus comprising more low-frequency monosyllabic front field constituents is necessary to investigate more closely the influence of word frequency on the point of retraction in these instances of self-repair.⁹

Other self-repairs in the left brace concern relative pronouns and subjunctions, which are rarely repaired together with other constituents of the middle field of the clause. In all cases, speakers retract to the left brace, but not beyond. This suggests that the beginning of these subordinated clauses constitute a strong syntactic boundary.

In the middle field, primarily nominal and prepositional phrases are repaired. The feature 'other constituent' applies to those cases in which the article (in nominal phrases) and the preposition (in prepositional phrases) are the repairable or part of a complex repairable, respectively. Regardless of the topological field these self-repairs are located in, the retraction goes to the beginning of the phrase, that is, to the determiner ($n = 94$; 90.4%) or to the preposition ($n = 76$; 97.4%), in nearly all cases. Only extremely rarely do speakers retract beyond the boundary of a nominal phrase ($n = 10$; 9.6%) or prepositional phrase ($n = 2$; 2.6%). This result provides further evidence for the status of beginnings of nominal and prepositional phrases as strong syntactic boundaries.

Less frequently, a predicative adjective is repaired in the middle field ($n = 11$). In these cases, speakers tend to follow the motivation 'rapidity' and retract directly to the repairable ($n = 8$; 72.7%). The same holds for repairs of adverbs and pronouns in the middle field, but not in the Wackernagel position (see section 4.3.1). These self-repairs provide strong evidence against the view that the "functional head" (Uhmman, 2001:388) in the left brace is the crucial factor for selecting the point of retraction.

In self-repairs of verbs in the right brace, speakers almost exclusively retract to the repairable, regardless of whether it is a finite or infinite verb. Out of a total of 44 repairs of finite and infinite verbs in the right brace to which the feature 'other constituent' applies, speakers follow the motivation 'rapidity' in 41 cases (93.2%) by retracting directly to the repairable. In only three cases (6.8%), speakers return to an earlier position within the syntactic structure. One of the counterexamples suggests that a particularly strong bond between the verb and a preceding constituent of the middle field, as is the case with the prepositional complement in the following example, can lead to an inclusion of the middle field constituent as syntactic anchor:

(15)

01 Tja: mmh: (.) ich werd svEn auch noch mal dirEkt drauf **FRAGEN**;
hm I will sven PTCL once again directly with it ask*

->02 (-) drauf **ANsprechen**; (-)
with it confront

Hm I will confront Sven directly with it once again

In l.02, the pronominal adverb *drauf* ('with it') is repeated prior to the substitution of the verb *FRAGEN* ('ask', l.01) with *ANsprechen* ('confront', l.02).

In the post-field of the syntactic structure, almost exclusively nominal and prepositional phrases are repaired. In these cases, as mentioned above, the retraction goes back to the beginning of the phrase.

The feature 'other constituent' also refers to insertions of constituents (adverbs, articles, prepositions, nominal and prepositional phrases, modal and negation particles, adjectives, pronouns, verbs and conjunctions) ($n = 106$). In these instances, speakers almost always retract to the insertion slot, that is, the repairable ($n = 100$; 94.3%) and only rarely to a different syntactic position ($n = 6$; 5.7%). The only exception are pronouns inserted in the Wackernagel position. In these cases, speakers regularly go back to the left brace or the front field (see section 4.3.1).

5. Conclusion

Based on the analysis of a large collection of repairs, this study presents the first comprehensive explanatory model for the syntax of self-repair in German that predicts the point of retraction in self-repair with high accuracy. This concluding section reflects on the relevance of the model for the fields of syntax of spoken language and interactional linguistics.

⁹ It is possible that prosodic factors, such as rhythm and accent, have an influence on whether monosyllabic front field constituents are repeated in self-repair of verbs in second position. An investigation of these factors, however, has to be left to future research.

The explanatory model makes a contribution to the exploration of the syntax of spoken German in two respects. First, retractions in self-repair allow insights into the syntax of German in a general sense. Self-repairs provide empirical evidence for a tight syntactic bond between preposition and complement, between adjunct and complement, between determiner and noun, and between the left brace and pronouns in the Wackernagel position. Furthermore, retractions in self-repair suggest a strong boundary between the pre-front field and the front field as well as between the front field and the left brace, and indicate that the beginnings of nominal phrases, prepositional phrases and subordinate clauses constitute strong syntactic boundaries. Self-repairs follow, as previous work on syntactic aspects of self-repair suggests (cf. Fox and Jasperson, 1995; Fox et al., 2009a), the syntactic regularities of the respective language and are, therefore, to be seen as ordered and as phenomena able to be described with a high level of precision. Self-repairs do not – against the assumptions of certain generative linguists (cf. Grewendorf, 1993) – make it hard to explore syntactic structures, or even compromise the syntactic regularity of spoken language, but, to the contrary, provide insights into language-specific regularities. The syntactic knowledge speakers apply in carrying out repair encompasses central aspects of their general syntactic knowledge. Auer's (2005:99) assumption that self-repair draws on syntactic knowledge of the same kind “as in syntax elsewhere” can thus be confirmed. This finding provides a crucial argument against the “poverty of the stimulus” hypothesis (cf. Chomsky, 1965:58), which assumes that spoken language input is not an adequate basis for language acquisition. In this respect, one should bear in mind that self-repairs are a very special kind of linguistic input. Self-repair is a practice that operates on the syntactic structure of a language. Therefore, it not only presents the grammatical structures and leaves it to the child to filter out certain features for creating syntactic knowledge, but – by selecting a point of retraction – provides explicit indications of which syntactic bonds and boundaries between constituents are particularly strong. Hence, self-repair – often seen as a prime example of the deficiency of linguistic performance (cf. Chomsky, 1965:4) – seems perfectly suited for conveying certain aspects of syntactic knowledge to the language learner (cf. Goodwin, 1981:170–172; Auer, 2005:99; Uhmman, 2006:198).

Let us now turn to the second contribution of investigations into the syntax of spoken German. Self-repair not only reflects the “proper” syntax, but is also an integral part of the syntax of spoken language. Therefore, by developing an explanatory model for the structure of self-repair, the present study describes and explains a phenomenon specific to the syntax of spoken language. On the one hand, the general syntactic properties of German influence, as we have seen, the syntactic structure of self-repair in decisive ways. However, on the other hand, syntactic factors are not sufficient for comprehensively explaining the structure of self-repair. In certain syntactic contexts, for example in self-repairs of adverbs in the middle field or of nouns in nominal and prepositional phrases, the point of retraction can only be explained by taking into account other factors, namely processability and, in particular, the rapidity of carrying out repair. The specific temporality of spoken language, which is repeatedly stressed in the literature (cf. Hausendorf, 2007; Günthner and Hopper, 2010; Deppermann and Günthner, 2015), also plays an important role in the syntactic organization of self-repair. The interactional need to resolve a (potential) problem as quickly as possible, which is closely linked to the preference for progressivity (Schegloff, 1979; Stivers and Robinson, 2006), influences not only the use of repair markers and the point of interruption (Pfeiffer, 2015:320, 338f.), but also, as was shown in this paper, the selection of the point of retraction.

The central contribution of the present study to interactional linguistics is the description and explanation of the syntactic structures which implement the interactional task of dealing with certain conversational problems. These structures have been explained by modeling the interplay of various competing motivations which have, as their origin, the interactional and cognitive conditions of language use. These competing motivations have led to the frequent use of certain self-repair patterns, patterns that have established themselves as “sedimented conventions” (Hopper, 1998:163) in language use and are available to speakers and recipients for producing and processing self-repair. The usual success of self-repair – maintaining successful interaction “under high pressure of time and pressure to act” (Auer, 2007:96, translation MP) – seems to be ensured to a large degree by the reproduction of conventionalized patterns for carrying out self-repair. These “routines” (Hopper, 1998:159), depicted by the model, are an important instrument for dealing with the contingencies of interaction and, therefore, contribute crucially to establishing and maintaining “social order” (cf. Bergmann, 1994:5) in conversation.

By describing and explaining a structural aspect of a part of the repair system, which allows interactants to deal with the “intrinsic troubles” of natural languages (Schegloff et al., 1977:381), the presented model contributes to our understanding of self-repair from an interactional linguistic and conversation analytic perspective.

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