[0533]   EXTERNAL SANDHI IN FRISIAN

1. The following pages will deal with examples of external sandhi in Frisian, as far as I have been able to find them. Since *sandhi* means 'joining', and *external* in its usual sense here means 'applying at word-boundaries only', my subject in other words will be listing, describing, and commenting on cases of phonological adjustments at wordboundaries (cf. Matthews 1974: Ch. VI, esp. p. 114; Matthews 1972:71). Left out of consideration therefore will be examples of internal sandhi, i.e. cases of *intra-word* sandhi like the joining of suffixes to stems, except when such examples bear on the subject in hand. However, compounds will not be left out of consideration, for though in a way a compound is a single word, it is in another way a word made up of two or more constituent words that can be used independently. In fact, the word *independent* is the criterial word here: I will only study the phonological effect of joining words that may otherwise be used independently, *independent* roughly being used in the sense of 'capable of being used as a word in isolation'. This will automatically exclude all affixes, since by definition affixes do not occur on their own, they always 'lean on' another word.

I will not start by discussing theoretical problems straightaway. Such problems will only start to be discussed when individual examples, and problems connected with them, are being dealt with.

A remark is in order on how I collected my examples. I first taped three one-hour-long broadcasts of *Radio Fryslân,* and noted down all cases of external sandhi I could find. Next I ordered these cases into a card index system. Finally I carefully studied the examples collected so far, and whenever I thought I distinguished a gap in my data I tried to supply the missing data myself, either using a dictionary or just trying to think of an appropriate example. Though this procedure admittedly gives my collection a personal impress, it is (I hope) saved from complete subjectivity by the fact that the backbone of the entire collection is formed by the set of examples from the original three tapes. I have left out of consideration those examples of sandhi which to me seemed sloppy. I have as a matter of fact chosen to describe external sandhi of natural speech that is neither artificially precise, slow and consequently rather sandhi-less, nor too fast and therefore more indistinct and richer in sandhi-forms. It is a well-known fact that a language may have two or more sets of sandhi-rules, *sandhi-dialects* as it were. The below forms of course represent my own personal bias. To my knowledge they are the first extensive list of words affected by external sandhi in Frisian, though Sipma in his 1913 publication gives many examples as well. I therefore do not know whether there are any real sandhi-dialects in

Frisian. Hopefully readers will correct and complete the data collected in this paper.

2. *Progressive assimilations*

The examples collected under this heading are exceptional in that they show the kind of sandhi called progressive assimilation, all other cases of external sandhi being of the kind called regressive assimilation. Progressive assimilation (or sandhi) means that phonetic characteristics of the final sound(s) of the preceding word exert influence of some sort on the initial sound(s) of the immediately following word. The first rule to be discussed is[1,2]

(l)   [d] -> [t] [k] ## ---   (a)
                                   [p] ## ---   (b)
                                   [t] ## ---   (c)

Examples of (1a): 'ik der' [ɪk tər], 'ik dij' [ɪk təi], 'ik dy dyk' [ɪk ti dik], 'dy streek dêrre' [di stre:k tɛ:rə], 'ek dizze dei' [ɛk tɪsə dɔi], 'pak dou' [pak to:], etc. Examples of (lb): 'op dy dyk' [op ti dik], 'ik sleep dij' [ɪk sle:p tɛi], 'op dit stuit' [op tɪt stʌüt], 'ik skop dus [ɪk skop tʌs], 'ik briek doe [ɪg brɪək tu] etc. Examples of (lc): 'dat dan' [dɔt tɔn], 'hwant der binne' [wɔnt tə bɪnə], 'dit dochs' [dɪt tɔx], 'hat dus' [hat tʌs], 'hat it doe' [hat ət tu], 'dat dyn maet' [dət tim ma:t], 'oft dat' [ɔt tɔt], etc.[3]

In Sipma (25) we find the following statement: there is unvoicing 'From d to t in the article də (*de*), the personal pronoun dɛi, di (*dy*), the demonstrative pronouns dɔt, di (*dat, dy*), and the adverbs dɛr, dɛ:rə (*dêr, dêrre*), when the preceding word ends in a breathed consonant and belongs to the same breathgroup'. My examples show that Sipma's list is to be completed by adding the *possessive* pronoun 'dyn', the adverbs 'der' 'dus' 'dan' 'doe' and 'dochs', the personal pronoun 'dou', and the demonstrative pronouns 'dit' and 'dizze'. This short list of words seems to exhaust all words undergoing progressive assimilation, for take for example the word 'dien', which does not itself undergo sandhi, but *causes* sandhi of the final consonant of the preceding word (the typical situation in *regressive* assimilation): 'faek dien' [fa:g diən] where final [k] of 'faek' becomes [g]. Compare this with 'dat hij hiel faek dy jonge sjocht' where 'faek dy' is [fa:k ti]! Clearly, rule (1) is not a *purely* phonological rule: the context will have to mention that it is only [d] in a limited number of words undergoing this particular kind of sandhi.

Next consider cases like 'ik mis dij sa' [ɪk mɪs tɛi sa], 'ik straf dy jonge' [...straf ti...], which show that after the slant-line indicating context not only [k, p, t] but also [s, f] must be listed. I have not been able to

find examples of [x] finally. However, 'ik bifries dat' [bəfriəz dɔt] (Fokkema et al. 130), 'ik liz dat del' [le:z dɔt ...], 'ik siz dij' [... se:z dɛi], and 'ik graef dat op' [... gra:v dɔt ...], 'ik sweef de loft yn' [... swe:v də ...], and moreover 'ik draech dij' [... dra:ɣ dɛi], 'ik joech dus' [... juɣ dʌs] seem to prove that our restricted set of words may also *cause* and not only *undergo* sandhi, that in other words with these words we seem to have both regressive and progressive assimilation, for 'dat, dij' etc. in these examples seem to cause preceding final [s, f, x] to assimilate to [z, v, ɣ]. It may be observed that it is only after *long* vowels that here regressive assimilation of [s, f, x] takes place; after short vowels there is progressive assimilation.

   All this is rather confusing, and it is not yet easy to see how these facts can be accounted for. We had perhaps better go on to our only other word undergoing progressive assimilation, viz. the pronoun 'se', after a discussion of which I will try to bring all facts into line. In connection with 'se' the following rule can be formulated:

(2) [s] -> [z] /	[V] ## -- 'hie se'	[hiə zə]	(a)
	[Ṽ] ## -- 'geane se'	[gī̃əzə]	(b)
	[ɣ] ## -- 'sloech se'	[sluɣ zə]	(c)
	[1] ## -- 'fiel se'	[fiəl zə]	(d)
	[r] ## -- 'tear se'	[tiər zə][4]	(e)
	[ŋ] ## -- 'fang se'	[faŋ zə]	(f)
	[m] ## -- 'nim se'	[nɪm zə]	(g)
	[n] ## -- 'lien se'	[liən zə][4]	(h)
	[v] ## -- 'graef se'	[gra:v zə]	(i)
	[z] ## -- 'liz se'	[le:z zə]	(i)

NB: with the restriction that rule (2) takes place in the word 'se' [sə] only.

Rule (2) could easily be abbreviated to

(2') [s] -> [z] / [+voice] ## ___

These two sandhi rules have seemingly very little in common: (1) changes a voiced consonant into a voiceless one, whereas (2') does exactly the opposite. What they do have in common is generally the progressive character of the sandhi process: what happens is that the (initial consonants of the) words we have discussed so far assimilate their voicing to the final segments of the preceding words. Comparing 'ik der' with 'wie der' ([ɪk tər] and [wiə dər]), and also 'fiel se' with 'stiet se' ([fiəl zə] and [stiət sə]), we see that this statement is true. But an example like 'fleach se' [flɪəɣ zə] immediately teaches us that there is more to it: in isolation 'fleach' is pronounced [flɪəx] with final voiceless [x]! 'fleach' with final voiced [ɣ] is also found in 'fleach der' [flɪəɣ dər]. To save our statement we would have to assume that

on a certain level 'fleach' is to be represented as having final voiced [γ], which form on the surface would often become [flɪəx] owing to devoicing rules. Transformational-generative phonology could certainly handle such cases, but I will not go into that here and simply assume that there is another explanation. I will now go on to give my own explanation of the facts we have been discussing.

It has often been observed that in many languages personal pronouns, and other word-classes as well, may be appended enclitically to the preceding word. Sipma mentions the word 'enclitic' (24-5), but he does not explain the term. Matthews (1974:168) does try to explain the word 'enclitic' together with the word 'proclitic', referring to both of them by the word 'clitic'. Clitics are 'neither full words nor, in the strict sense, merely (...) parts of a word. Instead they belong to an intermediate class of 'clitic words' or *clitics* - unaccented words which must lean for support (the term 'clitic' is ultimately from the Greek word for 'leaning') on a neighbouring full word in their construction'. Enclitics then 'lean backwards onto a full word preceding' (1974:168). They form words *phonologically*[5] 'with whatever full word happens to precede' (1974:169). Bloomfield (1935:187) defines an enclitic as a 'form which is treated as if it were part of the preceding word'. Matthews points out that the words under discussion here are more often used than explained (1974: 173).

How do all these remarks bear on the problem of progressive assimilation in Frisian? I think that the words we were discussing above ('de', 'dij', 'der' etc. and 'se') are really enclitic forms and that they show their enclitic character (their leaning for support on a preceding form) by assimilating *progressively:* they in fact adapt to the preceding form, and by doing so they leave (the final consonants of) these forms intact. In this way they show their dependent, adaptive character. They are like suffixes in being *formally* dependent on the preceding form: like the weak past tense suffix which is either *-de* or *-te* depending on the preceding sound ('stap-te' [staptə] but 'fiel-de' [fiəldə]).

In this way the conslusion reached above that rules (1) and (2') produce opposite results is demonstrated to be invalid; rules (1) and (2') do exactly the same: *they assimilate the voicing of enclitic words to the preceding words*. We can in fact generalise (1) and (2') to

(3)   [+consonant] -> [α voice] / [α voice] ## __[6]
       with the restriction that it applies to enclitic words only.

The problem encountered in 'fleach der' [flɪəγ dər] and 'fleach se' [flɪəγ zə] is still to be solved, though. How it is possible that the enclitics here assimilate to a form [flɪəγ] which in isolation would be [flɪəx] with

final voiceless [x]? Should not we rather have had the (non-occurring) forms *[flɪəx sə] and *[fl ɪəx tər]? For reasons which cannot be gone into here I reject the presumable transformational-generative solution of assigning 'fleach' an underlying representation /flɪəɣ/, to which the enclitic assimilates in voicing. It seems to me that the only other solution then left is the assumption that forms like [flɪəɣ] have here retained the voiced final consonants they had until the turn of the present century. Both Sipma and Fokkema (1969:185-190) point to the fact that Frisian had until recent times final voiced stops and fricatives [b, d, g, v, z, ɣ]. Forms like [flɪəɣ] are then relicts of restricted occurrance: they only occur before enclitics. To be more precise: it is *only* forms with historically voiced final *fricatives* that behave thus. Historically final voiced *stops* are today always voiceless before enclitics: 'ried doe' [riət tu] etc. It is not clear to me why forms with historical final voiced *stops* are treated differently from forms with historical final voiced *fricatives*.

   [gra:v] in [gra:v dɔt], [se:z] in [se:z dɔt], and [juɣ] in [juɣ zə] are thus simply relicts of former times, with a restriction on their occurrence. In view of the fact that all other cases of sandhi show regressive assimilation it is not surprising that at present there are signs of the old system breaking up, that in other words regressive assimilation takes place where we would expect progressive assimilation. This seems to be true especially in cases where historical final voiced fricatives are concerned. Thus for instance 'ik forlies dat' is [ɪk fəliəz dɔt], but 'ik forlies se' is [ɪk fəliəs sə] and *not* (in my speech) *[ɪk fəliəz zə] (though 'ik liz se' is in my speech [ɪk 1e:z z ə]). There is apparently a tendency for 'se' to be treated differently from the other enclitics. In all probability a larger collection of data would show considerable variation among speakers.

3. The definite article 'de'
For the definite article 'de' the following rule can be formulated:

(4) [d] -> Ø /   [m] ## - 'om de'   [om ə]
                   [n] ## - 'tsjin de'   [tsjɪn ə]; 'yn de' [in ə]
                   [p] ## - 'op de'   [op ə]
                   [r] ## - 'ûnder de'   [undər ə]

        with the following restrictions: (a) the rule applies to 'de' only; (b) after prepositions only.

Restriction (b) is proved by the fact that after other words rule (4) never applies: 'nim de' is always [nɪm də]; 'rin de' [rɪn də]; 'sliep de' [sliəp tə] and 'fier de' is [fiər də][7]. All this is in agreement with Sipma (24). On

the same page Sipma also asserts that occasionally the rule applies even after prepositions ending in vowels, e.g. 'mei' and 'nei'. For my speech this does not hold true, nor have I found examples corroborating Sipma's assertion. Rule (4) is optional: it may also not apply. In that case rule (3) is applied, 'de' being (as we have seen) an enclitic word as well.

The fact that the form of 'de' is affected *after* certain words would make rule (4) a progressive rule of assimilation. Perhaps we had better avoid the word 'assimilation' here, considering the fact that [d] disappears altogether, and speak of sandhi only. Rule (4) is no longer productive, as its severe restraints indicate as well, and is no doubt of ancient origin. I should perhaps add that after [t] 'de' becomes [ə] as well: 'út de' [üt ə] (cf. note 3).

4. Regressive assimilations

4.1. I decided to treat compounds as consisting of two (potentially independently occurring) words. The boundary symbol used in the case of compounds is +.Rule (5) then is

(5)   [f,s,x] -> [v, z, γ] /--) + [b, d, g, r, 1, j, m, n, w, V]

or more formally

(5')   [+consonant]   -> [+voice] / --- + [+voice]
       [+fricative   ]

Some examples: 'liifdracht' [li:vdraxt]; 'reefgat' [re:vgɔt]; 'liifeigene' [li:vaiɣənə]; 'moarnsbrogge' [mu̯ã:zbroɣə]; 'bedsdoarren' [bɛdzdu̯arən]; 'waeksdom' [wa:gzdom]; 'gerswaer' [gɛ:zwa:r]; 'fytsbelle' [fidzbɛlə]; 'leech-drinke' [le:ɣdrɪŋkə]; 'heechachte' [he:ɣaxtə] etc. The example [fidzbɛlə] shows that rule (5') as it stands is still not quite correct, for it is clear that entire voiceless *clusters* become voiced.[8] I therefore reformulate rule (5') as

(5")   [+consonant]   ->   [+voice] / ---+ [+voice],
            [+fricative]$_i$

where the subscript $_1$ means 'one or more'.

An even more general formulation is possible.

(5"')   [+ consonant] -> [α voice] / -- + [α voice],
            [+ fricative] $_1$

for (5"') is nothing else but a rule of regressive voicing harmonisation. By changing + into # we get the rule for two consecutive words that are not elements of a compound:

(6)   [+consonant] -> [α voice] / - ## [α voice].
            [+fricative]$_1$

Some examples: 'of bliuwt' [ov blüut]; 'of docht' [ɔv doxt]; 'grif net' [grɪv nɛt]; 'geef is' [ge:v ɪs]; 'Fries binne' [friəz bɪnə]; 'wêz dan' [wɛ:z dɔn]; 'ljipkes lizze' [ljɪpkəz le:zə]; 'dus rekkenje' [dʌz rɛkənjə] 'lykas hjir' [likəz jɪr]; 'de bus al fuort' [... bʌz ɔl ...]; 'dreech binne' [dre:ɣ bɪnə]; 'skoech goed' [sku:ɣ guət]; 'noch rommer' [nɔɣ romər]; 'in feech jowt' [fe:ɣ jaut]; 'seach der fleurich út' [... flʌ:rəɣ üt].

4.2. In some cases voiceless fricatives do not assimilate, but disappear altogether. To begin with: 'is' is often reduced to [ɪ], for which   the   following 'rule' could be given:

(7) [s] -> ø / - ##   [d] 'is der', 'is er'   [ɪ dər][9]   (a)
                        [j] 'is hjir'   [ɪ jɪr]   (b)
                        [n] 'dat is nou'   [ɪ no:]   (c)
                        [m] 'it is mar'   [ɪ mar]   (d)
                        [w] 'it is wer'   [ɪ wɛr]   (e)
with the restriction   that this rule only applies to 'is'.

The environments listed in (7) seem to be the most common ones, but it should be added that in my own speech at least I have noted a tendency to pronounce 'is' as [ɪ] before *all* consonants, e.g. 'is Piter' [ɪ pitər], 'is klear' [ɪ klɪər] etc. There is probably a lot of variation in this respect among different speakers, and also in the speech of one individual depending on speed and style of speech. In all likelihood rule (7) comes dangerously close to the 'sloppy' articulations referred to in section (1). Its results, however, can be observed very frequently, and that is why it has been included here.

4.3. Not only [s], but also [x] disappears in a certain number of cases. As the environment is not restricted here the rule can simply be as follows:

(8)   [x] →Ø / --- ## [+segment],
       with the restriction that this rule only applies in a small number of words: 'sjoch', 'fleach', 'dogge', 'sjogge', 'troch', 'toch',[10] 'fleach, 'sloech', 'joech' and 'noch'[11].

Examples: 'sjoch der' [sjʌ dər]; 'sjoch blauwe' [sjʌ blauə]; 'noch genôch' [nɔ gənɔ:x] 'troch de' [tro də]; 'sjogge je' [sjʌ jə]; 'troch reade' [tro rɪədə]; 'ik doch lilk' [do lɪlk]; 'noch mar' [nɔ mar]; 'toch neat' [tɔ nɪət]; 'fleach er' [flɪə dər]; 'seach hjoed' [sɪə juət]; 'joech se' [ju zə]; 'dogge we' [do wə]; 'troch peallen' [tro pjɛlən]; 'noch tritich' [nɔ tritəx]; 'sloech Kees'

[slu ke:s]; 'troch seis' [tro sais]; 'dogge se' [do zə]; 'sloech se' [slu zə]; 'troch in' [tro ən]; 'noch in' [nɔ ən], 'seach in' [sɪə ən]; 'fleach in' [flɪə ən]. It should be noted that rule (8) seems most common with 'sjoch', 'doch, dogge', 'troch', 'toch', 'noch', but that applications of rule (8) in the case of the other words mentioned are by no means uncommon.

In the word 'sjocht' [x] also often disappears before the suffix -*t*: [siʌxt] is very often reduced to [sjʌt], but not before (non-suffix) [t]: 'rjocht' [rjʌxt]. Interestingly, rule (8) produces final vowel positions that are otherwise not permitted: [nɔ], [tro], [do], etc.

The words to which (8) applies are all rather common, but for the rest I cannot think of any 'explanation' why [x] should be dropped at all word-finally here. Because of its restricted field of application rule (8) is obviously not a real phonological rule, at least not a general one. This remark also applies to rule (7).

[x] also disappears before a morpheme-boundary in compounds. Rule (9) in fact exclusively applies to 'troch', this word being the only word listed in rule (8) that normally occurs in compounds:

(9)   [x] -> Ø / --- + [+segment].

Examples: 'trochsile' [trochsilə]; 'trocheamelje' [troɪəməljə], etc.

4.4. Voiceless stops assimilate in voicing to following voiced stops, so:

(10)   [+stop] ->   [+voiced] / --- ##   [+stop]
                 [-voiced]   [+voiced]

Examples: 'faek dien' [fa:g diən]; 'ek daelks' [eg da:lks]; 'brûk genôch' [brug gənɔ:x]; 'op bêd' [ob bɛ:t]: 'sliep goed' [sliəb guət]; 'dat bliuwt' [dɔd blüut]; 'bêst bliuwe' [bɛ:zd blüuə]; 'hast gjin' [hazd gjɪn]; 'dit dwaen' [dɪd dwa:n] etc. Occasionally voicing is found before other sounds than voiced stops, cf. examples like 'ek noait' [ɪg noit] and 'ik wol mar sizze' [ɪg wol ...]. Such examples do not seem to be too common, however, and strike me as rather careless articulation. I therefore leave (10) as it stands. The only thing that could be remarked about such examples is that they reveal a tendency to generalise the context to simply /--- ## [+voiced]. By changing # into + we get the rule for compounds:

(11)   [+stop] -> [+voiced] / --- +[+stop]
                 [-voiced]   [+voiced]

Some examples/ 'siikbêd' [si:gbɛ:t]; 'opdwaen' [obdwa:n]; 'bêdgenoat' [bɛ:dgənoət]; 'kunstdong' [kõ:zddoŋ] (!) etc.

By changing + and - before [voiced] into α more general

versions of (10) and (11) could have been written. I leave this to the reader. Clearly the rules in this section, like rule (6), bring about voicing harmony (between stops).

4.5. The following rule again describes a minor phenomenon in that it applies to a small handful of words only. As it involves complete deletion of a segment it is perhaps not an assimilation rule proper. The sandhi formulated in rule (12) occurs very frequently, however, and since it occurs *before* certain sounds it is in that respect a regressive sandhi phenomenon.

(12)   [t] -> Ø / - ## [j , k, w]

Examples 'dat je' [dɔ jə]; 'moat je' [ma jə]; 'dat 'k' [dɔk]; 'oft ik' [ɔk]; 'doe't 'k' [duk]; 'dat we' [dɔ wə]; 'moatte we' [ma wə]; 'as je'[ɔ jə]   (rather: 'at je', assuming that 'as' is really 'at'); etc. Rule (12) is apparently restricted to the following words: 'at, oft, dat, doe't, moat(te)'. Perhaps 'doe't' should have been left out of this list: together with 'sa't', 'nou't', which also undergo (12) in 'sa't 'k' [sak] and 'nou't 'k' [no:k], it may be assumed here to be really the historical form *without* the sentence-subordination indicating final [t]. On the other hand, these words *as* conjunctions are really 'doe't, sa't, nou't' (*with* final [t]), and therefore I am after all in favour of considering (12) a *synchronic* rule.

I have not been able to find examples of rule (12) before any other words than weak forms of the personal pronouns 'ik, je, we'. The restrictions on (12) have therefore to be added to accordingly.

Finally, here (and maybe in other cases as well) it is possible to distinguish various levels of articulatory preciseness (or formality). Take for example 'dat ik'; there are four possible pronunciations, each of them as it were taking up a position on a scale of decreasing formality: (1) [dɔt ɪk]; (2) [dɔt ək]; (3) [dɔt k]; (4) [dɔk]. It seems best to derive (4) from (3), (3) from (2), and (2) from (1), and not (4) for instance from (2) or (1) directly. Obviously the conclusion must be that a number of words have various different forms depending on style and speed of the utterance.

Though really falling outside the scope of this article, the following remarks about [t]-deletion could be added. It is very interesting to observe that also before [s] a [t] is often deleted, but *only* when and if this [s] is the first segment of a *suffix*. Thus 'lyts' [lits], but 'lytste' [listə][12]; 'ik wit [wɪt], but 'dou witst' [wɪst]; 'great' [grʌt], but 'greatste' [grʌstə] etc. But when the following [s] is *not* the first segment of a suffix it does not delete: 'ik bats' [bɔts] and 'hij batst' [bɔtst]; 'hij kwitst' [kwɪtst] from [bɔtsə] and [kwɪtsə]

respectively. The position of the morpheme boundary is all-important: 'greatste' is made up of 'great' + 'ste' [grʌt] + [stə]; 'kwitst' consists of 'kwits' + 't' [kwɪts] + [t].

4.6. Extremely common is the deletion of final [1] in the two words 'sil(le)' and 'wol(le)' before any consonant, and occasionally before a pause as well in the case of 'wol'. So the rule is:

(13) [1]-> Ø / --- ## [+cons], applying to 'sil(le), wol(le)' only.

Examples: 'sil(le) bij' [sɪ bɛi]; 'wol fine' [wo finə]; 'sil goed' [sɪ guət]; 'wolle jim' [wo jɪm]; 'wol keare' [wo kɪərə]; 'sil 'k' [sɪk]; 'wol 'k' [wok]; 'sil mar' [sɪ mar]; 'wol sizze' [wo se:zə]; 'sil wol' [sɪ wol]; 'sil se' [sɪ zə]; 'wol nou' [wo no:]; 'sil prate' [sɪ pra:tə]; etc.

   Some examples of [l]-deletion in 'wol(le)' even before a pause: 'ik wit it wol' [ɪk wɪt ət wo]; 'jawol' [jawo]; 'tankewol' [taŋkəwo].

   Again, as in section 4.3., rule (13) here places vowels in positions that are otherwise not permitted (final [-ɪ] and [-o]).

   There seems again to be a scale of decreasing formality: 'sil ik' [sɪl ɪk] -> [sɪl ək] -> [sɪl k] -> [sɪk].

   Interestingly, [1] also disappears in the 2nd pers. sing. of 'sille' and 'wolle': 'dou silst' [sɪst], and 'dou wolst' [wost]. But only in these two words, as is proved by 'dou dolst' [dolst] and 'dou tilst' [tɪlst], which both retain [1] before the ending [-st]. Clearly, the application of this 'rule' is restricted to 'sille, wolle'.

4.7. I now come to [r] deletion, which incidentally my tapes showed to be one of the most telling signs of the Frisian origin of a person speaking Dutch. The data reveal clearly that [r] in final position may be deleted before any consonant, not just before alveolars, so we have the following rule:

(14) [r] -> Ø / --- ## [+consonant].

Examples: 'hjir bliuwe' [ji blüuə]; 'partikulier bisit' [pətiküliə bəsɪt]; 'oer de' [uə də]; 'dêr giet' [dɛ giət] ; 'oar petret' [oə pətrɛt]; 'mar toch' [ma tɔx]; 'temperatuer komt' [tɛmpərətü: komt]; 'ynspekteur fan' [ĩspɛktʌ: fɔn]; 'hjir hat' [jɪ hat]; 'in jier earder' [iə jɛdər]; 'jier lyn' [iə lin]; 'hjir rint' [jɪ rɪnt]; 'pear minsken' [pɪə mẽ:skən]; 'moaije kleur, nou' [... klʌ: no:]; 'fierder sjen' [fjɪdə sjɛn]; 'mear sinne' [mɪə sɪnə]; 'swier wurk' [swɪə wʌrk]; 'forlear se' [fə1ɪə zə]; etc.

   By changing # into + we get the rule for compounds:

(15) [r]   ->   Ø / --- + [+consonant].

Some examples: 'foarbyld' [fu̯abɪlt]; 'parkeargaraezje' [pəkɪəgara:zjə]; 'waersiik' [wa:si:k]; etc.

My impression is that rules (14) and (15) do not give 'sloppy' pronunciations; that, however, in slightly more careful articulation [r] is retained before non-alveolars. Retention of final [r] before alveolars, e.g. in 'raer dwaen' [ra:r dwa:n], strikes me as slightly artificial (though this judgment is of course rather personal).

However, it should be conceded that rule (15) at least has a large number of exceptions. It seems that especially after *short* vowels [r] is usually retained before morpheme boundary +. Perhaps *frequency* plays a role, too, here. Thus 'wersjen' is often [r]-less [wɛsjɛn], but all of the following words (also in my speech) retain their [r]: 'kuorfol, stjurboard, fjurpot, fuorman, buorwiif', etc. (cf. K. Boelens 1952:60) and 'mardyk, tartonne, parsop, tarlucht' etc. (cf. T. Hoekema 1953:47). I have, in fact, found rather few examples of rule (15). This may be another indication that in compounds final [r]-deletion is not as widespread.

It is a well-known fact that there is an intra-word constraint to the effect that [r] may never occur before alveolars in Frisian. But how do we explain the above two rules? In my opinion the following development took place: from an intra-word constraint the ban on [r] occurring before alveolars first became an inter-word constraint.[31] After that, the rule (the constraint) was extended to all consonants. This hypothesis would nicely explain the fact that, as it would seem, [r] is more often retained before non-alveolars than before alveolars. I will not try to capture all this in my rules.

Apart from that rules (14) and (15) are still not quite on all fours from another point of view. In the following examples word-final [r] is not deleted: 'modderreed' [modr̥re:t 'winterdei' [wintr̥dai]; 'tsjuster dykje' [tsjʌstər dikjə]; 'ûnder dy' [undr̥ di]; etc. Apparently 'er' may after consonants also be pronounced as *syllabic* [r]. To capture this in our rules (14) for example would have to be reformulated as (14'):

(14') [r] -> Ø / V ---- ##   [+consonant].

Similar changes would have to be made in (15).

The rules in this section again place vowels in final position which normally may not occur there.

4.8. All sandhi-phenomena reviewed so far were cases of assimilation of voice, and some involved complete deletion of a segment. I now come to different kinds of sandhi: assimilation of place, and finally loss of a nasal with nasalisation of a preceding vowel.

(16) [r] -> [m]   / --- ## [b, p, m], or more generally:

(16') [+alveolar] -> [+bilabial]/   [-----   ] ## [+bilabial]
                                             [+nasal]

Some examples: 'fan bitsjutting' [fɔm bətsjʌtɪŋ]; 'ien plak' [iəm plak]; 'oan mij' [oəm m ɛ i]; 'kin mij' [kɪm mɛi]; etc.

For compounds the rule would of course be:

(17) [+alveolar] -> [+bilabial] /   [----   ]   + [+bilabial]
                                       [+ nasal]

Some examples: 'lânbou' [loəmbau]; 'oanpoene' [oəmpuənə]; 'oanmeitsje' [oəmmaitsjə]; etc. I am somewhat uncertain about the pronunciation of 'oan mij' and 'oanmeitsje'. Though of course in accordance with the rule given in note 3 there is really only *one* [m] in these words, this is not the only point to be remarked on here. It seems to me that in these words the preceding vowels are slightly nasalised, so [oə̃maitsjə] and [oə̃ mɛi] really. I in fact hear a difference between 'oanmeitsje' [oə̃ maitsjə] and 'ôfmeitsje' [oəmaitsjə]; they are, in other words, *minimal pairs*! For a discussion of the phonological status of nasalised vowels I refer the reader to my article in Us Wurk 1976.

[n] also assimilates to a following guttural:

(18) [+alveolar] -> [+guttural] /   [----   ]   ## [+guttural]
                                        [+nasal]

Some examples: 'dan gean' [doŋ gɪən]; 'stien keile' [stɪəŋ kailə]; 'sawn kij' [soəŋ kɛi]; etc. As there are no words with initial [ŋ] this rule only applies to [g] and [k]. Rule (18) produces final collocations like [-oəŋ] that are not found in words pronounced in isolation, e.g. in [soəŋ kɛi]. Occasionally there are, as before, various levels of formality: 'bin ik' has four different pronunciations of decreasing formality (preciseness), viz. (1) [bɪn ɪk],   (2) [bɪn ək], (3) [bɪn k] and (4) [bɪŋk] .

4.9. It is very characteristic of Frisian, as opposed to Dutch, that it drops final [n] before words beginning with non-plosive consonants (except [h]), nasalising the immediately preceding vowel in the process:

(19) [Vn] ->[ṼØ] / ---- # # [f, j, 1, r, s, z, w]

or more generally

(19') [Vn] -> [ṼØ] / ---- ##   [-stop   ]
                                 [+consonant]
                                 [-guttural   ]

The rule as it stands is rather odd in that it does two things at a time: it drops the [n] and simultaneously nasalises the preceding vowel. No doubt the historical process was different and involved various stages. As a description of a synchronic fact the rule can be left as

it stands in my opinion, since it simply captures the sandhi-phenomena under investigation. It in fact describes assimilation synchronically, not the historical phonological development leading up to the present situation. (19') may therefore be called a slightly dephonologised rule.

Some examples: 'ien fan' [ĩə̃ fɔn]; 'stean hjir' [stĩə̃ jɪr]; 'tsien learzens' [tsĩə̃ liəzə̃s]; 'tsien reade' [tsĩə̃ rɪədə]; 'gean sil' [gĩə̃ sɪl]; 'miskien wol' [mɪskĩə̃ wol]; 'slaen se' [slã zə]; etc.

Changing # into + gives us the rule for compounds

(20) [Vn] -> ṼØ   / - as in (19').

Some examples: 'hânfol' [hõə̃fol]; 'tsienjierrich' [tsĩə̃jɪrəx]; 'tsjernlid' [tsjɛ̃lɪt]; 'oanroppe õə̃ropə]; 'grounslach' [grũslax]; 'hânwetter' [hõə̃wɛtər]; etc.

These rules produce word-final nasal vowels, which words pronounced in isolation may never have.

Like [r], [n] is not dropped when it is syllabic: 'hat 'n faem' [hatn̩ fa:m]; 'hoeden fiele' [huədn̩ fiələ]; 'woenen je sizze' [wuənn̩ jə se:zə]; etc., instead of alternative [hat ə̃ fa:m] and [wũə̃ jə se:zə] (from 'woen' je sizze'). [huədə̃ fiələ] does not seen to be a very likely pronunciation to me: the usual pronunciation of 'hoeden' seems to be [huədn̩]. In fact '-en' may generally be reduced to [n], [m] or [ŋ] depending on the preceding consonant, and in all such cases the rules above do not apply. The rule [ən] -> [n] may be said to be ordered before rules (19) and (20). Compare for example 'iepenloft' [iəpm̩loft] or [iəpə̃loft]; 'beaken reitsje' [bɪəkn̩ raitsjə] or [bɪəkə̃ raitsjə] etc.[14]

5. Some concluding remarks

5.1. In the preceding pages the word 'rule' was used rather loosely, and the reader may have taken exception to this, on the grounds perhaps that the word 'rule' for him implies great *regularity* and *productivity*. Seen in this light a 'rule' like rule (4), both whose domain and context involve finite sets (the domain in fact being the single word 'de', and the context being restricted to the closed set of prepositions only), could hardly be called that. Likewise rule (1) might be objected to, because its domain is severely restricted (though its context is defined over an infinite set).

But then: what is a rule? Does the concept 'rule' necessarily imply restraint-free domains and contexts? In that case only rules like 'rule' (6) may properly be called rules. All the rest should be called something different. Clearly, the concept 'rule' is in need of a clear definition. But this article was not written with that in mind: its only purpose was to try and detect regularities in external sandhi in Frisian. Let it therefore be sufficient to state that 'rule' was here used as

referring to anything *regular,* either of the constrained or of the unconstrained type. All this means that there are various degrees of regularity, that regularity is something scalar. What this article set out to do then was of course to find such regularity. The *degree* of regularity can be easily read off from the constraints on domains and contexts in the rules given.

5.2. Another point to be remarked on here is the problem of the *sandhi-dialects* mentioned in section l. Do they really exist? To my knowledge nobody has ever yet gone into this. Perhaps future dialect-questionnaires could include a number of questions aimed at putting an end to our present ignorance concerning the (non)existence of such dialects.

5.3. A related point is the question whether in Frisian there are various levels of functionally distinct articulatory precision. This issue was raised in section 1. and also in the main body of the article. The problem is, to be more precise, whether there are various levels of formality, or (which may really be the same) whether there are sandhi-rules for lento speech, allegro speech, presto speech etc. in Frisian. This too might be investigated.

Annen (Dr.) *G. v. d. Meer*

Notes

1. I will use Fokkema's phonetic symbols for my transcriptions (with some unimportant modifications), cf.Fokkema et al. 1961.
2. I will not pay any attention to the difference between phonology and phonetics, and simply use [ ] only in my transcriptions. The meaning of the symbols used is roughly the following: -> = 'becomes'; # = 'word boundary'; /= 'in the following context'; + = 'morpheme boundary'; — = 'indicates the position of the sound(s) to the left of -> '.

3. [ɔt tɔt] is of course really [ɔt ɔt]: double, i.e. long, consonants do not occur, except occasionally in emphatic, emotional speech, cf. Sipma 14: 'it is in griis' [... gr:i:s]. The use of two identical consonants in immediate juxtaposition is merely a move to save the *generality* of the rules given: for the sake of generality I assume that the rules do apply as given, but that a *phonotactic restraint* filters out all double consonants. It might be added that in reality all 'rules' here are in a way phonotactic constraints, or rather such constraints put to use.

4. Ordinarily [tiə zə] and [lĩə zə] respectively, cf. sections 4.8 and 4.9.

5. Which means that the *phonological* word has a different definition from for example the *lexical* word.

6. Where *a* is a variable standing for *either + or-*.

7. Ordinarily [fiə də] of course, cf. rule (14'); but at least never [fiər ə]!

8. By a similar change my other rules could be made to apply to final *clusters* as well. I have refrained from doing so here; I assume the reader can easily do this himself.

9. Enclitic 'er' often appears as [dər].

10. Though standard Frisian prefers 'dochs', 'toch' is more usual in spoken language.

11. For some speakers 'graech' has to be included in this list: 'wol graech wer' [wol gra: wɛr]; 'hie wol graech wollen' [hiə wo gra: wolṇ].

12. Strictly speaking [t]-deletion would give [lisstə], but here of course the phonotactic restraint referred to in note 3 comes into operation.

13. Cf. remarks made by Chomsky/Halle (1968:67).

14. I finished this article in the autumn of 1978, at which time Riemersma's *Sylabysjerring, nazzeljerring, assymyljerring* (1979) of course had not yet appeared. Riemersma's extensive and thorough discussion of syllabic [n] and its various assimilations goes far and away beyond my limited number of observations. For a more complete account of the behaviour of syllabic [n] the reader is therefore advised to study the abovementioned publication.

References

Bloomfield, L. (1935): *Language;* London.

Boelens, K. (1952): 'Hwannear wurdt de skreaune 'r' yn it Frysk útsprutsen? II'; *Us Wurk,* 1952: 59-64.

Fokkema et al. (1961[2]) (i.e. A. Cohen, C.L. Ebeling, K. Fokkema and A.G.F. van Holk): *Fonologie van het Nederlands en het Fries: Inleiding tot de moderne klankleer;* 's-Gravenhage.

Hoekema, T. B. (1953): 'Réaksjes en oanfollingen op: Krine Boelens, Hwannear wurdt de skreaune 'r' yn it Frysk útsprutsen?'; *Us Wurk,* 1953: 45-48.

Matthews, P.H. (1972): *Inflectional Morphology: A theoretical study based on aspects of Latin verb conjugation;* Cambridge.

Matthews, P. H. (1974): *Morphology: An introduction to the theory of word-structure*; Cambridge.

Van der Meer, G. (1976): 'The phonological interpretation of nasality in Frisian reconsidered'; *Us Wurk,* 1976: 51-62.

Riemersma, Tr. (1979): *Sylabysjerring, nazzeljerring, assymyljerring;* Ljouwert.

Sipma, P. (1913): *Phonology & Grammar of Modern West Frisian, with phonetic texts and glossary;* Oxford (also available as an unaltered reprint of the publication of 1913, nr. 272 of the 'Fryske Akademy', Ljouwert (Leeuwarden), 1966).