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FRISIAN BREAKING
A HYPOTHESIS ABOUT ITS HISTORICAL DEVELOPMENT

1 In this paper I will give a description of the historical development of the phenomenon called 'breaking' in Frisian. This term is used to refer to the morphological alternations found in many Frisian words e.g.¹

<i>doas</i>	[doəs] -	<i>doaske</i>	[dʊaskə]	'box - little box'
<i>beam</i>	[biəm] -	<i>beammen</i>	[bʲiɛmən]	'tree - trees'
<i>stien</i>	[stiən]-	<i>stiennen</i>	[stiɪnən]	'stone - stones'
<i>sluere</i>	[slüerə]-	<i>sljurkje</i>	[sliörkjə]	'slide (vb) - slide(vb)'
<i>foet</i>	[fuət] -	<i>fuotten</i>	[fuotən]	'foot - feet'.

(cf. Fokkema et al.² 1961: 119).

In these and many other words we thus find the alternating pairs [oə] – [ʊa], [iə] – [iɛ], [iə] – [iɪ], [üə] – [iö] and [uə] - [ʊo]². The second of each pair is usually called the 'broken' member. In present-day Frisian the broken members are mostly followed by one or more syllables, usually inflectional or derivational syllables, but also words that can occur on their own, viz. second elements of compounds. An example is *stienswolm* [stiɪnswolm]³ 'suppurating tumour' - *stien* [stiən] 'stone'. As there are many cases where suffixes and second elements of compounds are not preceded by broken sounds, the exact conditions for breaking are not clear. It is at least clear that at present these conditions are not purely phonetic.⁴ To my knowledge nobody has yet tried to give an extensive description of the environments where breaking is found. It does seem to be a synchronically productive type of alternation, but then only semi-productive. An obvious counteracting factor is analogy, which has removed or prevented breaking in many cases. On the other hand, the weak productivity of the alternation must be held responsible for the non-broken sound in for instance *oalje-produkten* [oəljə-] 'oil products', whereas in older words like *oaljekoek* [ʊəljə-] 'doughnut' we find a broken sound. In some parts of Friesland the pattern of alternation is apparently more productive than in other parts. As Frisian spelling does in many cases not indicate breaking at all it is very hard to find out where exactly breaking is to be found. A quick glance through Trinus Riemersma's latest volumes of fiction⁵ with their spelling which consistently indicates breaking, teaches us that in the northern parts of Friesland breaking is far more common and productive than elsewhere. As long as we do not have extensive lists of cases of breaking together with indications of dialectal variance every paper on breaking, the present one included, is bound to present an incomplete and fragmentary picture of the phenomenon.

2 In the broken members of the alternations the [ʊ] corresponds to the back vowel sounds [o] and [u] in the non-broken members, and the [i] to the [ɪ], [i] and [ü]. The second element of the broken sound, or sequence rather, is lower by one stage in terms of the vowel diagram than the first elements of the non-broken sequences. There is one exception: [oə] does not correspond to broken [ʊɔ], but to [ʊa]. Thus the alternation is between *c e n t r i n g* diphthongs (i.e. diphthongs ending in [ə]) and sequences of semivowels ([i] and [u]) + [ö], [o], [a], [ɛ] and [ɪ]. We do not find cases of breaking where the non-broken corresponding member is a monophthong.

Now this phenomenon is not restricted to Friesland. We find it in English in present-day and earlier dialectal words, for instance: *swope* 'soap' (AD 1449), *wother* 'other' (AD 1528), *Wolster* 'Ulster' (AD 1515), *whudd* 'hood' (about 1575), *whot* 'hot' (AD 1565), *whome* 'home' (AD 1647), and of course even in standard English *one* and *once*, which in regular development should have become [əun] and [əuns]; *yearth* 'earth' (AD 1549), and *yearl* 'earl' (AD 1771 and 1787) (Wyld 1936³: 306-8). About the *w*-examples Wyld says: 'The development of the form (wan) is not altogether easy to follow. It is certain, however, that it owes its main feature - the initial 'w' - to what is called a strong rounded on-glide, which in time became a definite independent lip-back consonant' (306). In the light of what is going to be said below I think I can generalise this statement in such a way that the /w/ and /j/ in these examples can be said to have developed respectively from back and front first elements of diphthongs. So *swope* presumably [sʊɔpə] could have developed from something like [soɔpə], and a similar history can be posited for *yearth* etc.

Similar phenomena have been noted in the dialects of Westphalia and Friezenveen (Baader 1944). Baader gives the pairs [filənə] ⁶ 'Friezenveen', with stress on the first element, and in compounds [feénəklultən], with stress on the second element; and for instance the familiar sounding [hoózn] 'stockings' (Münster), and [stroótə] 'throat' (Münster), both with stress on the second element (3-6). Baader clearly states that what I would call these broken sounds developed from original diphthongs by means of a *c c e n t s h i f t* (1), often in the environment of a following suffix (7). His 'explanation' of the ultimate cause will no doubt strike the present reader as rather fanciful, and not based on clear empirical data.⁷

Van Ginneken gives similar examples from Brabant and Limburg, cf. Van Ginneken 1944. Examples: *gjen* (du. *geen*), *kwol* (du. *kool*), *mwoi* (du. *mooi*), *hjerring* (du. *haring*), *tworren* (du. *toren*), etc. (20). Examples of alternating pairs: *kowwel* (du. *kool*) - *kwolhof* (du. *koolhof*), *owwer* (du. *oor*) - *worlel* (du. *oorlel*), *bowwet* (du. *boot*) - *bwotje* (du. *bootje*), *de berg is howweg* (du. *hoog*) - *een hwogge* (du. *hoge*) *berg*, *een mooie stowwet* (du. *stoot*) *tien stwotten* (du. *stoten*) (24).

According to Van Ginneken this can also be seen in French dialects: *pjə* 'pied' and *lo pje dra* 'le pied droit'; *powə* 'un peu' and *a pwoprès* 'a peu près'; *premjər* 'premier' and *premjère* 'première' (26).⁸ We again see that one of the members of the alternating pair contains a diphthong, and that the broken sound sequence occurs when an inflectional syllable follows, or when in connected speech a closely connected syllable follows. Van Ginneken asserts that such-like phenomena can also be observed in North-Italian dialects, in Rhaeto-Romance, Dalmatian, Rumanian, Serbo-Croat and Celtic languages. The facts are relatively clear, though we need not accept Van Ginneken's explanation, which like Baader's is based on vague racial theories.^{9 10 11} Nearer home we find examples of breaking in the dialects of Denmark.¹²

We can summarise this section by concluding that in all likelihood the 'broken' forms derived from original diphthongs by means of accent shift as Baader and Van Ginneken also suggested. In many dialects this accent shift resulted in alternations between non-broken and broken forms, as often the morphemes with non-broken sequences lacked the environment for accent shift.

3 In Friesland the dialects of the Súdwesthoeke (henceforth SWH), Skylge and Skiermûntseach did not take part in the process called breaking. They instead often have short monophthongs where the breaking dialects have broken sequences, or more correctly for SWH, the SWH dialects have at present no broken sequences with initial [ʊ] (cf. Miedema 1958: 150; Miedema/Steenmeijer-Wielinga 1972; Hof 1933). There is evidence that the broken forms with [i], as far as they do occur in SWH, were borrowed from adjacent dialects (Miedema 1958: 150-4). Hof (1933: 114) explains the absence of broken sequences in SWH by assuming that [ʊ] and also [i] were dropped from originally broken sequences. Miedema convincingly showed that this cannot be true, as we should then have got e.g. [batskɪp] 'message' and not the form found today [bɔtskɪp] (Miedema 1958:150). Therefore another explanation for the absence of [ʊ]-sequences is called for. Miedema believed that SWH did not undergo breaking at all, but only a shortening process. This shortening took place before Old Frisian [ɪ:], [ɛ:], [o:] and [ɔ:] had been raised to [iə], [ɪə], [uə] and [oə] respectively (151), and led to the short monophthongs [ɪ], [ɛ], [o] and [ɔ]. But Miedema also seems to hold that the alternation patterns [ɪ:] - [ɪ], [o:] - [o], [ɛ:] - [ɛ] and [ɔ:] - [ɔ] were the c o m m o n basis from which both breaking and non-breaking dialects developed. In other words, both SWH [ö] and [ö] in [fötən] and [skö:lə]¹³, and standard Frisian [fʊotən] 'feet' and [skʊalə] 'school' derive from earlier common Frisian [fotən] and [skɔlə]. The development [o] -> [ö] and [ɔ] -> [ö] for SWH is not implausible, and must at any rate simply have taken place (also cf. below). But the change [o] -> [ʊ] and [ɔ] ->

[ua] in [fotən] -> [fuotən] and [skɔlə] - [skualə] in standard Frisian, roughly from about the beginning of the eighteenth century (Miedema 1958: 155), is highly unlikely for a number of reasons. In the first place we have the evidence in section (2) that everywhere broken sequences derive from d i p h t h o n g s, not monophthongs. Secondly, as Markey in his recent article points out (Markey 1975: 199) there is 'little phonological plausibility in deriving falling and rising diphthongs in Standard West Frisian from the intermediary stages posited by Miedema'. Among other things it does not evidence accent shift, which must be assumed to have taken place (section (2); also cf. Andersen 1972: 24). In fact Miedema leaves us completely in the dark as to how he himself would derive [fuotən] from [fotən]. Analogical processes in the seventeenth and eighteenth centuries in which [ɪ] became [iə], [ɛ] became [ɪə], [o] was changed into [uə] and [ɔ] into [oə], i.e. a n a l o g i c a l introduction from long and diphthongised forms, after which breaking could take place, also seems unlikely, if only because such across-the-board levellings of alternations with so few exceptions in standard Frisian can hardly be assumed. Morphological analogy usually is not that regular.

However, the fundamental assumption that both broken and non-broken sounds must be derived from common starting points is a sound one. Ever since the foundations of modern historical linguistics were laid the assumption of common origins for divergent forms has been extremely fruitful. We will therefore accept Miedema's thesis that both breaking and non-breaking dialects developed from a common starting point, but we will try to find a more plausible solution as to what these original common beginnings were.

4 Markey, as hinted at above, quite correctly questioned Miedema's solution. Instead he attempts to give a description in which the notion of intensity shift (200) is captured. He believes that necessarily all broken diphthongs must be derived from 'underlying long, tense vowels' (200). The geographical centre of intensity of breaking must also be the area of origin. This, Markey holds, is established by observation of historical, philological and geographical data (198). This means that those dialects showing no or hardly any effects of breaking are developmentally peripheral 'and in part reflect an intermediary stage of development' (198). Such dialects show a decreasing generality in the scope of the breaking rules, which may well be borrowed rules (197). All this means that the diffusion is from the central mainland areas to SWH and the other non-breaking areas, and not the other way round: for diffusion of innovations from peripheral areas is extremely uncommon (197).

Markey's thesis is then like Miedema's, viz. that our peripheral SWH etc. dialects reflect intermediary stages of

development, and that the central dialects have proceeded furthest on this originally common road.

So far his conclusions seem well-founded. Markey then gives a series of rules that could represent the history of the standard Frisian development. He does not attempt to provide a similar series of rules for a dialect like that of the SWH, for these dialects underwent developments that are perhaps impossible 'to uncover and relate in any maximally simple way' (203). His rules will be printed below, after which I will discuss them separately.

$$(7) \bar{a} \rightarrow \bar{e} \quad (8) \begin{Bmatrix} \bar{o} \\ \bar{e} \\ \bar{u} \\ \bar{o} \end{Bmatrix} \rightarrow \begin{Bmatrix} \bar{i} \\ \bar{I} \\ \bar{u} \\ \bar{o} \end{Bmatrix} \quad (9) \begin{Bmatrix} \bar{i} \\ \bar{I} \\ \bar{u} \\ \bar{o} \end{Bmatrix} \rightarrow \begin{Bmatrix} iI \\ IE \\ uo \\ oa \end{Bmatrix} \quad / \text{---} [-\text{velar}]$$

$$(10) a \quad V \longrightarrow \text{ə}/V \text{ --- } (-\text{Suffix})$$

$$b \quad \begin{Bmatrix} (i) \\ \bar{I} \\ (u) \\ \bar{o} \end{Bmatrix} \longrightarrow \{j_w\} \quad / \text{--- } (+\text{Suffix})$$

Applications of rules 7-10

/ ē ā ō ȳ /	Input
ē ē ō ȳ	(7) Raising I
ī ī ū ȳ	(8) Raising II
iI IE uo oa	(9) Breaking
[iə Iə uə oə]	Output
[iə Iə uə oə]	(10a) Diphthong Adjustment
[jI jE wə wə]	(10b)

(200).

Before I start discussing these rules in detail, one general remark about the symbols used by Markey has to be made. The \bar{I} and the \bar{e} stand for the same sound, as far as I can tell, viz. our [ɪ:]. One reason for this view is that just as the \bar{o} in the first column of rule (8) corresponds to the \bar{o} in the second column one stage lower down, the \bar{e} in the first column should also be expected to correspond to an \bar{e} in the second column. Another objection is that the resulting front sounds of rule (8) differ in tenseness only, the resulting back sounds in other respects as well (Markey's \bar{u} = tense, \bar{U} = lax). Why this asymmetry?

Let us now examine each rule separately. (7) can be accepted without any criticism. (8) is phonetically quite on all fours, as such simple raisings by one step are quite usual. One of the factual implications, however, is that modern Frisian *tydlik* 'temporary', to mention just

one example, should in fact have been *[t̥iɛdl̥k] since *tiid* 'time', which derives its long vowel from Old Frisian [i:], contains according to Markey a long but lax vowel, his symbol \bar{I} (188). Now Markey holds that only his tense \bar{i} , not his lax \bar{I} , is subject to rule (9) (188). But of course \bar{I} is a mistake and should be \bar{e} in. Markey's system¹⁴ (cf. the remarks made above, where I also pointed out that in our system the sound concerned is [i:]). Rule (9) is from a purely phonological point of view much more difficult to understand, for what exactly happens? (For the environment [-velar] cf. 189-191). Let us take one example: long tense \bar{i} → iI, i.e. a long pure sound becomes a combination of two short sounds. Such a change into a gliding sound should in my opinion be justified by, or based on, properties of the originally 'purer' vowel. The i can easily be derived from \bar{i} : it has the same qualities, and is only a bit shorter. But what does I correspond to in the original \bar{i} ? Nothing, as far as I can see. So in the change \bar{i} → iI something is lost, viz. length of i, and something is gained, viz. I. If we may believe the notation, this I is created *e x n i h i l o*. It is my firm belief that in order to avoid cooking up too fanciful derivations we should stick to the principle that what stands to the right of the arrow must be derived, in a phonologically plausible way, from something which is found to the left of the arrow. I will call this the *n o n c r e a t i o e x n i h i l o* principle. For similar remarks the reader is referred to Martinet 1955: 186.¹⁵

I therefore on purely theoretical grounds reject (9) as it stands. In addition I could also remark that some indication of where the peak of intensity is placed is called for, since this would make rule (10a) more acceptable. For rule (10a) is phonological much more plausible if \eth derives from an *u n s t r e s s e d* sound. It is a well-known fact that most \eth 's have developed from originally fully articulated but *u n s t r e s s e d* vowel sounds.

(10b) can be criticised on the ground that the change to j and w, i.e. the change from high or relatively high short vowels to the phonetically corresponding semivowels, has as its only conditioning factor (+Suffix). As j and w are by definition sounds that can never be syllable bearers, so [-syllabic], it seems to me much more correct to derive j and w from vowel sounds that stand outside the intensity peak of the syllable. To return to my remarks about rule (9): i in iI should have been represented as unstressed, and I as stressed. The conditioning factor of rule (10b) is then rather the fact that the first element of iI unstressed, whereas in its turn the conditioning factor for the assignation of stress inside iI is perhaps something like (+Suffix). In rule (10a) the conditioning factor for stress assignment is similarly (-Suffix).

In short, rules (9) and (10) violate to a greater or smaller extent the *n o n c r e a t i o e x n i h i l o*

principle. In rule (9) unstressed second vocalic elements are created *ex nihilo*, in (10a) the unstressed character of V is created *ex nihilo*, and in (10b) the unstressed character of i etc. is created *ex nihilo*. This *non creatio ex nihilo* principle is simply in recognition of the fact that generally scientific procedures are based on the assumption that there are no effects without causes¹⁶. Structuralists like Martinet were aware of the importance of this principle, in recent generativist writings this principle is apparently not accepted; take for instance Chomsky/Halle 1968: 264, where so-called glides are created *ex nihilo*. I submit that acceptance of this principle would save the linguist from making unnecessary mistakes, and that derivations in line with this principle are more likely to be in accordance with historical development.

5 Before proceeding to give my own alternative series of rules deriving Modern Frisian *stien* - *stiennen* etc. I will first discuss the problem of long vowels, viz. the question whether length is a *segment* or a *feature*. By common consent Frisian does and did have long and short vowels, and length has most often been considered a feature (Fokkema et al. 1961²; Miedema 1958; Markey 1975; Chatman 1953). Phonologists have however also often analysed long vowels as clusters of two identical vowel sounds. Trubetzkoy (1971: 173ff.) for instance, gives a number of rules for establishing whether a long vowel is to be considered a *geminate* or not. If a long vowel is a geminate its two identical parts are called *mora*. Trubetzkoy in fact distinguishes syllable counting and mora counting languages: in the former the smallest prosodic unit coincides with the syllable, in the latter the smallest prosodic unit coincides with the mora (177). Similar remarks were made by Martinet: 'les faits prosodiques affectent et caractérisent des unités de la chaîne dont les dimensions ne sont pas nécessairement celles de phonèmes; ces unités sont souvent plus considérables que le phonème, comme la syllabe, ou le noyau syllabique qui comporte fréquemment une diphtongue de deux phonèmes; elles peuvent aussi être plus petite que lui, comme lorsqu'on analyse le noyau syllabique (qui peut être un phonème unique) en deux mores successives' (Martinet 1955: 153-4). More recent examples of this approach are Vachek 1959 and Lass/Anderson 1975. Lass/Anderson also wonder what such objects like e.g. [aa] mean in *actual phonetic terms*. They have to admit that no clear answer can be given (201-5).

Considering the fact, however, that in many languages *part of the long vowel* (the mora), and not the long vowel as a whole or the syllable, is used as the locus of the word peak (Trubetzkoy 1971: 189, and also Martinet 1955), in which case either the first or the second mora may be so used, and also given the fact that

in many languages where the place of the accent is distinctive it is the mora that is the locus of accent assignment and not the entire long vowel (Trubetzkoy 1971: 174), I will nevertheless use the concept of the mora in my system of rules. The reason is that I see no other way to derive modern Frisian broken and non-broken sounds. For the purpose of this paper a mora can be defined as the smallest p r o s o d i c unit of a language, in line with Trubetzkoy's and Martinet's remarks. My system of rules therefore crucially hinges on the assumption that Frisian is and was a mora counting language. A long vowel, whether unimoric or bimoric, will henceforth be symbolised as /aa / and [aa] for the sake of convenience only, for it must not be assumed that I necessarily commit myself to the view that a long (bimoric) vowel is made up of two identical phonetic s e g m e n t s: there is no reason to believe that p h o n o l o g i c a l (p h o n e t i c) and p r o s o d i c units are elements from the same set. The sign - is used to indicate that the stress is on the entire vowel, e.g. [oō]; ˘ is used to indicate that it is only on one mora of the long vowel, either the first or the second, e.g. [óo] or [oó]. So [oō] just means that the locus of the accent is the entire vowel, [óo] means that the locus of the accent is p a r t of the long vowel. But again: this symbolism does not necessarily imply that a long vowel is in a certain way made up of two short vowels. The relevant rules for standard Frisian are:

- (1) $\overline{aa} \rightarrow \overline{e}e^{17}$ (2) $\overline{ee} \rightarrow \overline{e}e$ (3) $\overline{ee} \rightarrow \overline{i}e$
 $\overline{ii} \rightarrow \overline{i}i$ $\overline{ii} \rightarrow \overline{i}i$
 $\overline{oo} \rightarrow \overline{ó}o$ $\overline{oo} \rightarrow \overline{ó}o$
 $\overline{ou} \rightarrow \overline{ó}o$ $\overline{ou} \rightarrow \overline{ú}o$
- (4) $\overline{ie} \rightarrow \overline{i}e$ (5) $\left\{ \begin{pmatrix} i \\ i \\ o \\ u \end{pmatrix} \right\} \rightarrow \left\{ \begin{pmatrix} i \\ i \\ u \\ u \end{pmatrix} \right\} / -\check{V}$ (6) $\left\{ \begin{pmatrix} e \\ i \\ o \\ o \end{pmatrix} \right\} \rightarrow \check{e} / \check{V}-$
 $\overline{ii} \rightarrow \overline{i}i$
 $\overline{oo} \rightarrow \overline{o}á^{18} / C_o + X^{19}$
 $\overline{uo} \rightarrow \overline{u}ó$

Sample derivations:

- (1) $b\overline{a}am \rightarrow b\overline{e}em$ 'tree' (2) $b\overline{e}em \rightarrow b\overline{e}em$
 $st\overline{i}in \rightarrow st\overline{i}in$ 'stone'
 $f\overline{oo}r \rightarrow f\overline{oo}r$ 'for, before' prep.
 $f\overline{oot} \rightarrow f\overline{oot}$ 'foot'
- (3) $b\overline{e}em \rightarrow b\overline{i}em$ (4) $b\overline{i}em- \rightarrow b\overline{i}em-$
 $st\overline{i}in \rightarrow st\overline{i}in$ $st\overline{i}in- \rightarrow st\overline{i}in-$
 $f\overline{oo}r \rightarrow f\overline{oo}r$ $f\overline{oo}r- \rightarrow f\overline{o}ar-^{20}$
 $f\overline{oot} \rightarrow f\overline{u}ot$ $f\overline{u}ot- \rightarrow f\overline{u}ot-$
- (5) $b\overline{i}em- \rightarrow b\overline{i}em-$ (6) $b\overline{i}em \rightarrow b\overline{i}em$
 $st\overline{i}in- \rightarrow st\overline{i}in-$ $st\overline{i}in \rightarrow st\overline{i}in$
 $f\overline{o}ar- \rightarrow f\overline{u}ar-$ $f\overline{oo}r \rightarrow f\overline{oo}r$
 $f\overline{u}ot- \rightarrow f\overline{u}ot-$ $f\overline{u}ot \rightarrow f\overline{u}ot$

Remarks:

(1): this rule is universally accepted and needs therefore no comment. (2): this rule is of course new. It is intended to capture the shift from a unimoric to a bimoric stage in Frisian. The resulting long vowels are still relatively 'pure' in the sense that they have the same s o u n d qualities throughout, but there is also change in that there is a marked decrease of stress in the second part, i.e. they are not pure as regards stress. The justification of (2) is its explanatory character, combined with the fact that bimoric vowels simply do occur in many languages (above), and the fact that in modern Frisian a similar development is taking place, or has already taken place. In Frisian *bêd*, *stêd* etc. 'bed', 'town', the long vowel [ɛ:] (or [éɛ]) is clearly not a pure vowel but rather a 'glide' from a stressed [é] to an unstressed [ɛ], or perhaps the second mora has already become more like [ə]. The same holds for long [ɔ:] or [óɔ] in *âld*, *kâld*, *hân* etc. 'old', 'cold', 'hand', which is indeed often [óɔ] or even [óə], i.e. the first element is raised somewhat. The same raising may be observed in *bêd* etc. where the first mora [é] is slightly higher, it seems to me, than the second. The examples with [éɛ] seem to be the most striking instances of the bimoric tendency in Frisian, for this [éɛ] derives from short [ɛ], which was rather recently lengthened. This lengthening must at least have taken place a f t e r the operation of rule (3), as otherwise *bêd* should now have been *[bɛət].²¹

The fact that the recently lengthened vowel of *bêd* is bimoric lends some plausibility to the hypothesis that older long vowels were also bimoric. In articulatory terms all this means that there was a change from even distribution of energy over the entire vowel to a concentration of articulatory energy in the first part (mora) of the vowel.

In this light (3) must be seen. Fokkema et al. (1961²: 54) remark that stressed vowels are characterised by greater loudness, higher pitch and greater length, and often by a different q u a l i t y as well, than unstressed vowels. For morae Trubetzkoy concluded the same (1971:183). What happened is clearly that some means was employed to make the stressed mora stand out from the unstressed ones. Rule (3) hypothesises that in Frisian the means employed was among others raising of the stressed morae relative to the unstressed morae, probably in combination with length, pitch and loudness. To support the likelihood of this hypothesis I quote Fry, who says that there is 'an almost universal tendency for vowel qualities to be more open or more central in weaker syllables than they are in stressed ones' (Fry 1968: 373). What exactly the neutral position of the tongue may be, some say [ə], others [ɛ], it is clearly a fact that (3) captures the moving away of the tongue from more neutral to less neutral position. The

less neutral the tongue position is the more articulatory energy is required. Also, the more a vowel or mora is made to stand out from the other vowels or morae, the more articulatory energy is required, manifesting itself in length, pitch, quality or loudness (Fry 1968: 400), or a combination of them. (3), it should be repeated, tries to capture the consequences of the shift of articulatory energy to the first mora.²²

The justification of (4) is that something like that simply must have taken place. What happened is that a stress shift took place, there is no disagreement about that (also cf. section (2)). The exact environment of this shift is not quite clear (cf. sections (1) and (2)). Perhaps the explanation is that the element on which all articulatory energy is concentrated, i.e. in our case the mora, cannot be followed by too many unstressed or comparatively unstressed elements. Germanic languages generally are characterised by the fact that syllables following the word peak tend to get less and less attention, because much of the available energy enters into stressed syllables. But long series of unstressed syllables are equally avoided, hence the tendency either to drop them or to find other solutions. Perhaps Frisian is one of the languages that developed a strategy to prevent a too long series of unstressed elements (i.e. morae), thus arriving at a more even distribution of stressed and unstressed morae. One way to achieve this is for the stressed mora to move one position to the right, thus reducing the number of unstressed morae following by one. Another method is for the unstressed mora to be dropped in the same syllable, in this way the number of unstressed morae is again reduced by one. This method was adopted by SWH Frisian, as will be suggested below.

There is an alternative way to derive [b_uēm-] etc. We could in fact get the same result by assuming that already after rule (1) there are separate developments for [bēēm] and for [bēēm-] like this for instance:

$$(2'a) \quad \overline{ee} \rightarrow e\acute{e} \quad / \text{---} C_0 + X \\ \text{etc.}$$

$$(2'b) \quad \overline{ee} \rightarrow \acute{e}e \quad \text{elsewhere} \\ \text{etc.}$$

(4) would then have to be dropped, and

(5) would have to be slightly altered:

$$(5') \quad \left\{ \begin{pmatrix} e \\ i \\ o \\ u \end{pmatrix} \right\} \rightarrow \left\{ \begin{pmatrix} \dot{i} \\ u \end{pmatrix} \right\} \quad / \text{---} \acute{V}$$

$$\text{So:} \quad \begin{aligned} [b\overline{ee}\acute{e}m-] &\rightarrow [b\acute{e}\acute{e}m-] \quad (2'a) \\ [b\overline{ee}\acute{e}m] &\rightarrow [b\acute{e}\acute{e}m] \quad (2'b) \\ [b\acute{e}\acute{e}m-] &\rightarrow [b\dot{i}\acute{e}m-] \quad (5') \text{ etc.} \end{aligned}$$

If it is possible for unstressed [ɛ] and [ɔ] to become [i] and [u] respectively²³, this alternative solution is in fact simpler, as it would seem, for in this derivation stress is straightaway assigned to the second mora of [ɛɛ] etc., in certain environments, whereas in my original proposal stress is first placed on the first mora, and then in certain environments (rule (4)) shifted to the second mora. It is at present not clear to me which alternative is to be preferred.²⁴

Rules (5) and (6) are such common and natural processes that I will refrain from justifying them.

In the way sketched above I arrived at a phonologically justifiable description of how broken sounds (and nonbroken sounds as well) developed in standard Frisian. How do I account for the state of affairs in non-breaking dialects? For the sake of brevity I shall only use SWH examples, but I assume that a development along the same lines as that of the SWH can be posited for the non-breaking dialects of Hylpen, Skylge and Amelân. What are the facts? We can safely assume that ɪ -breaking was originally absent in SWH, and that its presence to-day is due to borrowing (Miedema 1958). For standard Frisian [uɔ] we find [ö] and [õ], and for standard [ua] we find [ɔ] and [õ] (and also [ö]?) (Miedema/Steenmeijer-Wielinga 1972: 26ff.). There is clearly an area where where originally distinct [ö] and [õ] have coalesced, but as these sounds developed from different origins we must assume that in that area these sounds were kept apart in earlier stages of the dialect, as is of course still done in other SWH areas.

I will now first give the rules for SWH, and then discuss them separately again:

(1) identical to (1) in standard Frisian.

(2) idem.

(3') $\overline{\text{e}}\overline{\text{e}} \rightarrow \text{e}$

$\overline{\text{i}}\overline{\text{i}} \rightarrow \text{i}$

$\overline{\text{o}}\overline{\text{o}} \rightarrow \text{o}^*$ / — $\text{C}_\text{O} + \text{X}$

$\overline{\text{o}}\overline{\text{o}} \rightarrow \text{o}^*$

(4') identical to (3) in standard Frisian.

(5') identical to (6) in standard Frisian.

(6') $\text{o}^* \rightarrow \text{ö}$

$\text{o}^* \rightarrow \{\text{õ}\}$

(7) $\text{ö} \rightarrow \text{ö}(:)$ ²⁵

Sample derivations:

(1) $\text{bāām} \rightarrow \text{bēēm}$ (2) $\text{bēēm} \rightarrow \text{béēm}$ (3') $\text{béēm-} \rightarrow \text{bēm-}$
 $\text{stīin} \rightarrow \text{stīin}$ $\text{stīin-} \rightarrow \text{stin-}$
 $\text{hōōs} \rightarrow \text{hóōs}$ $\text{hóōs-} \rightarrow \text{hó*s-26}$
 $\text{fōōt} \rightarrow \text{fóot}$ $\text{fóot-} \rightarrow \text{fo*t-}$

(4') $\text{béēm} \rightarrow \text{bíēm}$ (5') $\text{bíēm} \rightarrow \text{bíēm}$ (6') $\text{fo*t-} \rightarrow \text{föt-}$
 $\text{stīin} \rightarrow \text{stīin}$ $\text{stīin} \rightarrow \text{stīen}$ $\text{hó*s-} \rightarrow \text{hös-27}$
 $\text{hóōs} \rightarrow \text{hóōs}$ $\text{hóōs} \rightarrow \text{hóēs}$
 $\text{fóot} \rightarrow \text{fúot}$ $\text{fúot} \rightarrow \text{fúæt}$ (7) $\text{sköle} \rightarrow \text{sköle}$

For rules (1) and (2) I can refer the reader to the discussion above. Rule (3') indicated the parting of the ways for standard Frisian and SWH etc. It is important to keep in mind the ultimate effect of (3'): it creates short (unimoric) vowels before unstressed syllables. This is, we remember, also the effect of rule (4) in standard Frisian! This is an important discovery, for such a rule conspiracy²⁸ strongly suggests that both (3') and (4) were (in different dialects) different solutions to an identical problem with essentially identical effects. The effects are that in certain environments vowels become unimoric. That this is a tendency in Frisian generally²⁹ is proved by such pairs as *drave* - *drafkje* 'run', *tiid* - *tydskrift* 'time', 'periodical', *piip* - *pypke* 'pipe', 'little pipe', *lân* - *lantsje* 'country', 'little country', *stêd* - *stedtsje* 'town', 'little town', *heech* - *hichte* 'high', 'height', *bôlle* - *boltsje* 'bread', 'bread roll' etc., for in all these examples the second ones contain unimoric vowels corresponding to the bimoric vowels in the first. Interestingly the environment for such unimoric vowels is also that for broken vowels. What I would suggest therefore, is that the divergent developments of the Frisian dialects are due to the fact that there was a *p h o n o t a c t i c c o n s t r a i n t* that could operate in *v a r i o u s* ways.

Rules (4') and (5') need no comment here, as they were discussed above. Rule (6') is again a typically SWH rule. What happens is of course that back vowels were fronted, though not all of them, as [bɔtskɪp] and [hɔ:nə] prove (Miedema/Steenmeijer-Wielinga 1972: 26ff). As there are as far as I know no indications that all [ɔ]'s and [o]'s were fronted in SWH I must conclude that this fronting took place because of some particular sound feature. To show that the sounds concerned differed from ordinary [o] and [ɔ] I added an asterisk (*) in rules (3') and (6'). The exact nature of the asterisked sounds can only be guessed at; my guess is that in [ɔ́ɔ] and [óo] the first morae were different in quality from the second, and also different from unimoric [o] and [ɔ]. They may have been more fronted than ordinary unimoric [o] and [ɔ], and also more fronted than the mora following. This dissimilation may have been due to similar causes as hinted at in the discussion of standard rule (3). It is at any rate clear that only [o*] and [ɔ*] produced by rule (3') were subsequently fronted.

Rule (7) finally simply reflects the present coalescence of [ö] and [ö̥] in parts of SWH.³⁰

6 The above is no more than a rough sketch for SWH, and many details will have to be filled in. Moreover, the data are not quite clear in the case of SWH (Miedema/Steenmeijer-Wielinga 1972: 26ff.). Still, the above proposals are well-founded and based on accepted linguistic principles and procedures. The description is simple and straightforward and does not invoke such hard-to-prove

'explanations' as Dutch influence (Hof 1933: 259-269). It tries instead to explain the present situation by using purely *l i n g u i s t i c* arguments, arguments derived from observations of clear facts. 'Explain' therefore here means that the present situation is said to have come about because of events (= linguistic events, i.e. rules) and linguistic facts which present knowledge asserts to be possible.

I hope that the above proposals will in a fruitful way direct future research on breaking and non-breaking in Frisian dialects.

7 It was very gratifying to discover that in S.R. Anderson's excellent book (Anderson, 1974) evidence is discussed supporting and making more explicit the fundamental hypothesis of the above pages, viz. that there may be 'shifts in the boundary of some feature' (279), and that articulations formed by (1) the energy source, (2) laryngeal configurations, (3) oral configurations (tongue and lip) and (4) nasal (or velar) configurations may be used in such a way that they are either synchronised or not. The result of the latter possibility is that the boundaries of an articulation of one kind do not coincide with those of another (274). To be less abstruse: in our case this would mean that the boundaries of the source articulation *s t r e s s* at first coincide with those of the oral articulations of long vowels, but that after the change this was no longer the case: the relative time required for the 'articulation' of stress is then shorter than that needed for the oral articulations.

The reader is referred to Chapter 17 'Syllables, Segments, and More' in Anderson (1974) for a detailed discussion of these problems.

Annen

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NOTES:

1. I will use the symbols of Fokkema et al. (1961²) with the following exceptions: [ɪ:] will be used instead of [e:] as [ɪ:] seems to me long [ɪ]; [ö] instead of [ʌ], as [ö] differs from [o] only in frontness, and [ü] and [u] are already used as a similar pair; [ɔ̃] will be used as the front vowel corresponding in height to [ɔ]; and [o] will be used instead of [ɔ̃] as I fail to see the justification of the ` . Moreover, as will appear in section (5), long vowels will often for the sake of the exposition be represented as a cluster of two identical short vowels: [u] instead of [ɪ:]. Strictly speaking in modern Frisian long [ɪ:] and also [o:] are slightly different in quality from short [ɪ] and [o]. It is at present not clear to me whether this also held good for the Old and Middle Frisian periods. Anyway, when square brackets are used, so ([]), a broad phonetic transcription is intended, not a narrow one.

2. I will henceforth ignore the pair [üə] - [jō], as this alternation is relatively rare.
3. In fact the broken vowel is nasalised [stĩ̃swolm].
4. The conditions may in fact well be (partly) morphological, cf. Van Coetsem 1969: 166ff.).
5. For instance *Myksomatoze*, 1974.
6. The l presumably means that the immediately preceding vowel is long.
7. The reader is invited to critically consider explanations like the following: 'Het wisselend intensiteitsaccent, dat, naar wij hebben betoogd, slechts uit een dynamischen aanleg van den geest zou kunnen voortkomen, kan het beste als het Noordsche ras-eigen beschouwd worden, omdat zowel in het Falische als in het Baltische en het Oostische ras de dynamiek als hoofdkenmerk van de rasziel ontbreekt. Slechts het Westische ras zou in dit opzicht met het Noordsche ras kunnen concurreeren. Dit leidt ons tot het vermoeden dat wij bij het 'wisselend accent' - ethnologisch beschouwd - met een 'pre-keltisch-germaansch' verschijnsel te doen hebben. Zoo zou dan ook de verspreiding van het zelfde verschijnsel op thans Franschen bodem verklaard kunnen worden' (Baader 1944: 8).
8. And cf. standard French *moi*, of which Van Ginneken (1935: 152) says it developed like this: me -> mei -> moi -> mōi -> mwè -> mwa.
9. It is only fair, however, to quote Brosnahan (1953), who cannot be accused of vague racial theories: 'De tijd is gekomen voor een nieuwe overweging en een nieuwe waardering van de ideën van Van Ginneken over de invloed van erfelijke factoren in de taalontwikkelingen' (stelling 5).
10. Also consider Van Ginneken 1944: 30, where Stuiveling emphasises that linguists should try to find purely l i n g u i s t i c explanations, and refrain from rash theories based on racial considerations.
11. In Van Ginneken 1935 we find many more interesting remarks and examples. Especially the examples from the more remote German dialects will easily convince the reader that breaking is far from being something typically Frisian.
12. Cf. Ejksjær (1971), where we find a great many examples, e.g. the proper name *Wolle* for common *Ole* (development: *Ole* - *Uole* - *Wolle*) (75); *Jerrik* (*Erik* - *Jerik* - *Jerrik*) (75); *jøsse* for *øse* 'to bail' (Mod. Fris. *eaze*) (77); *jen* or *jæn* for *en* 'one' (78); standard *hjem* (development: *ē* - *iə* - *je*) 'home' (78); etc. The reader is also referred to Nielsen (1959) for more examples.
13. As below in section (5) I am unable to explain the fact the [ö:] here is long.
14. Throughout the entire article Markey's use of symbols is somewhat chaotic, as he often does not indicate whether the phonetic symbols used are his own, or those of the authors quoted.
15. '... on ne voit guère les locuteurs créer e x n i h i l o de nouveaux éléments distinctifs' (Martinet 1955: 186).
16. Here must be meant something like Aristotle's c a u s a m a t e r i a l i s, 'dasjenige, womit etwas geschaffen wird (M a t e r i e oder m a t e r i e l l e U r s a c h e)' and not the cause or 'dasjenige, was etwas schafft oder hervorbringt (die wirkende Kraft als solche: *erster Antrieb* oder *Wirkursache*' (Coseriu 1974: 172).

17. The notation is intended to be phonetic, though for the sake of convenience the [] have not been printed.
18. Why [oá] and not [oó] is at present not clear to me.
19. C_o means 'any number of consonants', and X has been chosen to represent the as yet not quite clear environment for breaking, cf. the remarks made in section (1).
20. The - stands for the X of rule (4).
21. As ε -> éε only takes place before voiced consonants (stops mostly), and final voiced stops in Frisian no longer exist, we can establish the following chronological order: our rule (3), ε -> éε, and devoicing of final stops.
22. Cf. the Old High German change [oo] -> [uo], for instance 'fuoʒ'; 'foot'; where in my opinion something as happened in (3) took place.
23. Or perhaps unstressed [ε] and [ɔ] became [ɪ] and [ʊ] *via* the intermediate stage [ɪ] and [ʊ].
24. Concluding the discussion of the rules so far it is interesting to find that Brosnahan (1953) for Old English employed similar ideas. He does not use the concept of the mora but that of *i n t o n a t i o n i n t h e s y l l a b l e* (120ff.). Cf.: '... the energy allocated to any syllable was distributed in such a way that the point in that syllable at which maximum energy was utilized occurred in the beginning or in the middle of the syllable, with the consequence that the final segment of the syllable was characterized by a fall in available energy' (127). This is, I believe, essentially the same as the bimoric approach we adopted.
25. Cf. note (13).
26. The [s] was probably in fact in intervocalic position rather [z].
27. It seems to me that in this word the vowel may also be [ö].
28. I use rule conspiracy here in the sense that different rules in different dialects bring about essentially identical effects. For the original idea of rule conspiracy the reader is referred to Kisseberth 1970.
29. From a *s y n c h r o n i c* point of view, that is, for the [ε] in *stedtsje*, just to mention one example, was not really shortened historically.
30. Though it is in fact not quite clear to me which of the two in what areas is actually prevalent.

References

- Andersen, H. (1972): Diphthongization; *Language* 1972:11-50.
- Anderson, S.R. (1974): *The Organization of Phonology*; New York, San Francisco, London.
- Baader, Th. (1944): *De accentwisseling in het Westfaalsch en het Friezenveensch*; in 'Bijdragen etc.'
- Bijdragen etc.: (...) *Bijdragen en Mededeelingen der Dialecten-Commissie van de Nederlandsche Akademie van Wetenschappen te Amsterdam V*; Amsterdam.

- Brosnahan, L.F. (1953): *Some Old English Sound Changes*; Cambridge.
- Chatman, S. (1953): The stressed vowel system of modern West Frisian; *Us Wurk* 1953: 27-32.
- Chomsky, N./Halle, M. (1968): *The Sound Pattern of English*; New York, Evanston and London.
- Van Coetsem, F. (1969): *Nogmaals de morfonologie van het Fries*; in: *Studia Frisica in memoriam Prof. Dr. K. Fokkema 1898-1967 scripta*; Grins.
- Coseriu, E. (1974): *Synchronie, Diachronie und Geschichte; das Problem des Sprachwandels*; München.
- Ejskjær, I. (1971): *Nogle kortdiftongdannelser i ømålene*; in: *Studier i dansk dialektologi og sproghistorie tilegnede Poul Andersen /.../ den 8. juni 1971*; København.
- Fokkema et al. (1961²) (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.
- Fry, D.B. (1968): *Prosodic Phenomena*; in: B. Malmberg, (ed.): *Manual of Phonetics*; Amsterdam.
- Van Ginneken, Jac. (1935): *Ras en Taal*; in: *Verhandelingen der Koninklijke Akademie van Wetenschappen te Amsterdam, Afdeeling Letterkunde, Nieuwe Reeks, Deel XXXVI*; Amsterdam.
- Van Ginneken, Jac. (1944): *De accentwisseling in de diphthongen van Brabant en Limburg*; in 'Bijdragen etc.'
- Hof, J.J. (1933): *Friesche Dialectgeographie*; in: *Noord- en Zuidnederlandsche dialectbibliotheek III*; 's-Gravenhage.
- Kisseberth, C.W. (1970): *On the Functional Unity of Phonological Rules*; *Linguistic Inquiry* 1: 291-306.
- Lass, R./Anderson, J.M. (1975): *Old English Phonology*; Cambridge.
- Markey, T.L. (1975): *West Frisian -wV-/jV- Breaking: A Generative Approach*; *Folia Linguistica* 1975: 181-208.
- Martinet, A. (1955): *Économie des Changements Phonétiques, Traité de Phonologie Diachronique*; Berne.
- Miedema, H.T.J. (1958): *De Nieuwfriese 'breking' en zijn verspreiding*; *Taal en Tongval* 1958: 148-156.
- Miedema, H.T.J./Steenmeijer-Wielinga, T.J. (1972): *Dialecten van de Friese West- en Zuidkust*; Ljouwert/Leeuwarden.
- Nielsen, N.Å. (1959): *De jyske dialekter*; s.l.
- Trubetzkoy, N.S. (1971): *Principles of Phonology*; translated by Christiane A.M. Baltaxe; Berkeley and Los Angeles.
- Vachek, J. (1959): *Notes on the quantitative correlation of vowels in the phonematic development of English*; in: *Mélanges de linguistique et de philologie: Fernand Mossé in memoriam*; Paris.
- Wyld, H.C. (1936³); *A History of Modern Colloquial English*; Oxford.