

Segment deletion in the *Kiel Corpus of Spontaneous Speech* *

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1 Introduction

In this paper we examine the characteristics of symbolic consonant deletions in the *Kiel Corpus of Spontaneous Speech*. This survey comprises the 31 phonetically labelled dialogues of CD-ROM#2 (IPDS 1995) together with a further 43 dialogues which form a subset of the data on CD-ROMs#3–4 (IPDS 1996, 1997). This data base is identical to that used in Helgason and Kohler (1996). The primary focus is on deletions that have been labelled with an MA marker, which denotes that some phonetic correlates of the deleted segment can be detected in the signal (see Helgason and Kohler 1996). Such cases, we believe, give valuable insights into the articulatory processes involved in reduction.

Symbolic consonant deletions refer to the deletion of consonantal segments with reference to canonical lexical citation forms (as laid out in Helgason and Kohler 1996). In the present discussion, a distinction is made between symbolic deletions that have no adjacent deleted segment, and deletions that occur in conjunction with another deletion, i.e. when a preceding and/or following vowel or consonant is also deleted. Henceforth the former are referred to as single deletion and the latter as multiple deletion, and treated in separate sections. This refers only to deletions within a lexical item, so that, e.g., the consecutive deletion of two segments that occurs across a word boundary is counted as two single deletions.

The data used for this survey contain 3018 single deletions (of vowels and consonants) and 295 multiple deletions¹. The MA marker has been applied in 427 instances

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¹Helgason and Kohler (1996) exclude schwas from their discussion of vowel deletions (for the rea-

of single deletion (=14% of total number of deletions), and in 51 instances of multiple deletion (=17% of total number of deletions).

2 Single deletions

Symbolic deletions of consonants² are very common in the *Kiel Corpus*, totalling 3997 occurrences, of which 2187 are single deletions and 1810 occur in combination with another deletion (e.g., a consonant deletion with a following @-deletion occurs 644 times). Table 2 gives an overview of the frequency of occurrence of different consonant types, listing only the instances of single deletion. In total there are 46016 consonantal segment labels in the *Corpus*, which means that slightly fewer than 5% of them are deleted.

The alveolar plosive *t* has by far the highest number of deletions, 1147 cases, comprising more than half of the total number of deleted consonants in the *Corpus*. For *t*, deletions represent 17% of the total number of occurrences, which is far higher than for other consonants. Approximately half of the *t*-deletions occur before a plosive, usually *d* or *t*, and for about 80% of the remaining deletions, an unvoiced fricative precedes the *t*-deletion. It should also be noted that relatively few word tokens are responsible for the *t*-deletions. For example, deletion of *t* in *und* (in its various forms) occurs 496 times, in *ist* 234 times and *nicht* 115 times. Since the *t* in these words is word-final, it is likely to merge with a following word-initial *t* or *d*, which, as just mentioned, is extremely common.

For other consonants, *d*, *n* and *l*, along with the palatal fricative *ç*, are most frequently deleted, all with more than 100 cases. For *ç* and *l*, deletions represent 8% of the total number of occurrences, while for *n* they make up only 3% and for *d* only 2%. For the remaining consonants the frequency of occurrence of deletions ranges from 0 to 74 instances.

A single consonant deletion with an MA marker occurs 214 times in the *Corpus*. (*Appendix A* gives an overview of the contexts in which these deletions occur and lists all instances of this type of deletion.) Since the present study focusses on MA-deletions, consonants that have few or no MA cases are not discussed further, and investigation of those deletions must be deferred until more data are available.

By this token deletions of *p* are not considered here, since MA is never used in connection with a *p*-deletion. Only 6 cases of *t*-deletion are further marked with MA, despite the very frequent occurrence of deletion for *t*, and we find that these cases are not adequate as a basis for further investigation.

Twenty-five cases of *k*-deletion are also marked with MA (45% of deletions). In all

sons that “they set themselves apart from other vowel deletions in that their frequency of deletion is far higher than that of other vowels and because they seldom have an MA marker associated with them”); likewise here multiple deletions consisting of a schwa and consonant(s) (not necessarily in that order) are not included in these figures, although they are brought into the discussion of multiple deletions.

²For further discussion of vowel deletions see Helgason and Kohler (1996).

Consonant	Canonical	Replaced	Deleted	(% of tot)	MA-del	(% of del)	Total
p	690	9	30	(4)	0	(0)	729
t	5481	234	1147	(17)	6	(1)	6862
k	1214	396	56	(3)	25	(45)	1666
b	1454	98	2	(0)	0	(0)	1554
d	4072	319	116	(3)	23	(20)	4507
g	1047	33	11	(1)	2	(18)	1091
f	2066	6	36	(2)	2	(6)	2108
s	4616	48	43	(1)	2	(5)	4707
ʃ	609	0	0	(0)	0	(—)	609
ç	1865	69	177	(8)	69	(39)	2111
x	1002	62	74	(7)	19	(26)	1138
h	587	8	52	(8)	22	(42)	647
v	2648	26	27	(1)	16	(59)	2701
z	1738	17	8	(0)	5	(63)	1763
ʒ	0	0	0	(—)	0	(—)	0
j	886	8	12	(1)	6	(50)	906
r	1419	0	39	(3)	6	(15)	1458
l	1812	6	151	(8)	6	(4)	1969
m	3058	30	15	(0)	2	(13)	3103
n	5611	239	174	(3)	3	(2)	6024
ŋ	342	4	17	(5)	0	(0)	363
Total	42217	1612	2187	(4.8)	214	(9.8)	46016

Table 1: The frequency of occurrence of different consonant types. The contexts preceding and following the consonant either contain an undeleted segment or no segment at all. Note that the category Deleted includes both simple deletions and MA-deletions.

but one of these cases the MA-deletion occurs in the word part *-tag* (e.g. *Tag, Montag, Freitag*). In 19 cases the following word begins with *d*, typically the definite article (*den, dem, der* etc). These MA cases mostly involve the coarticulation of *k* with a following *d*, resulting in a double articulation where a velar character can be detected leading up to the closure, while the release is apico-alveolar. These cases are not discussed further.

Among the lenis plosives, only *d* has enough MA cases to warrant further attention here, since for *b* there are no MA cases, and for *g* only 2. Symbolic deletions of *d* are discussed in Section 2.1.

For unvoiced fricatives, *f* and *s* have only two MA cases each, and *ʃ* has none, so none of these is examined further at present. The palatal *ç* and the velar *x*, however, have 69 and 19 cases respectively, and the glottal fricative *h* has 22 cases. The deletions of *h* and *x* are discussed further in Sections 2.2 and 2.3 respectively. Despite the frequent occurrence of MA for *ç*, the cases are fairly homogeneous since 44 of these instances involve *ç* before *s*, always in the ordinal number morpheme *-igst-* in its various forms (e.g. *fünfundzwanzigsten, einunddreißigste*). In such cases *ç* assimilates with the following *s*; cases marked with MA are dealt with in Section 3.3.

Voiced fricatives are infrequently deleted and consequently have relatively few MA cases. The labiodental *v* has 16 cases, the apical *z* has 5 and *j* and *r* have 6 each. Since it turns out that the MA-deletions in these cases have similar characteristics, they are dealt with collectively in Section 2.4.

Among the sonorants there are, again, relatively few MA cases. For the nasals, *n* has 2 cases and *ŋ* none, *m* has 2, while the lateral *l* has 6 cases. The cases for *m* suggest that the labeller has found insufficient cues for a canonical *m* — although there is incipient nasality and lip-narrowing signalled by formant lowering — nor has he wished to characterize the section with the nasal marker *~* alone. Cases of *l*-deletion are dealt with more fully under multiple deletions in 3, here it is sufficient to say that half of the cases of single deletions mirror what is found in multiple deletions of *l*.

Certain environments seem to induce more readily than others the type of articulation marked with MA. For example, of the 23 MA cases for *d*, 17 occur in intervocalic position, and of the 22 MA cases for *h* 16 are intervocalic. Of the 16 MA cases for the voiced fricative *v*, 14 occur when it is preceded by a consonant and followed by a vowel (irrespective of word boundaries). Deleted dorsal consonants preceded by a vowel and followed by a consonant frequently have MA markers. For *k* in such a context there are 22 MA markers, 66 for *ç*, and 15 for *x*. These consonants (i.e. *h, d, v, k, ç* and *x*), account for 174 of the 214 (approximately 80%) of the MA markers in connection with consonant deletion.

It should be noted that in some cases MA (and deletion in general) occurs frequently in specific words or morphemes. This is especially true for *ç* and *k*, largely attributable to the ordinal number morpheme *-igst-* and to the word part *-tag* respectively: both occur frequently in the *Corpus*.

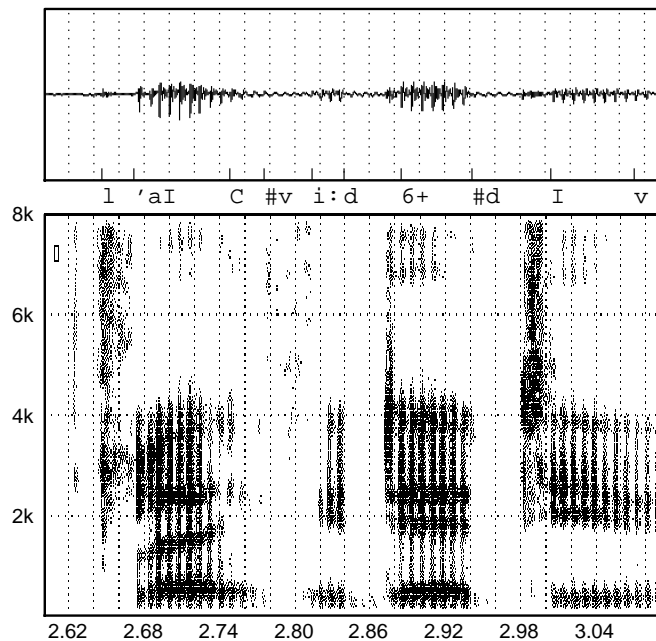


Figure 1: [...] gleich wieder div[erse ...]
 l 'aI C #v i:d 6+ #d I v
 (Ref: OLV g125a001)

2.1 Symbolic deletion of /d/

The *Corpus* contains a total of 116 symbolic deletions of *d*, of which 49 (i.e. 42%) occur in intervocalic position (this includes word-initial *d* that is preceded by a vowel). The MA marker is applied more often for deleted *d* in intervocalic position than in other positions (17 are intervocalic against 6 in other positions). Among the word tokens that have an MA intervocalically are e.g. *das* (6 instances), *da* (2), *wieder* (2) and *oder* (2). However, only 2 instances of single *b*-deletion are found, neither of which have an MA marker; of 33 instances of *g*-deletion, only two instances have MA.

In the *Corpus*, an intervocalic *d* in a word like *wieder* or *oder* is usually represented by an apical occlusion that is typically ca. 25-30 ms. long, usually voiced, with a release of about 5-10 ms. Figure 1 is a spectrogram of the production of *wieder* where the *d* is produced in this manner. This can be taken to represent a “hyper-version” of the production of intervocalic *d* of *wieder*. The data, however, provide numerous instances where, by comparison with this hyper-version, an intervocalic *d* is reduced. This can happen in two ways:

1. through a reduction in the degree of stricture produced; and
2. through a reduction of the amount of time allocated for the production of the stricture.

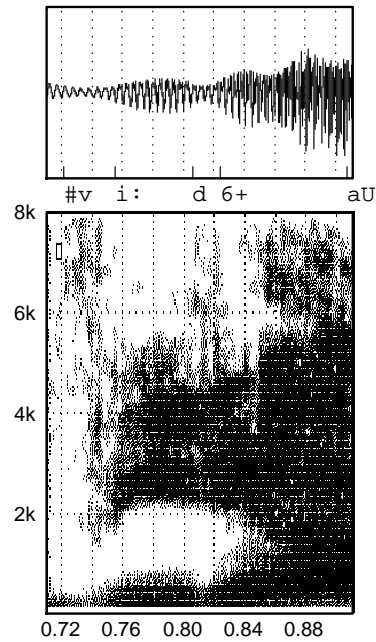


Figure 2: [... schon] wieder [auf ...]
 v' 'i : d6+
 (Ref: SAR g195a012)

Henceforth we refer to the first of these as lenition and the second as temporal compression. As is later shown, these are in principle independent parameters, although there is considerable correlation between them.

Lenition can be viewed in terms of gestural undershoot (cf. Lindblom 1983), i.e. the stricture involved in the production of the d does not reach target, resulting in the production of a fricative or approximant rather than a plosive. Figures 1–5 are all examples of the production of the word *wieder*, demonstrating the gradual reduction of stricture from a plosive in Figure 1 (hyper-version) to an apparent absence of stricture in Figure 5 (complete deletion).

The production of the $vi:d$ syllable involves, apart from the labial element, the production of a high front vowel and an apical stricture, which, in the hyper-version (Figure 1), takes the form of a complete closure. In Figure 2, the closure is not attained and the resulting articulation can best be described as a flat apico-alveolar fricative δ^3 . Since no build-up of pressure occurs during the stricture there is not the release we find in the hyper-version.

Figures 3 and 4 involve approximants with differing degrees of stricture. In Figure

³It is convenient to extend the IPA conventions regarding the use of $[\delta]$, $[z]$ and the diacritics $[_]$ and $[_]$ in order to be able to symbolize the full range of coronal (apical and laminal) fricatives/approximants: $[\delta]$ and $[z]$ are redefined as flat and grooved coronal articulations respectively; $[_]$ and $[_]$ then mark the dental or (post)alveolar place of articulation. So $[\delta]$ refers to a flat apico-alveolar fricative and $[\delta]$ to the corresponding approximant.

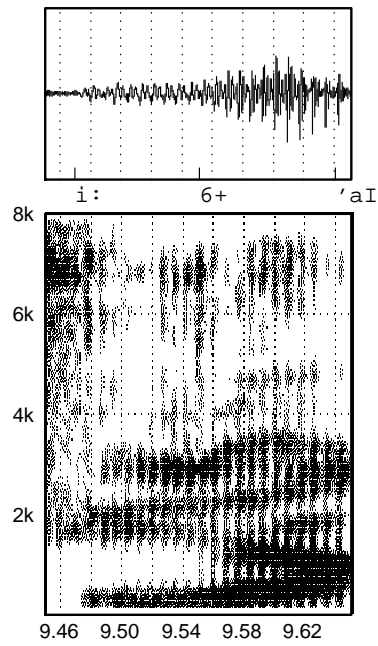


Figure 3: [... ich] wieder [eigentlich ...]
 v' 'i:=-MA d- : 6+
 (Ref: HAH g077a005)

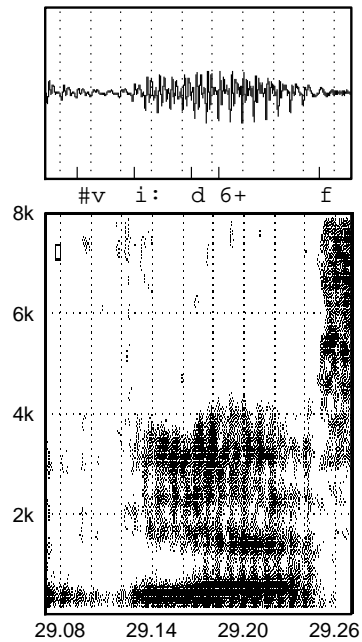


Figure 4: [... wäre] wieder f[rei ...]
 v i: d 6+ f
 (Ref: CHD g212a001)

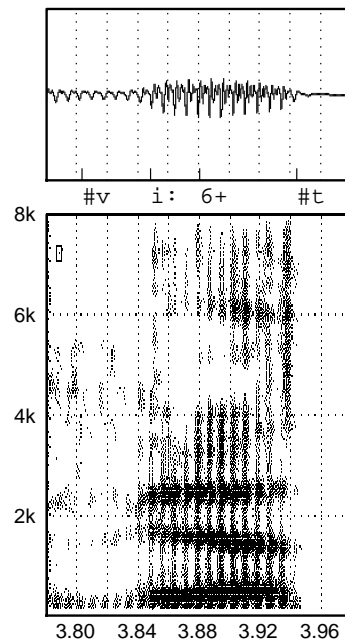


Figure 5: [... dann] wieder z[urück ...]
 vi:d-:6+ t
 (Ref: SVA g312a012)

3 the intervocalic stricture is more lax than in Figure 2, but is still notably present, and thus the main difference between the production of \bar{d} in Figure 2 and Figure 3, is that the former is fricated and the latter not. Hence the latter can be described as a flat apico-alveolar approximant $[\bar{d}]$ rather than fricative. Figure 4 represents a further degree of reduction from that in Figure 3, but may still be characterized as an approximant: it is questionable whether the \bar{d} in Figure 4 might not have been labelled with MA like the \bar{d} in Figure 3 (making the label $\bar{v}i:-MA\bar{d}-:6+ f$ instead of $\bar{v}i:d6+ f$) but this should perhaps be only reluctantly characterized as a transcription error, as the labeller has perceived the articulation as functionally a \bar{d} .

In Figure 4 the approximant stricture probably takes the form of a slight apical movement, barely audible, separating the vocalic portions [i] and [ə]. Figure 5 represents the end of the reduction scale; auditorily the utterance is a sequence of two vocalic portions and the apical gesture is apparently no longer present. Collectively, the examples in Figures 1–5 represent a reduction continuum in the degree of stricture for \bar{d} , showing increasing degrees of undershoot for the apical gesture.

In the case of temporal compression, i.e. the reduction of the amount of time allocated for the production of the stricture, it does not necessarily follow that there occurs a concomitant reduction in gestural magnitude, although this is often the case. Rather, the duration of the stricture is reduced in relation to that seen in the hyper-version in Figure 1. Thus a speaker may reduce the time-span allotted to the apical

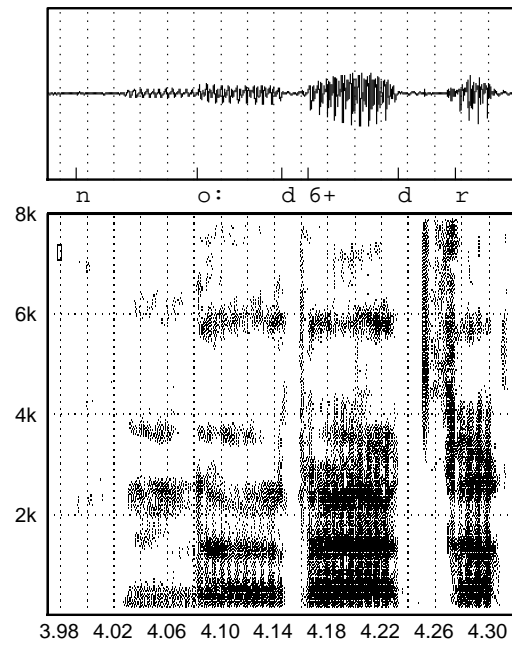


Figure 6: [... sechzehnte]n oder [dreiund ...]
 n o:d6+
 (Ref: REK g115a014)

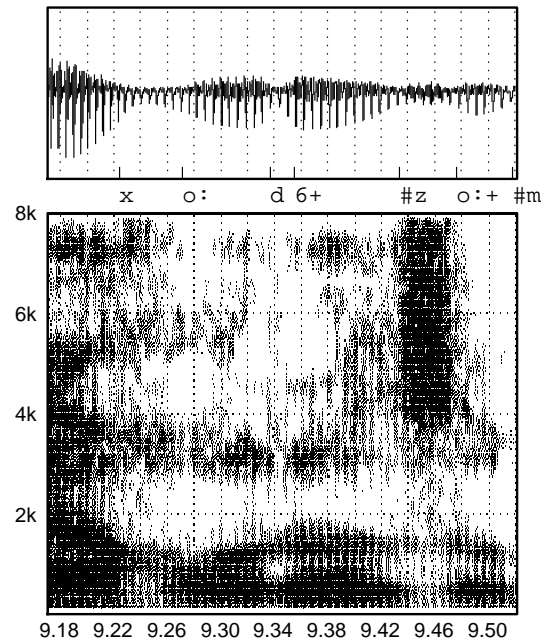


Figure 7: [... Freita]g oder so [...]
 k-x Q-:o:d6+ zo:+
 (Ref: SAR g191a013)

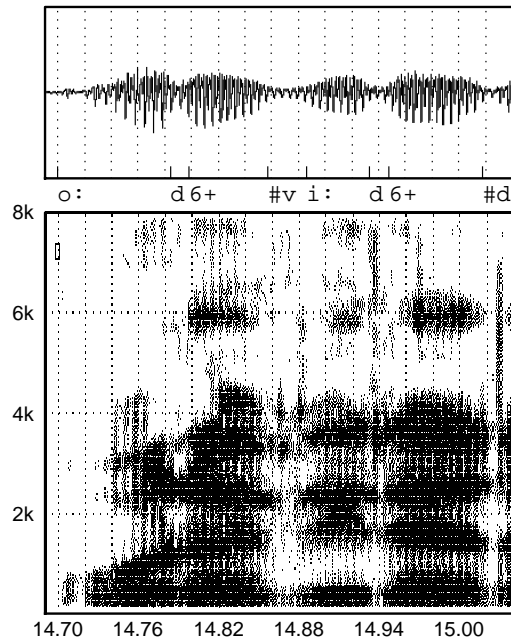


Figure 8: [... sechzehnter] oder wieder d[reiund ...]
 Q- : qo : d6+ v i : d6+ d
 (Ref: REK g113a012)

gesture, but still attain an apical closure by increasing the speed with which the gesture is implemented (see Lindblom 1983). The resulting articulation is a very short apical occlusion with a short release, a common occurrence for intervocalic *d* in words like *wieder*, *oder* and *leider*. Figure 6 presents an occurrence of *oder* where the intervocalic *d* is produced in this manner. The duration of the closure phase is approximately 12 ms. while the duration of the release is about 8 ms., so this can be characterized as a compressed version of the hyper-version of *d*.

However, as indicated above, temporal compression and lenition often do go together. For example, a comparison of the 4 instances of *wieder*, presented in Figures 2–5, reveals that the cases of lenition tend to have shorter overall duration; thus the instances in Figures 2 and 3 seem to be somewhat longer than the instance in Figure 4, which in turn is slightly longer than that in Figure 5. Also, Figure 7 shows an instance where the *d* of *oder* is produced with a very short apical stricture which does not reach target. Thus both temporal compression and lenition apply here; the time allotted for the production of the gesture is limited and the degree to which the gesture is implemented is reduced.

The data also suggest that under time constraints, speakers may apply alternative strategies to the production of intervocalic *d*, viz. that a tap [r] is produced in place of a plosive or lenited plosive. The tap involves a reorganization of the nature and the timing of the apical gesture, introducing what has been called a ballistic movement of the tongue tip (cf. Abercrombie 1967). Thus, although probably conditioned by

temporal compression, this method of producing the intervocalic d cannot be directly ascribed to a process of lenition. Rather, it should be regarded as articulatory reorganization, brought about by the speaker's attempt to produce closure-like quality under increased time constraints. The production of an intervocalic tap is exemplified by the production of *oder* and *wieder* in Figure 8.

The intervocalic tap seems to be especially common for the function word *oder*, much more so than for, e.g. *wieder*, possibly because the dorsal configuration for the front vowel of *wieder* gives less freedom for the ballistic apical movement needed for the production of the tap than the back vowel of *oder*. Thus for *wieder* we find instead a fricated momentary stricture (which still is auditorily very tap-like), while for *oder* we tend to get a clearer tap closure.

As regards the use of the MA marker with intervocalic d -deletion, it can be said that when applied, the MA most often relates to a reduction in the degree of stricture (i.e. lenition). However, lenition is more often labelled as d , since a deletion is not really involved. Also, there are some cases of lenition to fricative or approximant which have been labelled as deletions of d , where the use of an MA marker can be justified. Tap articulations are labelled simply as d in the majority of cases.

2.2 Symbolic deletion of /h/

52 single deletions of h are found in the *Corpus*, of which 22 have an associated MA marker. h is by its very nature always followed by a vowel; the deleted h is preceded in 37 cases by a vowel and in 9 cases by a sonorant (m , n or l). So in most cases symbolic h -deletion occurs intervocalically (usually across a word or compound boundary), or at least following a sonorant.

In a few cases, h is represented by a completely voiceless glottal fricative $[\text{h}]$. Figure 9 shows such an instance, where the appearance of a clear formant structure reflects the mid open vowel $[\text{a}]$ in the surrounding vocalic context. However, such instances occur relatively infrequently. More typically, the production of an intervocalic h involves a change in phonation type (laryngeal setting) from modal voice to breathy voice (rather than voice offset as in Figure 9) and back to modal voice, during otherwise continuous oral opening. The resulting articulation is a VCV-type sequence, where a stretch of breathy voice represents the consonantal element between two stretches of modal voice representing the vocalic elements. The degree to which the change of phonatory setting to breathy voice is carried out is very variable and from the intervocalic occurrences of h a continuous scale of breathiness from full devoicing to apparent deletion can be established.

Figures 10–12 show the scale of degree of breathiness as exhibited in the production of the sequence *da habe*. Figure 10 is an example of heavy breathiness, which can be characterized as a voiced glottal fricative $[\text{ɦ}]$. In Figure 11 there is less breathiness between the vocalic portions, so phonetically this should be described as a breathy vowel $[\text{a}]$ rather than a voiced glottal fricative. In Figure 12 the breathy character of the consonantal articulation is difficult to identify as such, both auditorily and in

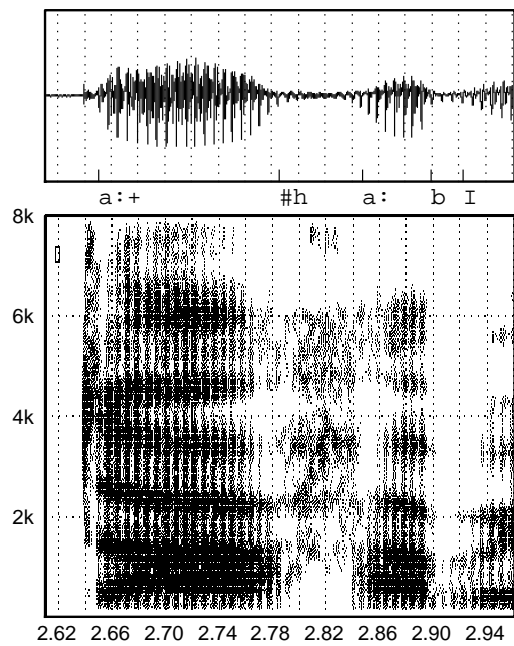


Figure 9: [... d]a habe i[ch ...]
 a: + ha:b@-: + Q-: I
 (Ref: JAK g111a013)

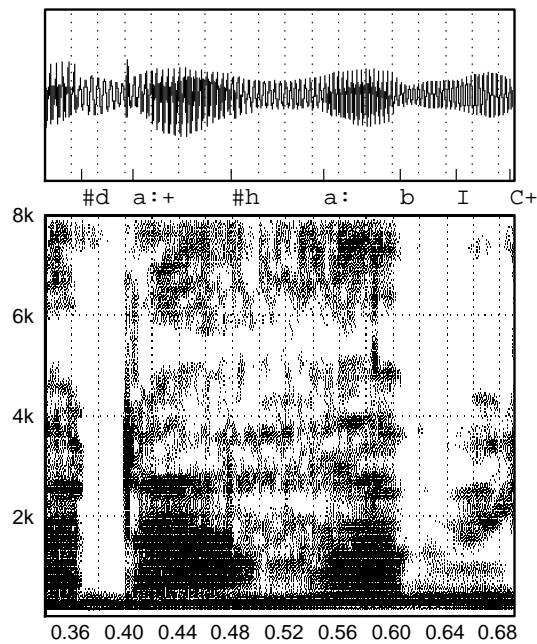


Figure 10: [...] da habe ich [...]
 dha: + h''a:b@-: + Q-: IC
 (Ref: KAP g126a017)

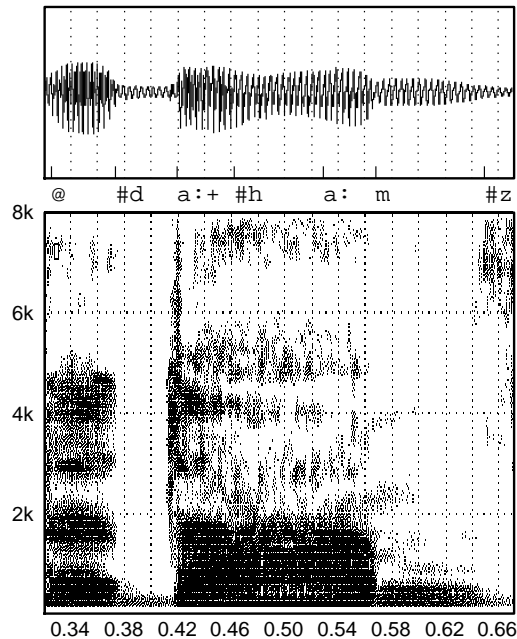


Figure 11: [...] da haben S[ie ...]
 dha:+ ha:b-m@-:n-: +z
 (Ref: WEM g254a013)

the spectrogram. Nevertheless the speaker does make some adjustment to phonation, discernible from an energy trough between two vocalic portions discernible in the waveform at approximately 0.42 sec., so this may be an indication that an attempt is being made to separate the two syllables. A case could be made here that the articulation could have been better labelled with the MA marker, as some residue of the h is discernible in the signal: in this case an alternative for the labelling would be a:+ =-MAh-:a:bh@-: + Q-:I instead of a:+ h-:a:bh@-: + Q-:I.

None of the three examples in Figures 10–12 seems to be spoken under severe time constraints, even though Figures 10 and 11 do show a gradual temporal reduction from the example in Figure 9. Thus in Figure 9, the duration from vowel onset in the [a] of *da* to the vowel offset in the [a] of *habe* is approximately 250 ms., in Figure 10 200 ms., in Figure 11 150 ms., and in Figure 12 210 ms. However, in the example in Figure 13 the duration of this stretch is only 80 ms., indicating temporal compression by comparison with Figure 12. This shows that the degree of temporal compression and the degree to which breathy voice is applied seem to be, in principle, independent parameters, in the same way as we have seen that the degree of stricture for d is independent of time constraints (cf. Section 2.1). The example in Figure 13 also shows an energy trough where one would expect breathiness (similarly to the example in Figure 12), despite the heavy temporal compression. Auditorily, there is also a clear separation between the vocalic elements [a] of *da* and *habe*, and certainly the production of this sequence is differentiated from the realization of the canonical sequence *dam*. Thus,

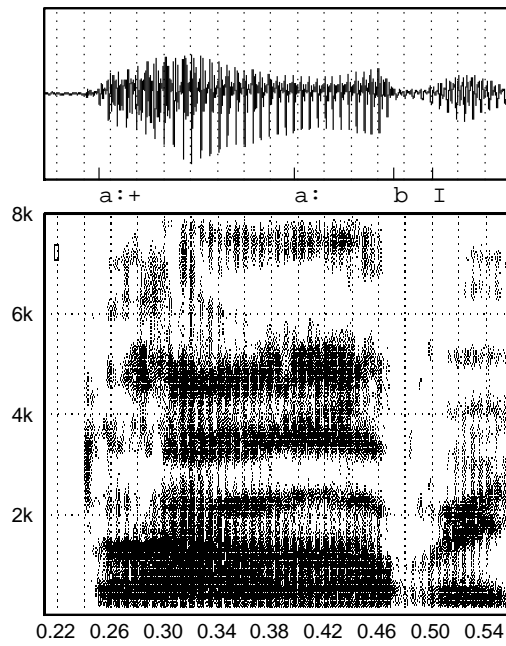


Figure 12: [... d]a habe i[ch ...]
 a: + h- : a: bh@ - : + Q- : I
 (Ref: BAC g147a001)

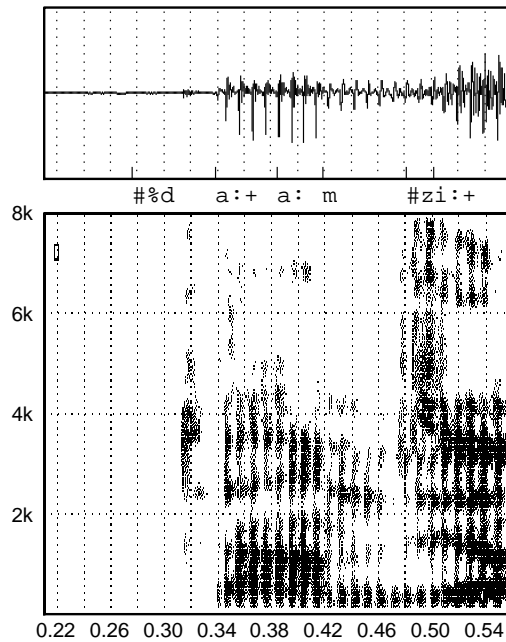


Figure 13: [...] da haben Sie [...]
 +%dha: + =-MAh- : a: b-m@ - : n- : + zi: +
 (Ref: HAH g071a019)

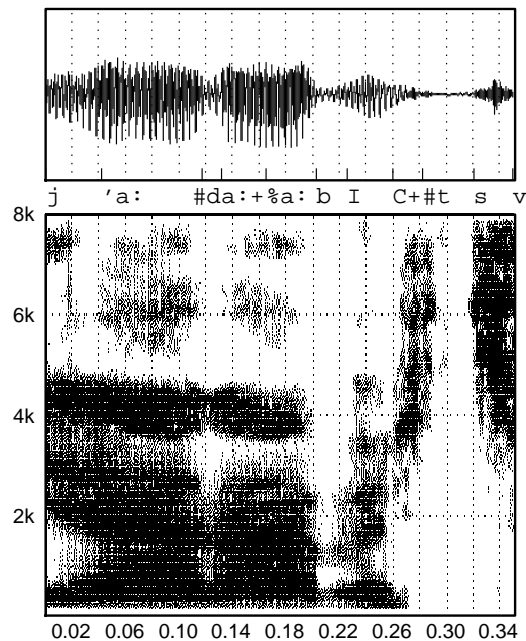


Figure 14: [...] ja da habe ich [...]
 da:+ h-:%a:b@-:+ Q-:IC+
 (Ref: MAB g306a018)

in this example, the production of a vocalic aperture with a trough is achieved within a space of approximately 65 ms. (as opposed to 200 ms. in Figure 12), indicating that the speaker has a great degree of accuracy in his control of the glottal adjustments involved.

Finally, the example in Figure 14 is a case where, auditorily, the production of the *da#hab* sequence is not perceived as disyllabic, but rather as a sequence of apical stricture for *d* (actually a tap in this case), vocalic aperture for [ɐ], and labial approximation for *b*. However, the possibility that the production of the vowel is overlaid with a hint of breathiness is not excluded, although this is difficult to determine.

This series of examples of the production of *h*, from Figure 9 to Figure 14 can be taken as reflecting a process of reduction in *h*, going from the full unvoiced glottal fricative to apparent deletion. *h*-reduction is superficially opposed to *d*-lenition, the former involving a progressive closing of the glottis (devoicing → breathy voice → modal voice), the latter a progressive opening of the occlusion (full apical closure → apparent absence of the apical gesture); it could be argued, however, that *d*-lenition and *h*-reduction involve return to a default articulatory state, viz. unconstricted vocal tract and adducted vocal folds suitable for voicing.

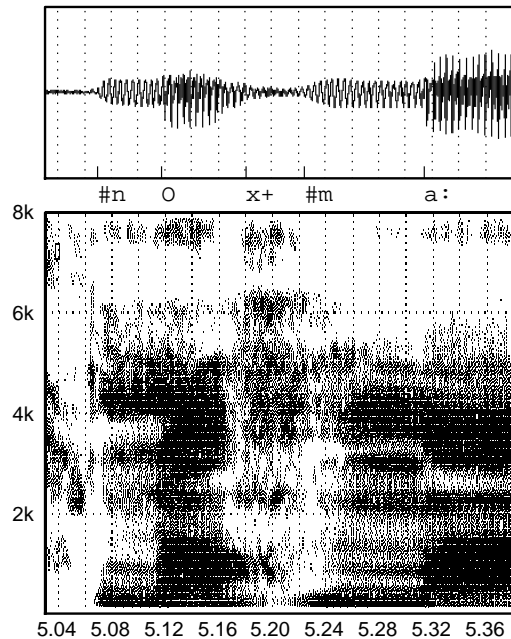


Figure 15: [... doch] noch ma[...]
 nOx+ ma:
 (Ref: SIK g254a010)

2.3 Symbolic deletion of /x/

Of the 74 single x-deletions, 19 are labelled with an MA marker. In 15 cases the x is word-final (in words such as *noch* and *auch*), and the instances of medial x-deletion occur in the words *machen* (2 occurrences), *mittwochs* and *nachmittags*.

Figure 15 shows a hyper-case of x with velar friction from 5.18 sec. A trough in amplitude in the waveform between the preceding vowel and the following nasal (across a word boundary — the utterance is *doch noch mal*) are concomitant with a clear velar stricture. In Figure 16 (same speaker; the utterance is *danach noch mal*) the bilabial closure of m immediately follows the vowel, and the first half of the bilabial nasal is made with breathy rather than modal voice. It is difficult to determine whether the velar stricture is present, but if it is, it is completely hidden by the bilabial nasal. However, the presence of breathy nasality during the bilabial closure indicates that the glottal parameter for x is still present in the signal.

This instance may be interpreted similarly to many instances of vowel deletion discussed in Helgason and Kohler (1996). There, vowel deletion was seen to occur as an effect of the intrusion of a consonantal gesture into a preceding vocalic one. In the case in Figure 16, then, the bilabial gesture of m is implemented early and thus “intrudes” on the velar gesture of the preceding x, apparently without affecting its glottal component, hence the presence of breathy voice. Figures 17–19 show three instances of the word sequence *machen wir*, spoken by the same informant (OLV).

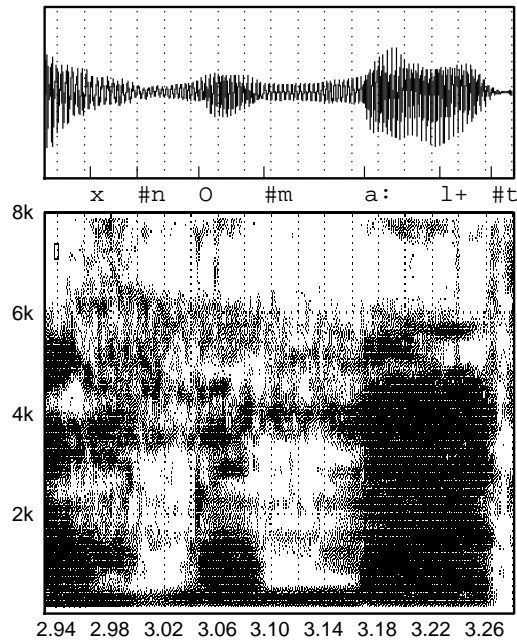


Figure 16: [... dana]ch noch mal [...]
 x nO=-MAx-: + ma:l+
 (Ref: SIK g254a010)

None of these instances can be taken to represent a possible hyper-version of this utterance, since in such a case the production of the syllable x@n would involve an unvoiced velar stricture, unstressed central vowel (schwa) and an apical nasal (or, in the absence of a full schwa, a syllabic apical nasal).

Of the three instances of *machen wir* shown here, Figure 17 most closely resembles a hyper-version. The utterance is *gut, machen wir*, where the production of x clearly involves a voiced velar stricture, in this case slightly voiced. The nasal following the velar fricative is assimilated to a velar place of articulation, and this is immediately followed by labiodental narrowing for v: this instance might be transcribed as [maxŋ̃vɪə].

In Figure 18 the clear formant structure of the consonant x indicates that the velar stricture is not attained. Still the appropriate glottal adjustment is made resulting in a voiced glottal fricative [ɦ]. Thus the apparent absence of a velar stricture for x does not simultaneously result in a change to modal voice, which suggests that the production of the oral constriction is independent of the production of the glottal parameter.

In Figure 19 the only correlate of the production of x appears to be the presence of breathy voice in the signal (at approximately 0.62 sec.), where one would expect the velar fricative to appear. So there is a reduction not only in the degree of stricture for x, but also in degree of adjustment of the glottal configuration, resulting in breathy voice similar to the production of some instances of h seen earlier (see Section 2.2).

Figures 17–19 represent a reduction process for the velar fricative x, going from

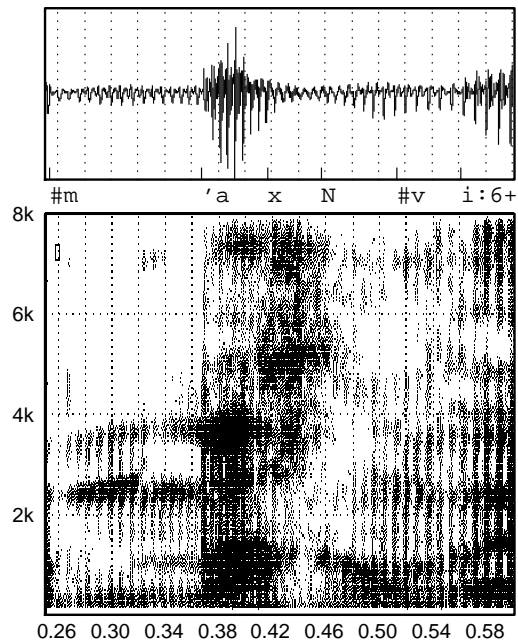


Figure 17: [... gut] machen wir [...]
 m'ax@-:n-N vi:6+
 (Ref: OLV g124a010)

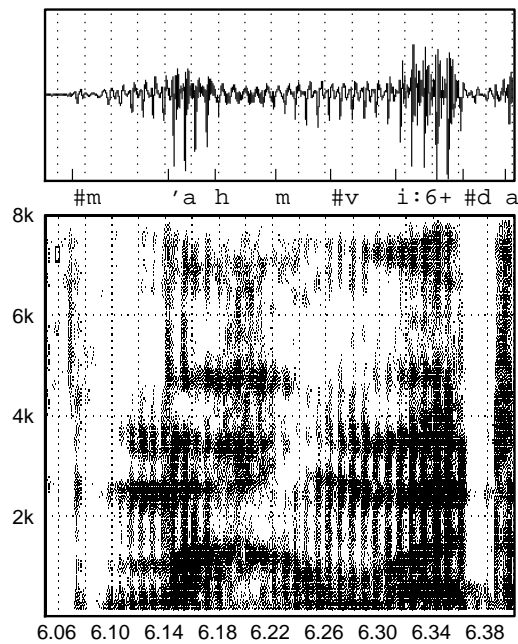


Figure 18: [... dann] machen wir [...]
 m'ax-h@-:n-m vi:6+
 (Ref: OLV g123a017)

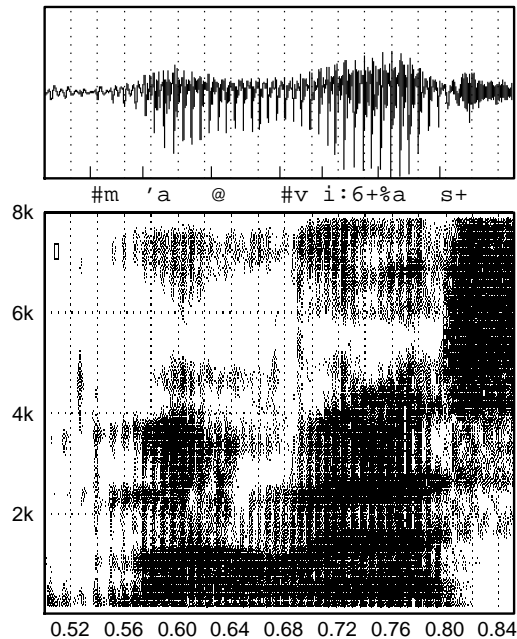


Figure 19: [... gut] machen wir das [...]
 m'a=-MAx-:@~n-: vi:6+ =-MA \bar{d} -:as
 (Ref: OLV g121a024)

full velar stricture with friction in Figure 17 to breathy phonation in Figure 19. Interestingly, we find parallels to this both in the process of \bar{d} -lenition (see Section 2.1) and in the reduction of h (see Section 2.2), since the reduction in the degree of velar stricture can be described as lenition, while the reduction in the transition from modal to breathy voice directly parallels that seen in the reduction of h .

2.4 Deletions of voiced fricatives

Relatively few instances of symbolic deletions of voiced fricatives are found in the *Corpus*. There are 39 labelled deletions for r , 27 for v and 12 for j but only 8 for z . However, these instances do tend to have an MA marker: $v-:$ has 16 MA markers, $r-:$ and $j-:$ have 6 each, and $z-:$ has 5.

MA-deletions for the various voiced fricatives show similar characteristics. All cases seem to reflect lenition, i.e. reduction in the degree of stricture in the production of the consonantal element. In the MA cases the resulting articulations are approximants (often very lenited), while for corresponding consonantal deletions without MA the relevant stricture is apparently not present, or is too subtle to be detected.

Figure 20 shows the production of the word sequence *daß wir* where the production of the labiodental fricative $[v]$ can be characterized as a hyper-version, i.e. a full stricture is formed, with audible friction, possibly made more prominent by the short period of voicelessness at the onset. Figure 21 shows an instance of the same utterance

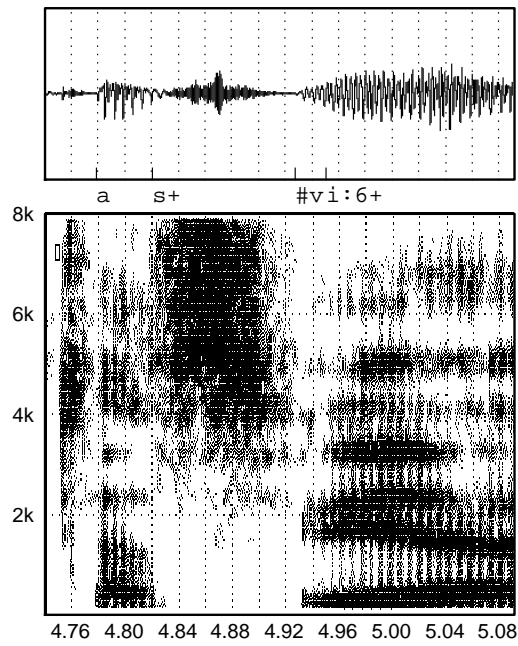


Figure 20: [... d]aβ wir [ruhig ...]
as+ vi:6+
(Ref: BAC g145a013)

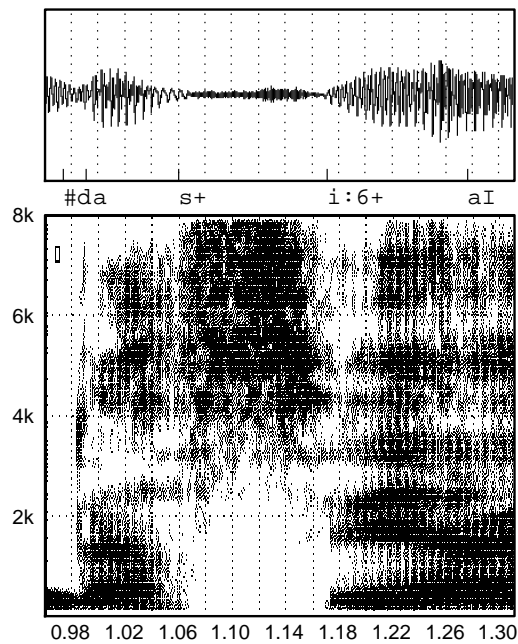


Figure 21: [...] daß wir ei[nen ...]
as+ =-MAv-:i:6+ Q-:aI
(Ref: BAC g145a008)

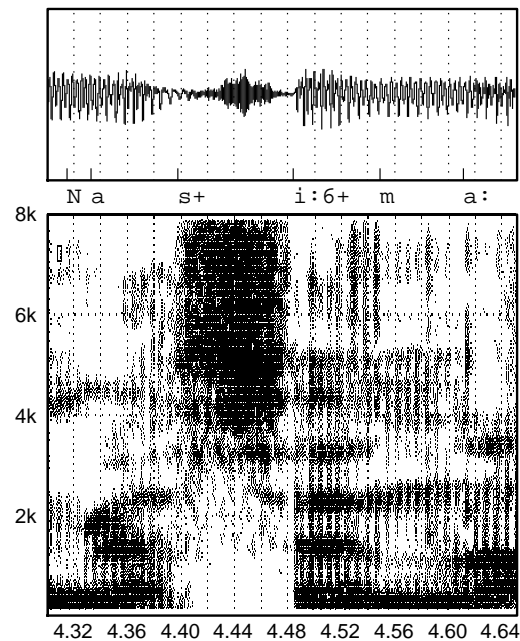


Figure 22: [...] daß wir ma[...]
 d-Nas+ v- : i : 6+ %ma :
 (Ref: BAC g145a010)

by the same speaker, where *v* has been labelled as deleted and given an MA marker. In this case, the production of *v* has much less friction than the previous example (Figure 20); this comes out most clearly in auditory analysis. This indicates that the degree of stricture applied in the production of *v* in this case is less than in the example in Figure 20. Note also that there is hardly any period of voiceless labiodental stricture in this example, which may enhance the auditory effect of lenition.

For comparison, Figure 22 shows another instance of the utterance *daß wir* (the speaker is the same as in the two previous examples), where the labiodental gesture for the fricative appears to be absent, or is at least not detectable. In this case, then, the transition from *s* to the vowel *i : 6* is auditorily very similar to a canonical sequence of *si : 6*.

The palatal approximant *j* and the uvular fricative *r* exhibit the same trend to lenition as *v*. Figure 23 presents an example of the production of the utterance *werden ja doch*, where the *j* of *ja* is lenited. The speaker's intention of producing *j* can be detected in the quality of the following vowel, *a :*, which is quite clearly not produced as [a], but rather as [eə] albeit without becoming close enough to be perceived as the vowel of *jedoch*. Other examples of *j*-deletion are found where the palatal stricture is apparently not present, or at least not detectable.

Figure 24 shows an example of the production of the word *hervorragend*, where the *r* of *fɔ : 6r* is lenited. In this case, the failure of the uvular stricture to reach target might be viewed as similar to the production of the *-gig-* syllable in Section 3.1, i.e.

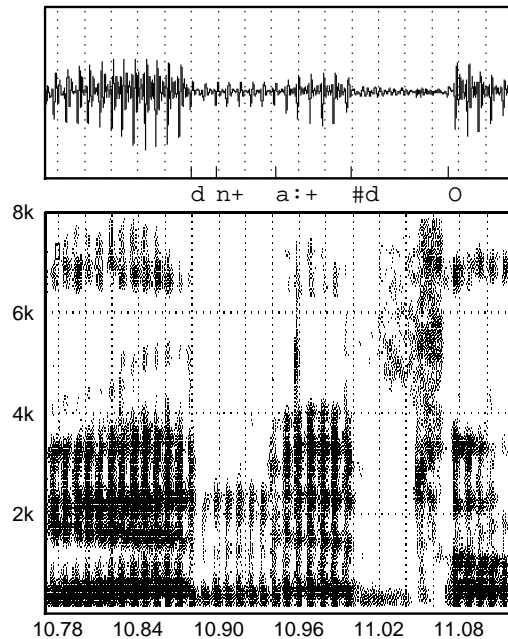


Figure 23: [... w]erden ja do[ch ...]
 e: 6d@-: n+ =-MA j-: a:+ dh' 'O
 (Ref: HAH g077a003)

the fact that the two dorsal strictures are made within a short period of time leads to a lenition in one or both of the strictures.

These cases of lenition of voiced consonants are thus similar to the cases discussed in connection with the lenition of *d*, although the starting point for the lenition process in the voiced fricatives is different, i.e. a fricative stricture instead of a stop closure.

3 Multiple deletions

As stated, there are 295 cases of multiple deletion, in 51 of which the MA marker has been applied. (*Appendix B* gives an overview of the contexts in which these deletions occur and lists all instances of this type of deletion.) The discussion here focusses on those MA cases where some general articulatory pattern or strategy can be identified, often mirroring what is found in the cases of single deletion: we thereby aim to exclude what may be, due to the nature of the data — viz. its spontaneous and partly uncontrolled quality — aberrations or idiosyncracies that neither represent nor reveal more universal connected speech processes.

Some cases of multiple deletions mirror what has already been accounted for under single deletions in Section 2. Under this heading come, for example, 9 cases of *t*-deletion, 8 cases of *d*-deletion, 3 cases of *h*-deletion, and 4 cases of *x*-deletion (cf. respectively Sections 2, 2.1, 2.2, and 2.3).

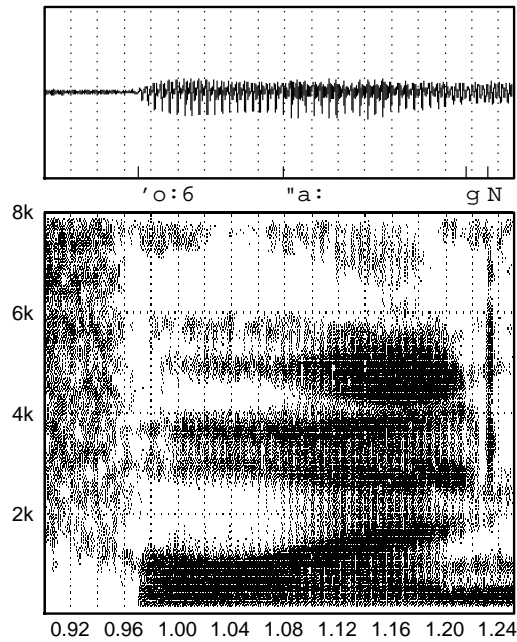


Figure 24: [... ist her]vorragen[d ...]
 f ' o : 6 # = - M A r - : ' ' a : g @ - : n - N
 (Ref: FRS g097a004)

Some cases of multiple deletion — even more so than single deletion — may be explained by recourse to a model of speech rhythm that invokes a concept of isochrony. For stress-timed languages like German an uncontroversial view would be that to achieve isochrony, unstressed syllables following stressed syllables in the same foot tend to be compressed in time more or less in proportion to the number of syllables in the foot, and that such compression is facilitated by syllable reorganization and/or consonantal lenition and/or vowel reduction (a catch-all that may involve shorter duration, lower intensity, lower pitch, and centralization). Evidence of these strategies is found in the cases below. Again it is notable that certain words or morphemes make up a large number of the cases under examination, e.g. *-tägig-*, *-igst-*, *-lich* in the same way that many cases of vowel deletion were represented by a few lexical items like *vielleicht* and *zu* in Helgason and Kohler (1996).

3.1 The sequence *-tägig-*

Two of the 6 cases where the MA marker is used with symbolic deletion of *g* occur in the first of the two *gs* of *zweitägig-*. In the context of the utterance the word does not receive main stress, it is also quadrisyllabic so we might expect shortened vowels and reduced consonantal gestures. The production of the word requires two dorsal closures over a short period of time, furthermore there are the articulatorily contradictory demands of a front vowel and a velar plosive (viz. a back to front opposition, although

it is arguable whether under such conditions the plosive is genuinely velar — palatal or prevelar is arguably more likely — or whether simply to call it a dorsal articulation is more accurate⁴). A hyper-version of the word is given in Figure 25 where the two dorsal closures are clear from the coming together of the second and third formants, typical of a dorsal stricture: this is especially apparent in the second stricture at 11.11 sec.⁵

In more casual speech there is evidence from the *Corpus* that speakers may have different strategies. Figure 26 shows a case where the first dorsal stricture is lenited, although the characteristic velar “pinch” is visible as what there is of a stricture is achieved; the silence representing the closure for the second stop is evident, followed by the burst and the separation soon afterwards of the second and third formants. By contrast Figure 27 shows a case where the first stricture is marked by the coming together of F2 and F3 at 5.98 sec. before silence and a burst, and there is even the multiple release often characteristic of a dorsal closure, whilst it is the second stop that is lenited. Figure 28 shows an example of further gestural reduction, where both dorsal strictures are lenited, although the same separation of F2 and F3 is visible in the second stricture at 8.94 sec. It is worth recalling that lenition refers purely to a reduction in gestural magnitude, rather than to any temporal compression, since it is clear that the same overall timing relations are largely consistent across the utterances from the three different speakers shown in Figures 26–28. Although we have no evidence that amplitude or breathiness are independently controllable parameters, small articulatory movements discernible in the signal combine with amplitude control and breathiness to signal a gesture of dorsal occlusion in these examples.

Figure 29 is a case where the absence of a velar “pinch” suggests that the stricture may be further forward — so that the vocalic part of the co-production gesture wins out — such that the *g* is more palatalized and a vowel-like articulation superimposed

⁴Stevens (1990) points out that the tongue position for a velar stop consonant is a case where significant variability can be tolerated without influencing appreciably the acoustic requirement of a prominent mid-frequency peak in the burst spectrum. While variation in the position of the point of contact between the tongue and hard or soft palate of 1–2 cm will give rise to bursts with a range of frequencies, the relevant compactness property of the burst remains the same. In the case of a stop consonant produced with the tongue blade, however, the position of the point of contact of the tongue tip with the hard palate must be adjusted to be within a few millimetres of the alveolar ridge in order to produce the appropriate acoustic property. This is a different way of looking at the commonplace that alveolars are more open to co-articulation than velars: it may simply be the case that velars co-articulate (in terms of movement of place of articulation) every bit as much as alveolars, but that their salient acoustic properties are simply more robust.

⁵This study has followed the practice of the labellers of the data base in its assumption that a canonical form of the morpheme *-tägig-* is characterized by two fully formed velar/dorsal stops, and that failure to achieve closure should be marked as a deletion or potentially an MA-case. In this way they have sought to capture synchronic articulatory variation of relevance to connected speech research. This is not to deny that a legitimate dialectal variant of the morpheme — and one the labellers themselves may favour — may also similarly feature no stop at all in this position. However, those labelling the data base have had to opt for some standard form of spoken German from which deletions and MA-markers represent a deviation, without specifically addressing the issue of synchronic vs. dialectal variation.

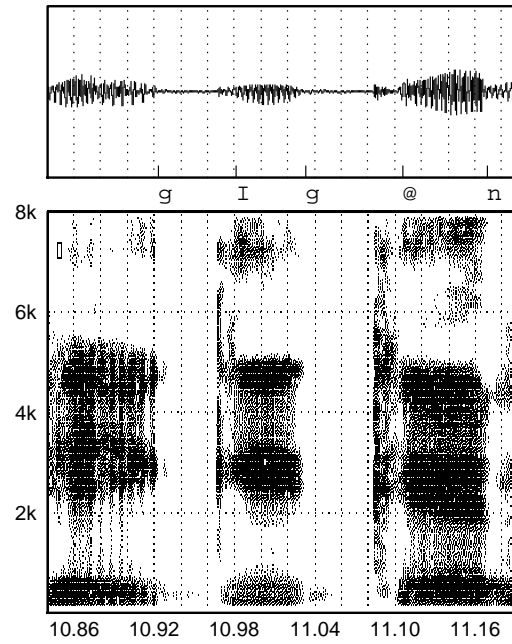


Figure 25: [...] zweitägigen [...]
 tsv'aI#th''E:-''e:ghIgh@n
 (Ref: ANS g091a000)

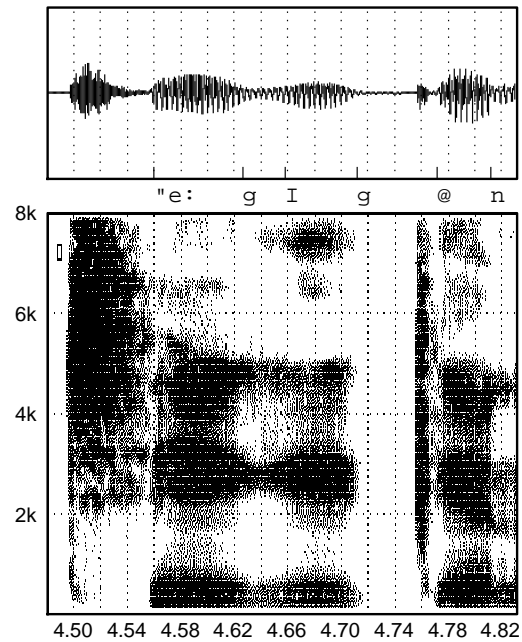


Figure 26: [... zwei]tägigen [...]
 th''E:-''e:gIgh@n
 (Ref: ANS g091a011)

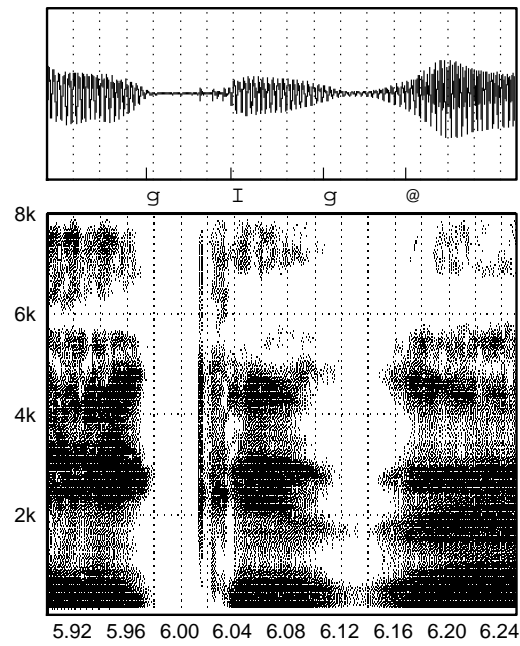


Figure 27: [... zweit]ägige [...]
 ' 'E: - ' 'e: ghI g @
 (Ref: WEM g251a000)

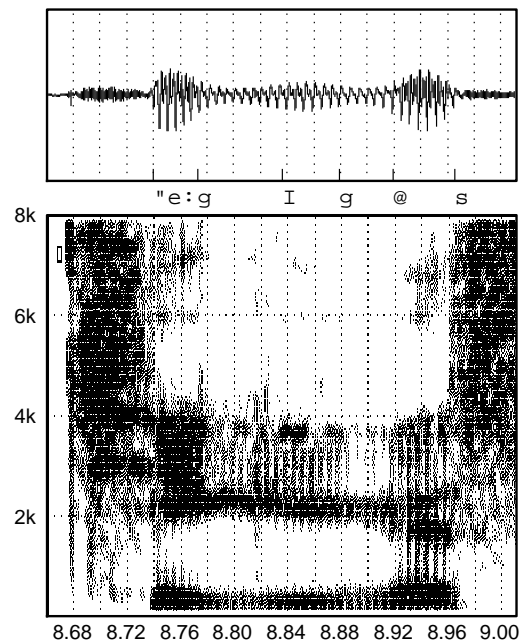


Figure 28: [... zwei]tägliches [...]
 th' 'E: - ' 'e: gI g @ s
 (Ref: KAK g082a008)

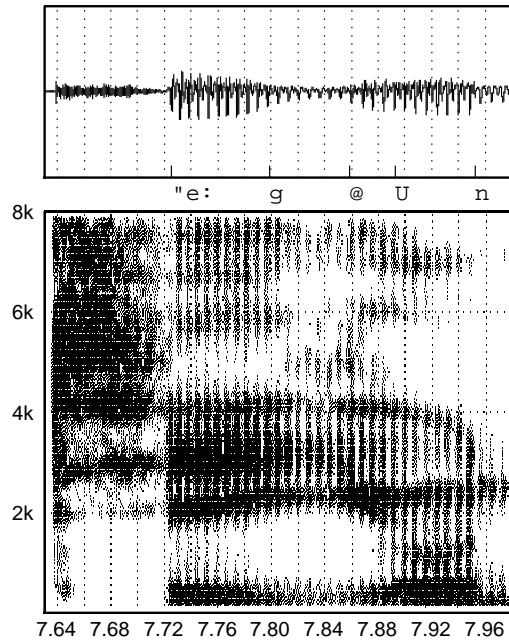


Figure 29: [... zwei]tägige [und ...]
 th' 'E: - ' 'e:g = -MAI - :g - :@
 (Ref: OLV g121a000)

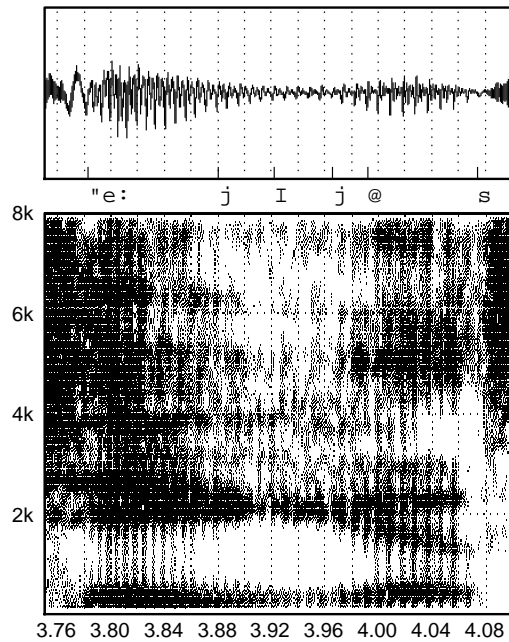


Figure 30: [... zweit]ägiges [...]
 ' 'E: - ' 'e:g - jI g - j@s
 (Ref: SOK g141a005)

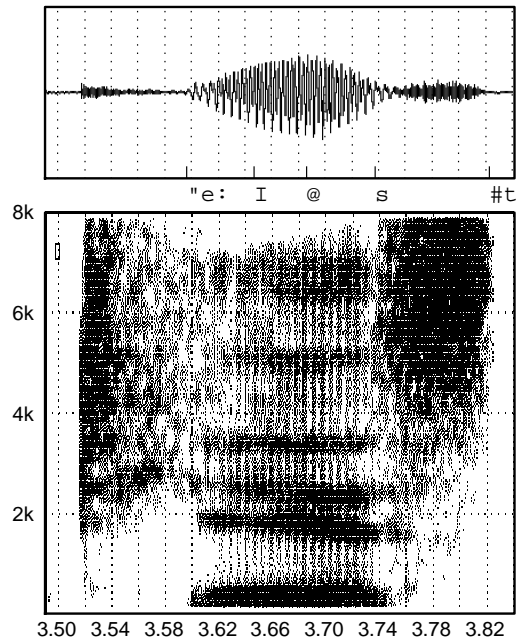


Figure 31: [... zwei]tägliches T[reffen ...]
 th''E:-''e:g-:Ig-:@s
 (Ref: BAC g141a009)

on a long prevelar approximant is perceived. Further along a continuum from full articulation (involving achievement of all gestural targets) to complete reduction, Figure 30 shows a strategy of uniting (and leniting) both dorsal strictures, effectively reducing the vowel gesture: in this case duration may serve as a cue to syllabicity. A further and final possibility found in the *Corpus* is total absence in the signal of any dorsal stricture gesture, as shown in Figure 31, where temporal compression is also evident.

3.2 The sequence *-lich-*

It was suggested that multiple deletions can often be accounted for in the same terms used to explain single deletions: this is the case for ɫ (see Section 2). Four of the 6 deletions of ɫ involve the suffix *-lich*, which involves articulatorily contradictory demands: for ɫ there is lateral release and tip or blade stricture, while ɪ requires lateral closure with the tongue-blade down: the lateral + high vowel sequence is followed by the palatal fricative ç which requires a finely adjusted dorsal stricture. A canonical example of the suffix is shown in Figure 32 in the word *ärgerlich* where there is a clear transition from a lateral phase to a high vowel position with low F1, and high F2 close to F3, then a phase of frication across all frequencies above 2 kHz.

In more casual speech some gestural reorganization seems to occur, of which three degrees evidenced in the *Corpus* are discussed here. In the first case — in Figure 33 in the word *nämlich* — the high vowel + fricative sequence wins out over the lateral

gesture and the vowel itself becomes fricated, so that both l and ɪ are deleted and marked with MA. In the examples in Figures 34 and 35 the MA has been used to indicate the palatal residue of ɪ and C .

In Figure 34 — the phrase is *Sie wahrscheinlich wieder* — the latter part of the diphthong is nasalized as a residue of the alveolar nasal n ; \sim could have been used to indicate nasalization of the vowel, but the labeller has preferred to place n- after the MA, perhaps to signal that nasalization of the vowel is included in the reorganization process. Then the tongue back is raised towards the palate as a reflex (expressed through the use of the MA marker) of the palatality in *-lich* as the l , ɪ and C are deleted. A very faint element of frication better discernible in auditory analysis is visible in the spectrogram at 9.74 sec. where the airflow over the tongue-back constriction seems to become turbulent.

In the most extreme case of articulatory reorganization in realization of this suffix⁶ — the phrase is *wahrscheinlich ein bißchen* shown in Figure 35 — the alveolar nasal n has not been marked as deleted but the string that follows, namely the sequence of lateral l , and palatal ɪ and C is deleted and marked with MA; auditorily it is clear that in this case, the tongue-back raising we saw in Figure 34 has gone a step further to achieve full closure, and that the reflex of palatality of the sequence $[\text{ɪ}ɪç]$ is the palatal nasal $[\text{ɲ}]$. Figure 35 presents an application *par excellence* of the MA marker: the n is not deleted, and by convention, preceding vowel nasalization is treated as allophonic and not specially marked by inserted \sim ; but the MA marker indicates it has undergone some form of alteration in connection with the deleted palatal labels following. Following this the aɪ of *ein* is deleted and the n of *ein* becomes m , assimilating to the bilabial b of *bißchen*. This could be transcribed as $[\text{va}[\text{ai}]\text{ɲ}\text{mb}ɪ\text{s}ç\text{ɲ}]$.

3.3 Multiple deletions involving voiceless fricatives: the sequence *-igst-*

From data on single as well as multiple deletions it is evident that voiceless fricatives appear susceptible to deletion in casual speech as typified by the *Corpus*. There are strong biomechanical/articulatory reasons why this should be the case: fricatives in general are sounds requiring relatively precise articulatory control, a combination of stricture-configuration and subglottal and/or intra-oral pressure being required where laminar airflow becomes turbulent and friction is produced. There is evidence from laboratory speech (Butcher 1977 and Kevin Munhall, personal communication) that the movement into a fricative occlusion is slower than that into a stop; fricative production also relies on auditory feedback more than other types of articulation, so that their “steady state” may be more slowly achieved while appropriate auditory and aerodynamic conditions are met⁷. Butcher (1977) similarly presents us with a picture of

⁶Although fewer symbols are deleted or marked with MA here than in the previous case, we feel this case represents more extensive reorganization.

⁷There may be an anomaly here: there is little evidence of symbolic deletion of voiced fricatives — although see Section 2.4 — yet these have still more exacting requirements than voiceless fricatives.

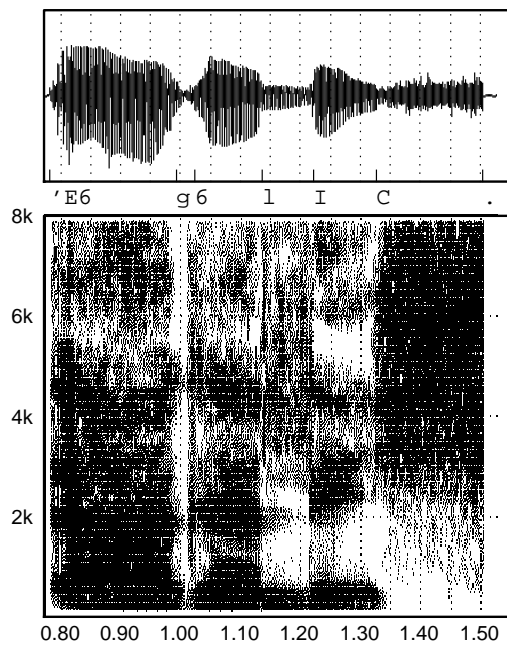


Figure 32: [... ist] ärgerlich [, denn ...]
 Qq' E6gh6lIC
 (Ref: ANS g091a018)

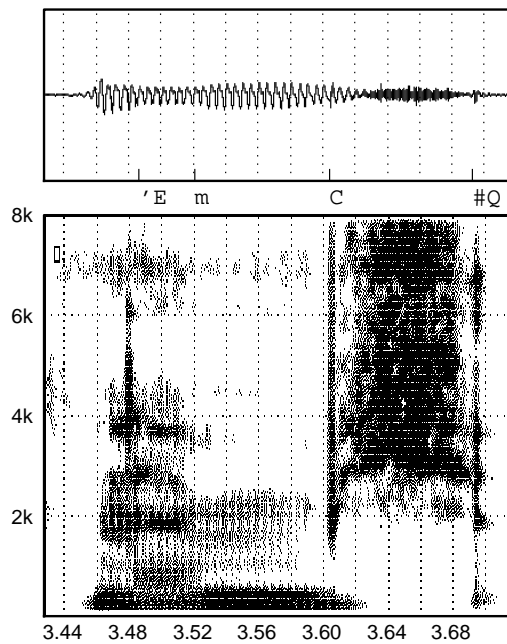


Figure 33: [... ich] nämlich [auch ...]
 n' E : - ' Em = - MA l - : I - : C
 (Ref: KAP g122a008)

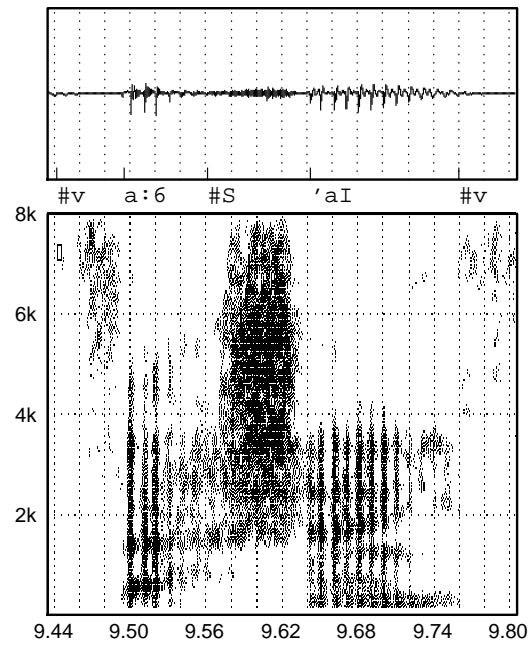


Figure 34: [... Sie] wahrscheinlich w[ieder ...]
 va:6#S'aI=-MA n-:l-:I-:C-: v
 (Ref: TIS g076a011)

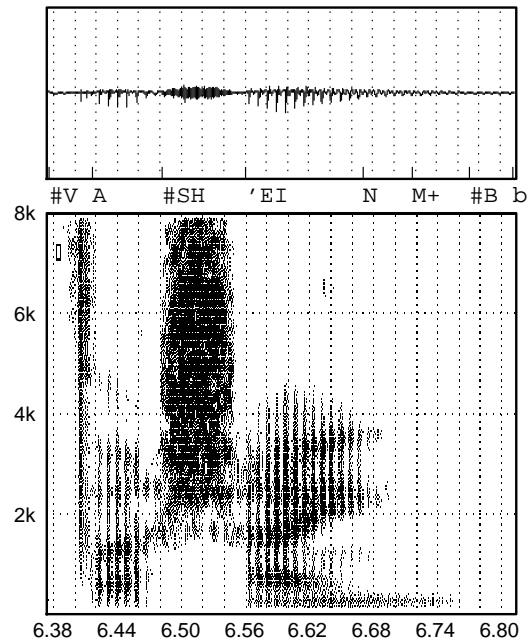


Figure 35: [... dann] wahrscheinlich ein b[ißchen ...]
 va:6-a#S'aIn=-MA l-:I-:C-: Q-:aI-:n-m+ b
 (Ref: TIS g071a004)

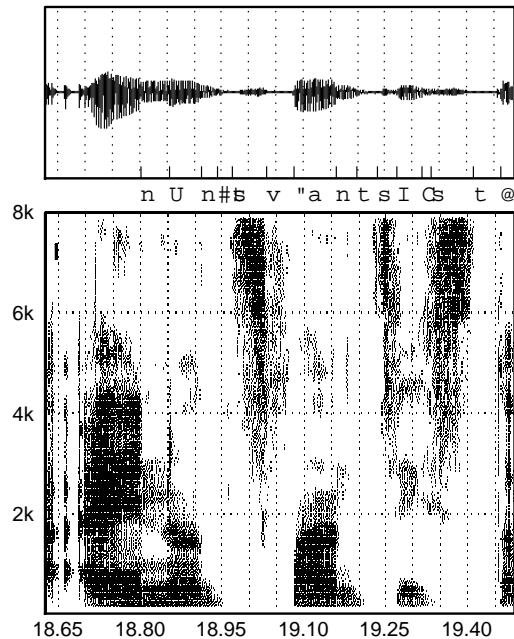


Figure 36: [... der ei]nundzwanzigste [Oktober ...]
 Q- :q' aInUnt- :#tsv' 'antsICsth@
 (Ref: WEM g253a004)

fricatives suggesting that under casual speech conditions, and in unstressed position, they are likely to undergo deletion. Two of the 8 multiple deletions involving C were dealt with in Section 3.2 on *-lich* above; ordinal adjectives involving the string *-igste-* account for 3 more. There are 44 cases of C-deletion in the string *-igst-* where the symbol has also been marked with MA (i.e. 16% of the 271 times it appears in the *Corpus*). A canonical version of the suffix would feature a high front vowel followed by a palatal fricative followed by an alveolar fricative and perhaps a released unaspirated voiceless alveolar stop: all these phases are clearly visible in Figure 36 in the word *einundzwanzigste*. In less careful speech the high front vowel and the palatal fricative may be deleted (cf. *-lich*), as in the word *vierundzwanzigster* in Figure 37; or — in one case at least — the vowel remains, but the following fricative is extremely short and has a place of articulation that is a spatial compromise somewhere between the palatal C and the alveolar s, as in Figure 38.

For the sake of continued voicing the oral pressure should be low, but for the sake of frication the oral pressure should be high, that is, the difference between oral and atmospheric pressure should be great enough to cause high air-velocity through the consonantal occlusion. Meeting both of these requirements simultaneously may be difficult, and establishing them initially may be time-consuming. If the segment retains voicing it may be a poor fricative, and if it is a good fricative it risks being devoiced. The noise component for voiced fricatives is much less than that for voiceless fricatives (Pickett 1980) and in nonsibilant voiced fricatives ([βvð]) may be barely detectable. The complexity of the productions has been used to explain why they are acquired relatively late.

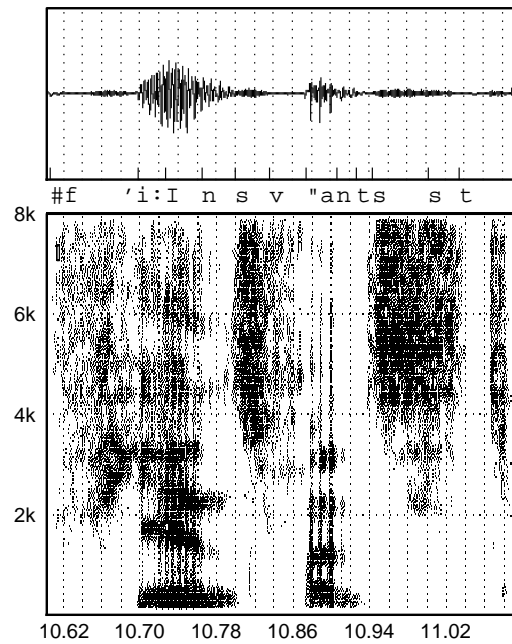


Figure 37: [... Montag,] vierundzwanzigster [Oktober ...]
 f'i:r-:U-Int-:#t-:sv''ants=-MAI-C-:sth6 ==:kQ-:O
 (Ref: BAC g143a003)

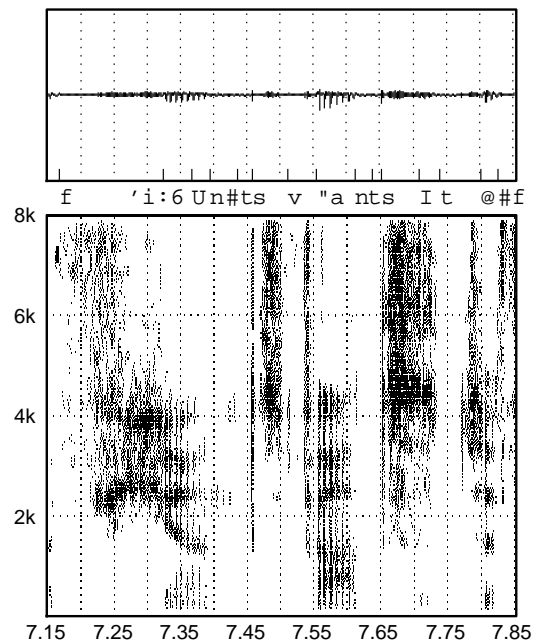


Figure 38: [... der] vierundzwanzigste f[ünfundzwanzigste ...]
 f'i:-'i:6r-:Unt-:#tsv''antsI=-MAC-:s-:th@ f
 (Ref: REK g112a002)

3.4 Deletions of more than two segments

The *Corpus* contains certain cases which cannot be explained by recourse to single phenomena of vocalic or consonantal reduction. Two main possibilities seem to account for these cases and one of each is here exemplified: they can be seen as two end points of a continuum. Either some element of syllable reorganization and compression seems to take place such that a production strategy is discernible, or the segment is genuinely deleted and no residue of the articulation other than perhaps some durational cue remains, such that top-down knowledge must disambiguate. There are also some cases where the speaker has produced what a laboratory researcher interested in citation forms would prefer to dismiss as speech errors or exceptional cases, but these are not addressed here.

... *nun wollen wir mal gucken* ...

In the production of *nun wollen wir mal gucken* by speaker OLV the *n*, *v*, *o*, *l* and *@* are marked as deleted and the deleted string marked with MA. The utterance is shown in Figure 39. The initial nasality of the onset of *nun* is visible until 6.11 sec. at which point the opening changes from nasal to nasal and oral, and the labio-dental fricative *v* is cued by lip-narrowing which lowers F2 from 6.12 to 6.18 sec. Then at 6.22 to 6.24 sec. there is a discontinuity around 3000 Hz. which may mark the gesture for the lateral. The deletion of the schwa is the least unusual of the events, and is followed by further oral and nasal opening — a nasal formant at about 2250 Hz. is clearly and continuously visible — at 6.30 to 6.34 sec. for the final *n* of *wollen*. Then the *v* of *wir* is deleted and there is but the shortest phase of oral and nasal opening where the diphthong *i : ɤ* is replaced by the central open-mid vowel *ɤ*. Full nasality resumes for the bilabial *m* (although without narrowing cued by formant lowering) from 6.36 to 6.40 sec. before the opening is again oral for the *a*.

This represents a radical rearrangement of gestures and timing where minimal articulatory landmarks or secondary cues are nevertheless discernible, and where the listener's top-down knowledge of the speaker's likely utterance is exploited; the utterance is relatively easily perceived or intuited in spite of the absence of the primary acoustic cues to its phonetic segments.

... *Mai neunzehnhundert vier* ...

Speaker BAC produces a significantly reduced version of *Mai neunzehnhundert vierundneunzig* in which the *e*, *n*, *h*, *ʊ*, *n*, and *d* are all deleted and marked with MA. The utterance is shown in Figure 40. Rather than a case of reorganization it seems here that simple deletion has taken place, as there are no cues to any of the articulatory gestures, i.e. no nasality corresponding to velic lowering, no aspiration for a glottal fricative, no formant lowering indicative of lip-rounding. Rather, this is perhaps a case where the listener must retrieve meaning, in the absence of sufficient bottom-up information

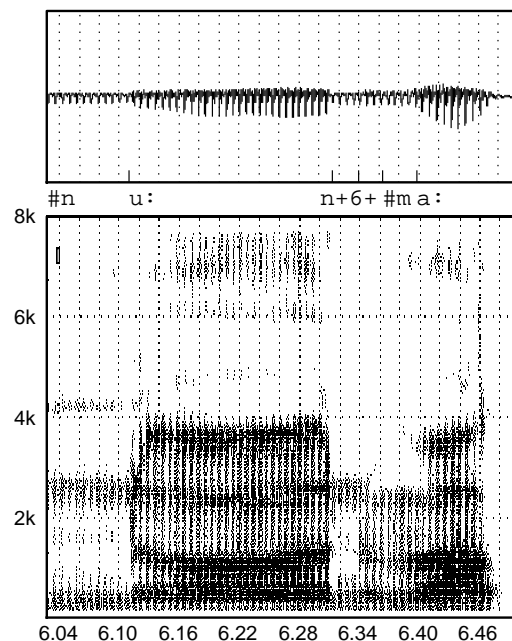


Figure 39: [. . . nu]n wollen wir mal [gucken . . .]

nu:=-MA n-: + v-: O-: l-:@-: n+ =-MA v-: i: 6-6+ ma:l-: +
 (Ref: OLV g122a009)

from the phonetic signal, using top-down information. However, there are two strict conditions that must be obeyed for this type of extreme reduction to take place:

1. Rhythmic: the deleted string must be unaccented. We could contrast *neunzehnhundertvierundfünfzig* (1954) with *neunzehnhundert* (1900) where the *hundert* in the second case would be accented and could not be reduced.
2. Lexical-semantic: this can happen in years only. The nasal of *hundert* must appear if, for example, the *neunzehnhundert* refers to anything other than a compound year, e.g. a price, an address. This type of reduction bears comparison with that discussed in Rehor and Pätzold (1996): in phrases like *Ich wünsche Ihnen einen guten Abend/guten Appetit*, *guten* cannot be reduced further than to /gʊdn/ or /gʊn/ whilst in the form used in phatic communion — *Guten Abend* realized as *n'Abend* — it can appear as a nasal /n/.

4 Conclusion

This paper has addressed symbolic deletions of consonants in a corpus of spontaneous German speech, ranging from simple deletions of one segment to the multiple deletion of up to six segments in a phonetic string. Although we find in the data base that a

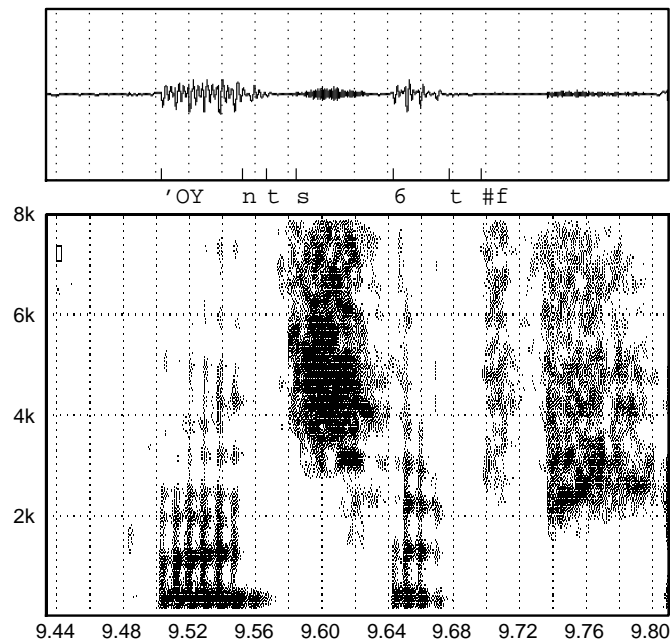


Figure 40: [... Mai] neunzehnhundert v[ier ...]
 n' OYnts = -MAe : - : n - : #h - : ' ' U - : n - : d - : 6t f
 (Ref: BAC g142a005)

small number of lexical items make up a large number of deletion cases, it has been shown that production strategies underlie these deletions that we might expect to find repeated in appropriate instances throughout the language, perhaps in a corpus that was intentionally less limited in the lexical forms it aims to elicit. Furthermore, the examination of multiple deletions and their comparison with cases of single deletion suggest the existence of combinatorial possibilities of gestural deletion, temporal compression, and syllable reorganization. Narrow phonetic investigation of high-quality recordings of spontaneous speech has provided valuable insights into connected speech processes that have value for the refinement of our models of speech production and perception.

References

- Abercrombie, D. (1967). *Elements of General Phonetics*. Edinburgh: Edinburgh University Press.
- Butcher, A. R. (1977). Coarticulation in intervocalic voiceless plosives and fricatives in connected speech. In A. R. Butcher, K. J. Kohler, and H. Künzel (Eds.), *Experimentelle Untersuchungen zur Koartikulation und Steuerung im Deutschen – Experimental Investigation into Coarticulation and Articulatory Control*, AIPUK 8, pp. 154–212.

Helgason, P. and K. J. Kohler (1996). Vowel deletion in the *Kiel Corpus of Spontaneous Speech*. In K. J. Kohler, C. Rehor, and A. P. Simpson (Eds.), *Sound Patterns in Spontaneous Speech*, AIPUK 30, pp. 115–157.

IPDS (1995). *The Kiel Corpus of Spontaneous Speech*, Volume 1, CD-ROM#2. Kiel: Institut für Phonetik und digitale Sprachverarbeitung.

IPDS (1996). *The Kiel Corpus of Spontaneous Speech*, Volume 2, CD-ROM#3. Kiel: Institut für Phonetik und digitale Sprachverarbeitung.

IPDS (1997). *The Kiel Corpus of Spontaneous Speech*, Volume 3, CD-ROM#4. Kiel: Institut für Phonetik und digitale Sprachverarbeitung.

Lindblom, B. (1983). Economy of speech gestures. In P. F. MacNeilage (Ed.), *Speech Production*, pp. 217–246. New York: Springer.

Pickett, J. (1980). *The Sounds of Speech Communication*. Baltimore: University Park Press.

Rehor, C. and M. Pätzold (1996). The phonetic realization of function words in German spontaneous speech. In A. P. Simpson and M. Pätzold (Eds.), *Sound Patterns of Connected Speech: Description, Models, and Explanation*, AIPUK 31, pp. 5–10.

Stevens, K. N. (1990). Some factors influencing the precision required for articulatory targets: comments on Keating's paper. In M. Beckman and J. Kingston (Eds.), *Papers in Laboratory Phonology I, Between the Grammar and Physics of Speech*, pp. 471–475. Cambridge: Cambridge University Press.

A MA cases with a single deletion, listed according to symbol deleted

Context phrase	Critical word	Spkr.	Code
/ç/ deleted			
der dreißigste oder am dreißigsten und vom <Z> siebenundzwanzigsten bis den siebenundzwanzigsten. — ab zwanzigsten eine den zweiundzwanzigsten, ab den zweiundzwanzigsten Dezember. und ich schlage hat sich bis Reise durch die glaube ich, der lohnt sich das ja wichtig, +/daß was ich grad Sonntag. Vielleicht ab und vielleicht freitags <Z> würde vielleicht aber wir vielleicht auf wir vielleicht auf <ähm> vielleicht sollten uns vielleicht um ab achtundzwanzigsten Januar den achtundzwanzigsten, das	ANL SVA THS KAP KAE KAP ANL KAK JAK BAC REK REK SAR REK SAR CHD ANL SIK SIK SIK SIK REK JAK	g214a008 g315a015 g085a009 g125a014 g195a005 g126a021 g211a012 g084a002 g114a008 g144a001 g115a012 g114a003 g195a016 g113a007 g194a002 g214a000 g216a003 g251a001 g251a029 g254a002 g257a005 g116a003 g116a004	
	:kdhɾ' aIsI=-MAC-:sth@ dɾ' aU-nt-:\$tsv' antsI=-MAC-:st@-:n =-v:z'i:b@-:n-mU-nt-:\$tsv' antsI=-MAC-:st@-:n =-dz'i:b-m@-:n-:U-nt-:\$tsv' ant-ds-zI=-MAC-:st-Q@-:n =-h: .:k tsv' antsI=-MAC-:st@-:n %tsv' aU-nt-:\$tsv' ant-s-zI=-MAC-:st@-:n , =-:ktsv' aU-nt-:\$tsv' antsI=-MAC-:st@-:n Q-:I=-MAC-:++ zI=-MAC-:++ dhU6=-MAC-:++ Q-:I=-MAC-:++ , zI=-MAC-:++ v'ICthI=-MAC-: , =-:kQ-:I=-MAC-:++ fI-:I' aI=-MAC-:th fI-:I' aI=-MAC-:th f=-MAI-:I' aI=-MAC-:th fI' aI=-MAC-:th f=-MAI-:I' aI=-MAC-:th f=-MAI-:I' aI=-MAC-:t fI-:I' aI=-MAC-:th Qq' axtU-nt-:\$tsv' antsI=-MAC-:st@-:n Q-:q' axtU-nt-:\$tsv' antsI=-MAC-:st@-:n ,		

am dreißigsten und	dhr'alsl=-MAC-:st@-:n	KAK	g081a014
am <Z> dreißigsten oder	dhr'alsl=-MAC-:st@-:n	KAP	g124a017
vielleicht dreißigsten, einunddreißigsten	dhr'alsl=-MAC-:st@-:n,	SOV	g274a009
bis dreiuundzwanzigsten? —	=-:kdhr' alU-Int-:\$tsv'antsl=-MAC-:st@-:n=-h: ?	REK	g115a010
dem dreiundzwanzigsten, vierundzwanzigsten?	dhr' alU-nt-:\$tsv'ant-ds-zl=-MAC-:st@-:n,	KAP	g125a018
dendreiundzwanzigsten, habe	dhr' alU-nt-:\$tsv'ant-ds-zl=-MAC-:st@-:n,	KAP	g126a009
zum dreiundzwanzigsten da.	dhr' alU-nt-:\$ts=-MAV-:ant-ds-zl=-MAC-:st@-:n	KAP	g126a015
bis einunddreißigsten? —	Q-:q' al- a'nUnt-:\$dhr'alsl=-MAC-:st@-:n ?	REK	g114a005
oder einunddreißigsten treffen.	Q-:q' alnUnt-:\$dhr'alsl=-MAC-:s%t@-:n	KAP	g124a017
den einunddreißigsten nehmen.	Q' alnUnt-:\$d-hr'alsl=-MAC-:st@-:n	CHD	g214a009
zum einunddreißigsten bei	Qq' alnUnt-:\$dhr'alsl=-MAC-:st@-:n	ANL	g215a002
den einunddreißigsten. —	Q-:q' alnUnt-:\$dhr'alsl=-MAC-:st@-:n . :k	WEM	g254a011
deneinunddreißigsten, kann	Q-:q' alnU-:%nt-:\$dhr'alsl=-MAC-:st@-:n,	SIK	g254a012
dreißigsten, einunddreißigsten Juli?	Q-:q' alnUnt-:\$dhr'alsl=-MAC-:st@-:n	SOV	g274a009
und einundzwanzigsten Dezember?	Q-:q' alnUnt-:\$t-:sv'antsl=-MAC-:st@-:n	SIK	g251a021
dem fünfundzwanzigsten. Vorher	f'Yn-mf-:Unt-:\$tsv'antsl=-MAC-:st@-:n .	HAH	g075a007
amsechsendzwanzigsten Mai,	z'EksU-:nt-:\$t-:sv'antsl=-MAC-:st@-:n h:	BAC	g142a000
den sechsendzwanzigsten. —	:k-:z'EksU-:nt-:\$tsv'antsl=-MAC-:st@-:n . =-:k	BAC	g146a006
vom siebenundzwanzigsten bis	z'i:b-m@-:n-:Unt-:\$t-:sv'a-:antsl=-MAC-:st@-:n	SIK	g255a011
vom siebenundzwanzigsten bis	z'i:b@-:n-mU-:nt-:\$tsv'antsl=-MAC-:st@-:n-m	AME	g315a008
— siebenundzwanzigster bis	=-:kz'i:b-m@-:nU-:nt-:\$tsv'antsl=-MAC-:st@-:n-m	SOK	g145a006
dreiundzwanzigste, vierundzwanzigste. —	f'i-:i:6r-:U-:nt-:\$tsv'antsl=-MAC-:sth6	JAK	g115a015
dreiundzwanzigsten, vierundzwanzigsten? —	f'i-:i:6r-:U-@nt-:\$tsv'ant-ds-zl=-MAC-:st@-:n =-h: ? :k	KAP	g125a018
von vierundzwanzigsten bis	f'i-:i:6r-:U-:nt-:\$tsv'antsl=-MAC-:st@-:n	SIH	g274a000
%am vierundzwanzigsten bin	f'i-:i:6r-:U-:nt-:\$ts=-MAV-:antsl=-MAC-:st@-:n	SIH	g274a008
den zwanzigsten, sieht	tsv'antsl=-MAC-:st@-:n,	JAK	g115a011
den zwanzigsten?—	tsv'antsl=-MAC-:st@-:n =-p: ? :k	KAP	g121a014
zum <Z> zweiundzwanzigsten Oktober.	tsv' alUnt-:\$tsv'antsl=-MAC-:st@-:n	THS	g083a010

man sich ja	zI=-MAC-:+	REK	g112a012
einverstanden. Ich meine,	Q-:qI=-MAC-:+	TIS	g071a020
sagen/- ich meine,	=-v: =:kp:Q-:I=-MAC-:+	TIS	g075a002
muß ich noch	Q-:I=-MAC-:+	KAE	g191a008
ich mich noch	mI=-MAC-:+	HAK	g072a000
ein bißchen K	bh'Is=-MAC-:@n	JAK	g113a015
einbißchen planen <Z>	bh'Is=-MAC-:@n	SIK	g254a002
ein bißchen später	b-m'Is=-MAC-:@n	SIK	g254a002
würde sich das	zI=-MAC-:+	JAK	g114a000
gar nichts vor.	n-:'I=-MAC-:ts	BAC	g147a001
— richtig. Sollten	r'I=-MAC-:thIC . =-p:	REK	g115a018
vom dreiundzwanzigsten bis	:kdh'r'aU-.nt-:\$t-:sv''ant-:sI=-MAC-:st-d@-:n	SIK	g255a007
— fünfundzwanzigste selber,	f'Yn-mf-:Unt-:\$t-:sv''ant-:sI=-MAC-:sth@	SVA	g315a007
den fünfundzwanzigsten <Z>, nach	f'Yn-mf-:Unt-:\$tsv''antsI=-MAC-:st@-:nz: , =-h:	THS	g082a005
den neunundzwanzigsten bin	n'OYnUnt-:\$tsv''antsI=-MAC-:st@-:n-m	JAK	g116a004
vom siebenundzwanzigsten bis	:kz'i:b@-:n-mUnt-:\$tsv''antsI=-MAC-:st@-:n-m	WEM	g255a012
den zwanzigsten bis	tsv''ant-:sI=-MAC-:st@-:n	JAK	g115a005
Entschuldigung, ich sehe	Q-:I=-MAC-:+	ANL	g216a005
/d/ deleted			
mir das gut	=-MAd-:as+	JAK	g113a004
Sonntag, den zwanzigsten,	=-MAd-:e:n+	JAK	g115a011
Freitag, den fünfzehnten,	=-MAd-:e:n+	FRS	g094a005
wir doch den	=-MAd-:Ox+	SIH	g274a010
Ende des Monats <Z>	=-MAd-:Es+	AME	g314a014
Freitag <Z>? +/das wä=+/	=-MAd-:as+	SAR	g191a029
wä=+/ das wäre	=-MAd-:as+	SAR	g191a029
— das ist	=-MAd-:as+	KAE	g191a020

sein, da finde	=-MAd-:a:+	HAH	g074a012
mir da auch	=-MAd-:a:+	HAH	g074a012
wie dasonst	=-MAd-:as+	REK	g115a012
mir das gut	=-MAd-:as+	JAK	g117a001
wir das im	=-MAd-:%as+	OLV	g121a024
wir das ja	=-MAd-:as+	SAR	g191a029
ja da gleich	=-MAd-:a:+	TIS	g076a013
wunderbar. Das gleiche	=-MAd-:as+	MAK	g287a002
mir, dann ist	=-MAd-:a-En+	JAK	g116a008
auch wieder recht,	vi:=-MAd-:6+	HAH	g071a019
ich wieder eigentlich,	v"i:=-MAd-:6+	HAH	g077a005
ich würde vorschlagen,	vY6=-MAd-:@+	HAH	g073a007
neunundzwanzigsten, oder Donnerstag,	Q-:qo:=-MAd-:6+	HAH	g072a016
Wein, oder so.	Q-:qo:=-MAd-:6+	TIS	g074a005
hier gerade sehe,	gh@-:r'a:=-MAd-:@	TIS	g075a000
/f/ deleted			
bisßen kurzfristig, ne?	kh'U6ts\$=-MAf-:r'IsthIC,	SAR	g194a006
das Vorbereitungstreffen. —	:k=-MAf-:'o:6\$b@r"althUN=-khs\$tr"Ef@-:n :kh. . :k	KAE	g194a005
/g/ deleted			
in Frage kommen.	fr'a:=-MAg-:@	KAK	g085a002
ja gesagt, die	=-MAg-:@z'a:k-xt-:,	HAH	g072a010
/h/ deleted			
hallo, hier ist	=-MAh-:'i:6	SAR	g192a000
doch vorhin einen	f'o:6-@=\$=-MAh-:'""In	KAE	g191a037
Tage hintereinander treffen,	=-k=-MAh-:Inth6\$Q-:al-:n'and-n6	SIK	g251a023

Dezember hineingehen dann	=-MAh-:In'aln\$gh"e:@n h:	CHD	g211a007
<ähm> hätten Sie	=-MAh-:"Et@-:n+	KAE	g194a001
dann hoffen, daß	=-:k=-MAh-:'Of@-:n,	REK	g115a016
einladen. Hätten Sie	=-MAh-:Et-q@-:n+	SAR	g192a000
aber vorher sollten	f'o:6\$=-MAh-:"e:6	JAK	g114a004
eventuell vorher uns	f'o:6\$=-MAh-:"e:6	JAK	g114a004
+/be=/+ hätten Sie	=-MAh-:Et@-:n+	REK	g114a009
allerdings habe ich	=-MAh-:a:b@-:+	ANL	g215a004
Mal hat es	=-MAh-:at-dh+	JAK	g116a000
Sie haben Pläne.	=-MAh-:a:b-m@-:n-:+	REK	g113a003
\$P \$H \$S<Z>	=-MAh-:'a:	WEM	g255a000
da habe ich	=-MAh-:"a:bh@-:+	CHD	g213a001
da haben Sie	=-MAh-:a:b-m@-:n-:+	HAH	g071a019
da haben Sie	=-MAh-:"a:b-m@-:n-:+	TIS	g076a011
da haben wir	=-MAh-:"a:b-m@-:n-:+	ANL	g216a001
dieser Gelegenheit auch	g@-:l'e:g@-:n-N=-MAh-:al-at-d	HAH	g075a005
da hätte ich	=-MAh-:"Eth@-:+	SAR	g196a018
zwar hätte ich	=-MAh-:Eth@-:+	CHD	g211a007
erste Hälfte legen,	=-MAh-:'E%lfth@	BAC	g142a005
/j/ deleted			
weiß jetzt nicht,	=-MAj-:'Etst-:	ANL	g215a004
ja jetzt aber	=-MAj-:'Etst-:	SAR	g191a033
— ja, das	:k=-MAj-:'a:	KAE	g191a010
werden ja doch	=-MAj-:a:+	HAH	g077a003
da ja doch	=-MAj-:a:+	HAH	g074a016
na ja, +/das	=-MAj-:'a:	SAR	g191a013

/k/ deleted			
bis Dienstag<Z>, den		dh'i:nst-sa:=-MAk-z:-, ,	g214a009
und Dienstag, den		:kdh'i:ns%t-sa:=-MAk-:, ,	g111a000
bis Donnerstag, den		:kd-s'On6st-sa:=-MAk-:, ,	g215a003
vom<Z> Sonntag, den		:kz'Ontha:=-MAk-:, ,	g215a003
auf<Z> Dienstag, den		dh'i:nst-a:=-MAk-:, ,	g311a007
nämlich Freitag,der		fr'altha:=-MAk-:, ,	g115a009
wir Freitag, den		fr'altha:=-MAk-:, ,	g142a011
so<Z>. Freitag, der		fr'alr-dha:=-MAk-:, ,	g202a005
ab Freitag, dem		:kfr'altha:=-MAk-:, ,	g312a006
vom<Z> Montag, dem		m'o:ntha:=-MAk-:, ,	g112a009
ab Montag, daß		:m'o:ntha:=-MAk-:, ,	g194a002
am Nachmittag, das<Z>		n'a:x\$m'`Itha:=-MAk-:, ,	g216a012
und Ostermontag der		Q:-go:sth6\$m'o:ntha:=-MAk-:, ,	g115a007
— Sonntag,den		z'Ontha:=-MAk-:, ,	g114a014
von Sonntag,den		z'Ontha:=-MAk-:, ,	g115a005
ab Sonntag, den		z'Ontha:=-MAk-:, ,	g195a006
der Samstag, der		z'am-ns%ta:-a=-MAk-:, ,	g214a003
guten Tag, Frau		th'a:=-MAk-:, ,	g121a000
mittwochs, donnerstags und		dh'On6stha:=-MAk-:s	g256a003
und freitags nachmittags.		fr'altha:=-MAk-:s	g256a003
+/Mit=/+ Dienstag, Mittwoch,		%dh'i:nst-a:=-MAk-:, ,	g075a012
einen Vorschlag machen		f'o:6\$SI'a:=-MAk-:	g076a000
am Dienstag in		dh'i:nstha:=-MAk-:	g075a002
Wochenende, Freitag, dreiundzwanzigster<Z>,		fr'altha:=-MAk-:, ,	g143a005
// deleted			
ziemlich viel Programm,		f'i:=-MAI-:	g306a018

welchen/+ welche Zeiten zum Beispiel schon im Anschluß an würde vorschlagen, damit Sie, bloß, ich	vE=-MAI:C@+ %b-m'aISphi:=-MAI-: Q-:q'an\$S=-MAI-:"Us f'o:6\$\$=-MAI-:"a:g:@-:n-:, b=-MAI-:'o:s,	MAK g287a000 SAR g191a001 FRS g091a029 HAH g073a007 HAH g074a014
/m/ deleted nee, mir fällt geplant, gemeinsam auf	=-MAm-i:6+ gh@m'alnza:=-MAm-:	SAR g195a001 SVA g313a000
/n/ deleted und dann abends ist natürlich ziemlich	dha=-MAAn-:+ =-MAAn-:ath'y:6IIC	REK g116a007 KAE g194a003
/r/ deleted der Absprache für ist hervorragend. Was <Z> Mittwoch, brauchen nur natürlich darauf, daß das wäre mir geeignetste wäre. —	Q-:q'aph\$Sph=-MAr-:"a:x@ hE6f'o:6\$=-MAr-:"a:g@-:n-Nth . bh=-MAr-:'aUx@-:n-: dha-'a:=-MAr-:'aU-aUf, vE:=-MAr-:@+ :k-vE:-E:6=-MAr-:@+ . :k	CHD g216a000 FRS g097a004 REK g112a004 ANS g092a006 HAH g076a012 CHD g215a011
/s/ deleted ist es mit schon, daß es	Q-:E-@=-MA-s-:+ d-:a=-MA-s-:+	SIK g255a003 KAK g081a014
/t/ deleted Donnerstag, nicht? —	n"IC=-MA-t-: ? :k	MAB g306a007

— ach so,	Q:q'a=-MAX:-	SAR	g191a003
mich noch mal,	nO=-MAX:-+	HAH	g076a000
danach noch mal	nO=-MAX:-+	SIK	g254a010
uns noch mal	nO=-MAX:-+	SVA	g314a013
Mittwoch nachmittag umlegen,	n'a:=-MAX:-\$m''ltha:k-x	REK	g111a014
bestimmt auch noch	Q:-qaU=-MAX:-+	TIS	g076a007
ich, auch noch	Q:-qaU=-MAX:-+	SIK	g257a003
uns doch lieber<Z>,	dO=-MAX:-+	SAR	g194a009
Zeit noch einmal	:knO=-MAX:-+	CHD	g215a009
dann machen wir	m'a=-MAX:-@n:-	REK	g114a007
gut. Machen wir	m'a=-MAX:-@ n:-	OLV	g121a024
/z/ deleted			
lassen Sie uns	=-MAZ:-i:+	KAP	g127a005
ließe sich was	=-MAZ:-!IC+	TIS	g074a015
fünfzehnten, diese Reise	dhi:=-MAZ:-@+	KAK	g084a004
mir diese Dienstreise	dhi:=-MAZ:-@+	KAK	g085a008
diese Dienstreise zu	dh'i: n:-st\$ʀ''al=-MAZ:-@	KAK	g085a008

B MA cases with more than one deletion, listed according to symbol deleted

Deleted symbols	Context phrase	Critical word	Spkr.	Code
/ç/ in deletion				
C-t:	nicht, ob	nI=-MAC-t:;+→	HAH	g074a012
C-t:	ich vielleicht noch	fi:l'al=-MAC-t:	HAH	g075a009
C-s:	der vierundzwanzigste, fünfundzwanzigste,	:kf'i:-i:6r:Unt-;\$tsv"antsI=-MAC-s:;th@→	REK	g112a002
I-C:	Wochenende, dreiundzwanzigster, vierundzwanzigster.	=-kdr'alU-int-;\$tsv"ants=-MAI-C:;sth6→	TIS	g075a012
I-C:	Montag, vierundzwanzigster Oktober.	f'i:r:U-Int-;\$t:-sv"ants=-MAI-C:;sth6	BAC	g143a003
n-l:l-l-C:	Sie wahrscheinlich wieder	va:6\$S'al=-MAAn-l:l-C:	TIS	g076a011
I-l:C:aI-:	dann wahrscheinlich ein	va:6-a\$S'aln=-MAI-l:l-C:	TIS	g071a004
/d/ in deletion				
d:@-:	denn <Z> würde ich	v"Y6=-MAd-:@-:+	HAH	g074a016
d:@-:	as würde mir	vY6=-MAd-:@-:+	BAC	g145a005
i:-d:	mir wieder sehr	v=-MAI:-d:6+	AME	g311a006
d:@-:	letzten beiden Tage	bh'al=-MAd-:@-:n	TIS	g075a000
6-d:	ich allerdings auf	Q-q'al=-MA6-;\$d-:""IN=-khs	KAK	g082a012
d-a:n-:	okay, dann lassen	=MAd:a:n-:+	KAK	g082a010
k-d:	+F=/+ Freitag, den	fr'altha=-MAk-→	JAK	g115a011
e:-n-h-U-n-d-:	Mai, neunzehnhundert vierundneunzig.	=:kn'OYnts=-MAe:-n-;\$h-U-n-d:6t	BAC	g142a005
/g/ in deletion				
g:@-:	%dann schlage ich	Sl'a:=-MAg-:@-:	KAK	g081a016
g:@-n-:	muß sagen, also <Z>	z-s'a:=-MAg-:@-:n-→	HAH	g075a001
g:@-n-:	entschuldigen Sie	%QEnt-S'Uld-l=-MAg-:@-:n-:	HAH	g072a002
I-g:	zwei zweitägige und	tsv'al\$th"E:-"e:g=-MAI-g-:@	OLV	g121a000
I-g:@-n-:	als zweitägigen Termin	t-:%sv'al\$th"E:-"e:g-N=-MAI-g-:@-:n-:	OLV	g121a018
/h/ in deletion				

a:-h-:	möglich. Da habe	dh=-MAa:-:+	KAK	g083a011
a:-h-:	schlecht. Da habe	dh=-MAa:-:+	KAE	g191a002
e:-n:-h:-U:-n:-d:-:	Mai, neunzehnhundertvierundneunzig.	=:kn'OYnts=-MAe:-n:-\$h:-U:-n:-d:-6t	BAC	g142a005
/k/ in deletion				
k:-d:-:	+/F=/+ Freitag, den	fr'altha:=-MAk:-,→	JAK	g115a011
/l/ in deletion				
l:-l:-:	Sie natürlich nicht	nat'y:6=-MAI:-l:-C	HAH	g074a010
l:-l:-:	ich nämlich auch	n'E:-'Em=-MAI:-l:-C	KAP	g122a008
n:-l:-l:-C:-:	Sie wahrscheinlich wieder	va:6\$\$'al=-MAAn:-l:-l:-C:-:	TIS	g076a011
l:-l:-C:-al:-:	dann wahrscheinlich ein	va:6-a\$\$'aln=-MAI:-l:-C:-:	TIS	g071a004
n:-v:-O:-l:-@:-:	<äh> nun wollen	nu:=-MAAn:-+	OLV	g122a009
a:-l:-:	also bei	Q:-=-MAa:-l:-zo:+	OLV	g122a005
/n/ or /ŋ/ in deletion				
@:-n:-:	gut. Lassen Sie	l'as=-MA@:-n:-:	SOK	g146a009
@:-n:-:	— guten Tag,	gh'ut@:-=-MAAn:-:	FRS	g096a000
g:-@:-n:-:	muß sagen, also<Z>	z-s'a:=-MAG:-@:-n:-,→	HAH	g075a001
g:-@:-n:-:	entschuldigen Sie	%QEnt:-S'Uld:-l=-MAG:-@:-n:-:	HAH	g072a002
x:-@:-n:-:	gut, machen wir	l:m'a=-MAX:-@:-n:-:	KAE	g197a005
@:-n:-v:-:	also müssen wir	m-vYs-z=-MA@:-n:-:+	REK	g115a010
l:-g:-@:-n:-:	als zweitägigen Termin	t:-%sv'al\$th'E:-'e:g-N=-MAI:-g:-@:-n:-:	OLV	g121a018
e:-n:-:	von zehn bis	t-ds-z=-MA'e:-n:-:	REK	g117a002
d:-a:-n:-:	okay, dann lassen	=-MAAd:-a:-n:-:+	KAK	g082a010
n:-v:-O:-l:-@:-:	<äh> nun wollen	nu:=-MAAn:-+	OLV	g122a009
r:-U:-N:-:	%genug Erfahrung mit	Q:-E6f'a:-'a:6=-MAR:-U:-N:-:	REK	g117a006
n:-l:-l:-C:-:	Sie wahrscheinlich wieder	va:6\$\$'al=-MAAn:-l:-l:-C:-:	TIS	g076a011
e:-n:-h:-U:-n:-d:-:	Mai, neunzehnhundertvierundneunzig.	=:kn'OYnts=-MAe:-n:-\$h:-U:-n:-d:-6t	BAC	g142a005

/r/ in deletion					
r-:@-:	unternehmen, wäre es	v"E=-MAR-:@-:+	KAK	g085a008	
r-:@-:	ja, wäre es	v"E:e=-MAR-:@-:+	CHD	g216a002	
6-r-:	wir unsere Reise	Q-:Unz=-MA6-r-:@-+	SIK	g255a011	
r-U-:	und vierundzwanzigsten April	f'i-:i:6=-MAR-U-int-:s-v"ants Cst@-n	WEM	g255a010	
r-U:N-:	%genug Erfahrung mit	Q-E6f'a-:a:6=-MAR-U:N-:	REK	g117a006	
/s/ in deletion					
C-s-:	der vierundzwanzigste, fünfundzwanzigste,	:kf'i-:i:6r-U:nt-:s-v"ants =-MAC-s:sth@-,	REK	g112a002	
I-s-t-:	das ist ja	=-MAQ-I:s-t-:+	SAR	g191a031	
/t/ in deletion					
C-t-:	auch nicht, ob	n =-MAC-t-t-:+	HAH	g074a012	
C-it-:	ich vielleicht noch	fl-t:l'al=-MAC-it-:	HAH	g075a009	
t-:@-:	schaffen. Könnten Sie	%kh"9n=-MAT-:@-:%n+	MAB	g306a000	
t-E-:	donnerstags ist es	Q-q"Is-Z=-MAT-:+	KAP	g122a004	
t-E-:	mir ist es	Q-l:s=-MAT-:+	KAE	g191a002	
t-t-:	Terminkalender jetzt zur	j'Ets=-MAT-:	OLV	g122a001	
i-t-:	wie sieht das	z=-MA'i-t-:	MAK	g287a000	
u-t-:@-:	— guten Tag,	g=-MA'u-t-:@-n	MAL	g297a000	
I-s-t-:	das ist ja	=-MAQ-I:s-t-:+	SAR	g191a031	
/v/ in deletion					
@-n-v-:	also müssen wir	m-v Ys-z=-MA@-:n-:+	REK	g115a010	
n-v:O- :-@-:	<äh> nun wollen	nu:=-MAAn-:+	OLV	g122a009	
/x/ in deletion					
x-:@-:	eben besprochen hatten,	%b-m@Spr'O=-MAX-:@-:n-N	HAH	g075a009	
x-:@-:	festhalten. Brauchen wir	br'aU=-MAX-:@-:n-m	SIK	g253a005	
x-:@-n-:	gut, machen wir	l:m'a=-MAX-:@-:n-:	KAE	g197a005	
x-al-:	auch noch ein	n-NO=-MAX-:+	KAE	g194a008	

/z/ in deletion

z:0:-:

i:-z:-@-:

ef also für
an diesem Freitag

Qqa%l=-MAZ:o:-:+
dh=-MAi:-z:-@-:m+

SAR g191a021
KAK g086a008