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The closed vowels in West Frisian revisited

On the mismatch between phonetic duration and phonological length

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In most of the literature on West Frisian, it is assumed that this language has a symmetrical vowel system, consisting of nine short and nine corresponding long vowels. These vowels all occur in minimal pairs, meaning that this distinction has phonemic value. This traditional view was challenged in De Haan (1999), where an asymmetrical classification is proposed in which the closed vowels /i/, /y/ and /u/, in spite of their short duration, are considered to be long vowels. In this paper, I want to assess the pros and cons of this asymmetrical classification, add some new arguments in favour of it, and come up with a representation of /i/, /y/ and /u/ which captures both their phonological length and phonetic duration.

1. Introduction

In most of the literature on West Frisian,¹ it is assumed that this language has a symmetrical vowel system, consisting of nine short and nine corresponding long vowels, see (1) (the vowel schwa has been omitted):

- (1) the traditional classification of the Frisian vowels²
- | | |
|---------------|--------------------------------------|
| short vowels: | /a, ε, ɔ, ɪ, ø, o, i, y, u/ |
| long vowels: | /a:, ε:, ɔ:, e:, ø:, o:, i:, y:, u:/ |

The short and long vowels all occur in minimal pairs, which means that the distinction short vs. long has phonemic value.³

1. Henceforth: Frisian.

2. I consistently represent long vowels with a colon. This means that /a/ and /o/ denote short vowels.

3. See Visser (1997: 16–17) and the *Language Portal Dutch/Frisian/Afrikaans* (> Frisian > Phonology > Segment inventory > Vowels > Long and short monophthongs) for all vowel pairs and (3) below for those with the closed vowels only.

Before proceeding, let me say a few words on the representation of phonological length. I assume a phonological representation to consist of various tiers (layers), each of which represents a piece of phonological information. The central tier is the structural or skeletal tier, which consists of either C- and V-positions – for consonants and vowels, respectively – or bare X-positions; this, however, is not a fundamental difference as both kinds of positions are only associated with phonological content, but void of such content themselves. The structural tier mediates between the segments' melodic or phonological content, expressed by phonological features, and the higher prosodic structure of which the segments are part in terms of syllables, feet, etc. (the so-called “prosodic hierarchy”). The number of positions on the structural tier determines a segment's phonological length. A short vowel occupies one structural position, a long vowel two. Among other things, the number of positions determines how well formed a phonological constellation is. If, for instance, the word-internal syllable rhyme must be occupied by either a long vowel/a diphthong or a short vowel followed by one consonant, this can be “translated” as: the word-internal syllable rhyme must occupy two positions on the structural tier. The point I want to make in this article is that, in spite of their shortness from a phonetic point of view, the three closed vowels of Frisian, viz. /i, y, u/, occupy two structural positions, which means that they count as long from a phonological point of view.

The traditional classification in (1) above was challenged in De Haan (1999), where the asymmetrical classification in (2) was proposed:

- (2) the classification of the Frisian vowels according to De Haan (1999)

A-vowels: /i, i:, y, y:, u, u:, e:, ø:, ε:, o:, ɔ:, a:/

B-vowels: /ɪ, ø, ε, o, ɔ, a/

Here the B-vowels occupy one structural position, the A-vowels two.⁴ A striking feature of the series of A-vowels is that it includes the closed vowels /i/, /y/ and /u/, which have a short duration, whereas the remaining, closed and non-closed, A-vowels all have a long duration.⁵

4. The difference between the closed vowel pairs is not purely a matter of phonological length, but also one of degree of closure: the vowels /ɪ/ and /ø/ are slightly more open than /i/ and /y/. The more open counterpart of the vowel /u/, viz. /ʊ/, does not seem to play a role in the phonology of Frisian.

5. On average, the short monophthongs have a duration of 116 milliseconds, whereas this is 250 milliseconds for the long ones (De Graaf 1985). De Graaf notes that of his informants the younger ones – between twenty and thirty years of age – realise the long closed vowels with a shorter duration than the ones in their sixties. This is confirmed by the results of the investigation reported on in Gilbers, Visser & Weening (2012). The relative durational differences between the short and long closed vowels, however, remain, which the authors ascribe to the phonological (distinctive) function this difference has in the phonology of Frisian.

In Visser (2003), a reaction to De Haan (1999), I adduced several arguments against De Haan's classification. My conclusion was that there was as yet no compelling reason to adopt De Haan's proposal for the classification of the Frisian vowels in (2), implying that, for the time being, we should adhere to the traditional classification in (1).

Since then, however, I have gradually come to believe that De Haan's classification is basically correct, which is reflected in my treatment of the Frisian vowel system in the *Language Portal Dutch/Frisian/Afrikaans* (Frisian > Phonology > Segment inventory > The single vowels of Frisian > Long and short monophthongs: a different view).

In this paper, I want to assess the pros and cons of the asymmetrical classification once more, adduce some new arguments, and come up with a representation of /i/, /y/ and /u/ which captures both their phonological length and phonetic duration.⁶

2. In support of the asymmetrical classification

The classification in (2) is counterintuitive as the A-vowels /i/, /y/ and /u/ have a short duration. However, several arguments can be adduced for this classification.

2.1 Arguments pertaining to the distribution of vowels in the phonological word

In the first place, there are arguments pertaining to the distribution of vowels in the phonological word. Since the rhyme of a word-internal syllable must occupy two positions, the A-vowels, whether they are realised as short or long, can occur in a word-internal open syllable, whereas the B-vowels cannot. Words with a closed short A-vowel, like *bile* /bilə/ 'axe', *rude* /rydə/ 'scabies' and *tûke* /tukə/ 'branch', are syllabified as (bi)_σ(lə)_σ, (ry)_σ(də)_σ and (tu)_σ(kə)_σ, respectively, with the full vowel in an open syllable.⁷ This also holds for the syllabification of words with a closed

6. I should like to thank Geert Booij and two anonymous reviewers for their comments on an earlier version of this paper.

7. Words like *tille* /tulə/ 'kind of wooden bridge', *nulle* /nələ/ 'needle', *Melle* /melə/ 'man's name', *bolle* /bolə/ 'bull', *panne* /pənə/ 'pan; tile', and *karre* /karə/ 'cart' are written with a double intervocalic consonant sign. The latter is an orthographic way of indicating that the preceding vowel is short. Words like *bile* /bilə/ 'axe', *rude* /rydə/ 'scabies', and *tûke* /tukə/ 'branch', on the other hand, are written with a single intervocalic consonant sign, which means that the preceding vowel counts as long. Although orthography and phonology never match in all respects, there seems to be a close link between the two here. At the inception of Frisian orthography, there must have been an awareness, however unconscious, of the difference between the closed vowels /i, y, u/, with a short duration, on the one hand and the genuine short vowels on the other.

long A-vowel, like *rige* /ri:γə/ (ri:)_σ(γə)_σ ‘row’ and *koeke* /ku:kə/ (ku:)_σ(kə)_σ ‘cake’. On the other hand, words with a B-vowel, like *jister* /jɪstər/ ‘place outside to milk the cows’, *juster* /jʊstər/ ‘yesterday’, *tsjelke* /tsjɛlkə/ ‘chalice’, *tsjerke* /tsjɛrkə/ ‘church’, *polke* /pɔlkə/ ‘soda’, *molke* /mɔlkə/ ‘milk’ and *harpe* /harpə/ ‘harp’ are syllabified as (jɪs)_σ(tər)_σ, (jʊs)_σ(tər)_σ, (tsjɛl)_σ(kə)_σ, (tsjɛr)_σ(kə)_σ, (pɔl)_σ(kə)_σ, (mɔl)_σ(kə)_σ and (har)_σ(pə)_σ, respectively, so with the full vowel in a closed syllable.⁸

The connection between the bipositional rhyme of a word-internal syllable and the distribution of A-vowels also manifests itself in three other ways. First, a specific instance of word-internal syllable contact is the one of a constellation of two vowels in hiatus, in which case the syllable headed by the left-hand vowel is open by definition. This left-hand vowel must be an A-vowel, as in *koöperaasje* /ko:o:pəra:sjə/ (kø:)_σ(o:)_σ(pə)_σ(ra:s)_σ(jə)_σ ‘co-operative store’ and *deïsme* /de:ɪsmə/ (de:)_σ(ɪs)_σ(mə)_σ ‘deism’. The closed vowels /i, y, u/ can also occupy the rhyme of the left-hand syllable in a constellation of vocalic hiatus, witness words like *priel* /prie:l/ (pri)_σ(e:l)_σ ‘bower, arbour’, *fluor* /flyɔr/ (fly)_σ(ɔr)_σ ‘fluoride’, and *Soeaaf* /sua:f/ (su)_σ(a:f)_σ ‘Zouave’.⁹

Secondly, in Frisian the “gap” between two vowels in hiatus is normally bridged by the insertion of a glide. A condition on glide insertion is that the left-hand vowel be long, in accordance with the fact that it occurs in an open syllable, whereas the quality of the glide, viz. whether it is the front glide /j/ or the back glide /w/, depends on the front-back specification of the left-hand vowel. So, words like *seeën* /se:ɛn/ ‘seas’ and *reëel* /re:e:l/ ‘realistic’, with the front vowel /e:/, are realised as (se:)_σ(jən)_σ and (re:)_σ(je:l)_σ, and verbs like *skriuwe* /skrjo:ɛw/ or /skrju:ɛw/ ‘to write (infinitive; all plural persons present tense)’, with the back stem vowel /o:/ or /u:/, as (skrjo:)_σ(wə)_σ or (skrju:)_σ(wə)_σ. The actual realisations of *priel* /prie:l/ ‘bower, arbour’ and *Soeaaf* /sua:f/ ‘Zouave’, mentioned at the end of the preceding

8. Words like *tsjelke* /tsjɛlkə/, *tsjerke* /tsjɛrkə/, *polke* /pɔlkə/, *molke* /mɔlkə/ and *harpe* /harpə/ can only be syllabified as (tsjɛl)_σ(kə)_σ, (tsjɛr)_σ(kə)_σ, (pɔl)_σ(kə)_σ, (mɔl)_σ(kə)_σ and (har)_σ(pə)_σ; /lk/ and /rp/ are clusters with a falling sonority profile, hence they cannot form the syllable onset. This is different with *jister* /jɪstər/ and *juster* /jʊstər/, for the cluster /st/ can be both the syllable coda and the syllable onset. This means that the following syllabifications are feasible: either (jɪs)_σ(tər)_σ and (jʊs)_σ(tər)_σ or (jɪs)_σ(stər)_σ and (jʊs)_σ(stər)_σ (with an ambisyllabic /s/ in the latter two). The syllabifications (jɪs)_σ(stər)_σ and (jʊs)_σ(stər)_σ are enforced by the *Maximal Onset Principle* (MOP), which states that, unless universal or language-specific constraints would be violated, as many consonants as possible are assigned to the syllable onset. The MOP, however, is not of a categorical nature, for the syllabifications (jɪs)_σ(tər)_σ and (jʊs)_σ(tər)_σ are all right, which can be accounted for by the shortness of the B-vowels /ɪ/ and /ʊ/, in tandem with the demand of a bipositional rhyme for a word-internal syllable (see above).

9. As to its vowels, a canonical Frisian word has at least and at most one full vowel, supplemented, but not necessarily so, by schwa. This means that the words at hand are all loan words.

paragraph, are (pri)_σ(je:l)_σ and (su)_σ(wa:f)_σ, respectively. Since the central vowel /y/ allows for the insertion of either a front or a back glide, words like *fluor* /flyɔr/ ‘fluoride’ and *februaarje* /fe:brya:rjə/ ‘February’ are realised as either (fly)_σ(jɔr)_σ and (fe:)_σ(bry)_σ(ja:r)_σ(jə)_σ or (fly)_σ(wɔr)_σ and (fe:)_σ(bry)_σ(wa:r)_σ(jə)_σ. Glide insertion also occurs following the closed A-vowels /i, y, u/, another indication that they pattern with the long vowels.

In case the left-hand vowel is /e:/ and does not carry stress, the insertion of the glide may evoke the raising of this vowel to /i/. The words *fideo* /'fide:o:/ ‘video’, *reëel* /re:'e:l/ ‘realistic’, and *ideaal* /ide:'a:l/ ‘ideal’, for instance, are often realised as [ˈfidi:jo:], [riˈje:l], and [idiˈja:l].¹⁰ The short, closed front vowel /i/ replaces the long, non-closed front vowel /e:/ here. Hoekstra (1995: 14) observed that, at least in the North Eastern part of the Frisian language area, unstressed /o:/ in word-final position may raise to /u/, so that words like *auto* /ɔwto:/ ‘car’, *foto* /fo:to:/ ‘photo’, and *ijsko* /ejsko:/ ‘ice cream’ are realised as [ˈɔwtu], [ˈfo:tu], and [ˈejsku]. In this case the short, closed back vowel /u/ replaces the long, non-closed back vowel /o:/. In sum, the short, closed vowels /i/ and /u/ alternate with genuinely long vowels. This links up with the word-internal or word-final open syllable in which they occur.

Thirdly, the closed A-vowels /i, y, u/ may appear in word-final position, where they occur in an open syllable by definition. Examples are *dy* /di/ ‘that (one); those (ones)’, *jierdei* /jidi/ ‘birthday (literally: year#day)’, *menu* /mənɥ:/ ‘menu’, and *hoe* /hu/ ‘how’. The word-final position is the prerogative of the genuinely long vowels, whereas the genuinely short ones, like /ɪ/ and /ɔ/, are not found there.¹¹

2.2 Phonotactic arguments

In the second place, De Haan adduces phonotactic arguments for his classification. First, in a word-final syllable, a long vowel can be followed by maximally one non-coronal consonant, a short vowel by two. Now, the short A-vowel /i/, for instance, shows up in words like *kyl* /kil/ ‘keel’, *byld* /bild/ ‘image; statue’, and *byls* /bilz/ ‘sleepers (under the rails)’, whereas it does not, for instance, in **kylp* /kilp/ and **kylf* /kilv/. Thus, in this respect the short closed vowels pattern with the genuinely long vowels.

Secondly, the velar nasal /ŋ/ – and the consonant sequence /ŋk/ for that matter – can only be preceded by a short, but not by a long vowel. Here as well, the short closed vowels pattern with the A-vowels. Take again the front vowel /i/, which

10. For Dutch, this phenomenon was observed in Trommelen & Zonneveld (1982: 52).

11. This means that the opposition between short and long vowels cannot manifest itself word-finally or, put differently, that it is neutralised in that position.

does not occur in nouns like **dyng* /diŋ/ and verb stems like **tynk* /tiŋk/, whereas the short front vowel /ɪ/, more or less /i/'s counterpart, is fine in *ding* /diŋ/ 'thing' and *tink(e)* /tiŋk/ 'to think'.

2.3 A diachronic argument

In the third place, although my approach is essentially synchronic, I want to put forward a diachronic argument to consider the closed vowels /i, y, u/ as long vowels. Frisian does not have native simplex words ending in the cluster /nd/. Due to a historical phonological process, /d/ was deleted in that position. This deletion, in turn, was 'repaired' by a process of compensatory lengthening, which resulted in a long vowel. So, *land* /land/ 'land', with a short vowel, eventually became /lɔ:n/, with a long vowel. As this example illustrates, compensatory lengthening operated in tandem with the raising of the vowel by one degree (/a/ → /ɔ/). This implies that the closed vowels, which cannot be raised, could not undergo compensatory lengthening either. Now, the half-closed short front and back vowels /ɪ/ and /o/ should have turned into the closed long front and back vowels /i:/ and /u:/, but this is not the case. There was no compensatory lengthening, but only raising, as evidenced by, for instance, *blyn* /blin/ 'blind' (from *blind* /blind/) and *wyn* /vin/ 'wind' (from *wind* /vind/) on the one and *grûn* /grun/ 'ground' (from *grond* /grond/) and *hûn* /hun/ 'dog, hound' (from *hond* /hond/) on the other hand. If the deletion of final /d/ and the concomitant lengthening of the short vowel are to be viewed as a process pertaining to all vowels, the closed vowels /i/ and /u/ in *blyn* /blin/ 'blind', *wyn* /vin/ 'wind', *grûn* /grun/ 'ground' and *hûn* /hun/ 'dog, hound' must count as long vowels.¹²

In the eastern part of the language area, the back vowel /o/,¹³ upon deletion of word-final /d/, underwent lengthening, but not raising. So, *grûn* 'ground' and *hûn* 'dog' are *groot* /gro:n/ and *hoo* /ho:n/ there. This means that /o/ was lengthened to /o:/ should it not be raised. Lengthening and raising of a half-closed vowel do not seem to co-occur here. The explanation I propose is that the closed vowels are inherently long. This boils down to saying that vowel lengthening could not have an effect on a raised half-closed vowel or, put differently, that the lengthening rule applied vacuously.

12. In North Frisian there is a similar development. Old Mainland North Frisian – a hypothetical/reconstructed language – is assumed to have the sequence *-o:n*, which can be derived from Old Frisian *-and*/. Thus, Old Frisian *land*, with a short (central) vowel, turned into Old Mainland North Frisian *loon*, with a long and raised vowel. The latter underwent several changes in the respective mainland (and Hallig) North Frisian dialects (Alastair Walker, personal communication).

13. The front vowel /ɪ/, lengthening of which would have yielded /e:/, does not take part in this process of lengthening-without-raising.

3. Exceptions

Although the aforementioned distributional and phonotactic regularities concerning the closed vowels /i, y, u/ yield a fair amount of evidence in favour of considering them as phonologically long, it is fair to say that these regularities do have a fair number of exceptions, as is also acknowledged by De Haan (see also Visser 2003: 137–148).¹⁴

Two cases are worth mentioning here. First, in word-final position, a long vowel can be followed by maximally one non-coronal consonant, a short vowel by two. As noted above, this explains why the closed vowel /i/, for instance, can occur in words like *kyl* /kil/ ‘keel’, *byld* /bild/ ‘image; statue’, and *byls* /bilz/ ‘sleepers (under the rails)’, but not in words like **kylp* /kilp/ and **kylf* /kilv/. Exceptions to this are, among others, *wylch* /vily/ ‘willow’, *wylp* /vilp/ ‘curlew’, *pylk* /pilk/ ‘arrow’, *bûlch* /bulɣ/ ‘bubble’, *skûlk* /skulk/ ‘dishcloth’. Second, the velar nasal /ŋ/ – and also the consonant sequence /ŋk/ – cannot be preceded by a long vowel. This explains why the front vowel /i/ does not occur in words like **myng* /min/ and **tynk* /tiŋk/. Exceptions to this are *dyng* /din/ ‘did’ (one of the preterite stems of *dwaan* ‘to do’), *gyng* /gin/ ‘went’ (one of the preterite stems of *gean* ‘to go’), *stying* /stin/ ‘stood’ (one of the preterite stems of *stean* ‘to stand’), *dûng* /dun/ ‘did’ (one of the preterite stems of *dwaan* ‘to do’), *gûng* /gun/ ‘went’ (one of the preterite stems of *gean* ‘to go’), *stûng* /stun/ ‘stood’ (one of the preterite stems of *stean* ‘to stand’), *fûnk* /funk/ ‘spark’ and *jûnge* /junə/ ‘boy’.

The above words, and the exceptions not mentioned here, do not seem to violate the phonotactics of Frisian. One wonders how this is to be accounted for. In all likelihood, the key to the answer is the ambivalent nature of the closed vowels /i, y, u/.

According to the vowel system in (1), every short vowel in Frisian has a long counterpart. Due to its symmetry, such a system has an intuitive, aesthetic appeal. But that’s not all. Such a system also implies that there is a fixed and transparent relation between phonetic duration and phonological length, in that vowels with a short or long duration are also short or long in a phonological sense, so one does not have to consider or “reason away” asymmetries on this score.

Closed /i, y, u/ are realised as short vowels, but the evidence for considering them as phonologically long cannot be denied. Thus, these vowels are ambivalent in nature, showing a mismatch between phonetic duration and phonological length,

14. There is a tendency for long vowels to precede voiced fricatives, whereas short vowels tend to be followed by voiceless fricatives. See De Haan (1999: 25–26) and Visser (2003: 146–148) for examples of words in which the closed vowels /i, y, u/ precede voiceless fricatives, notwithstanding their phonological length.

which sets them apart from the other vowels (or vowel pairs). This may be the reason behind the fair number of exceptions these vowels have with respect to the aforementioned distributional and phonotactic regularities. As if /i, y, u/ are long, but not wholeheartedly so, since duration and length do not match.

There is an interesting parallel here with Dutch, where the short closed vowels also show “long behaviour”. Dutch has a productive process of diminution. The diminutive suffix has five allomorphs, the selection of which is determined to a great extent by the quality of the final segment of the stem. Interesting in this respect are the words which end in a sonorous consonant (a liquid or a nasal), in which case the length of the stem vowel plays a decisive role: the suffix chosen is *-tje* after a long and *-etje* after a short stem vowel.¹⁵ This means that a word like *bon* ‘ticket; token’, with a short vowel, has *bonnetje* as its diminutive, whereas *boon* ‘bean’, with a long vowel, has *boontje*. In general, the closed vowels pattern with the long vowels here, so *tien* /tin/ ‘ten’ and *zoen* /zun/ ‘kiss’ have the diminutives *tientje* ‘ten-euro note’ and *zoentje* ‘little kiss’, respectively. This is, however, only part of the story, for words with a closed vowel may also show variation between diminutive forms ending in *-tje* or *-etje*. The word *wiel* /vil/ ‘wheel’, for instance, has either the diminutive *wieltje*, which links up with a long vowel, or *wieletje*, in which case the vowel counts as short.¹⁶ Knevel and Gilbers (2005) ascribe this variation to the mismatch between phonetic duration and phonological length which is characteristic of the short closed vowels. Although there is a good deal of evidence that in Dutch /i, y, u/ are long in a phonological sense, this does not alter the fact that this mismatch between duration and length is likely to cause uncertainty on the part of the language user as to how to interpret the phonological length of these vowels. This, in turn, may explain the variation in the choice of the right suffix allomorph. Nouns ending in a closed vowel followed by /r/ are invariably realised with a long vowel, so that there is not a mismatch between duration and length there; interestingly, and not surprisingly for that matter, such nouns only have diminutives ending in the “long allomorph” *-tje*.

15. The suffix is *-pje* after words with a long vowel followed by the bilabial nasal /m/ and *-kje* after words ending in an unstressed syllable closed by the velar nasal /ŋ/ (as in Frisian, the velar nasal can only be preceded by a short vowel).

16. It should be noted that *wieltje* occurs with a (much) higher frequency than *wieletje* does.

4. The phonological representation of the closed vowels

The short and long closed vowels can be documented in minimal pairs, see (3):

(3) minimal pairs with the short and long closed vowels¹⁷

- | | | | |
|----|-----------------------------------------------------------------------------|---|--------------------------------------------------------|
| a. | /i/ – /i:/ | | |
| | tyk /tik/ ‘tick’ | – | tiik /ti:k/ ‘ticking’ |
| | krych /kriɣ/ ‘got’ (one of the
preterite stems of <i>krije</i> ‘to get’) | – | kriich /kri:ɣ/ ‘pith, zip’ |
| | syk(je) /sik/ ‘to look for’ | – | siik /si:k/ ‘ill’ |
| b. | /y/ – /y:/ | | |
| | tút /tyt/ ‘kiss’ | – | tút /ty:t/ ‘spout’ |
| c. | /u/ – /u:/ | | |
| | bûk /buk/ ‘belly’ | – | boek /bu:k/ ‘beech’ |
| | poep /pup/ ‘faeces’ | – | poep /pu:p/ ‘kraut (a pejorative word
for ‘German’) |
| | hoes /huz/ ‘cover(ing)’ | – | hûs /hu:z/ ‘house’ |
| | soes /suz/ ‘choux pastry’ | – | sûs /su:z/ ‘drowse, doze’ |
| | kroes /kruz/ ‘mug’ | – | kroes /kru:z/ ‘frizzy’ |
| | dûk(e) /duk/ ‘to dive’ | – | doek /du:k/ preterite stem of <i>dûke</i> ‘to
dive’ |
| | lûk(e) /luk/ ‘to pull’ | – | loek /lu:k/ preterite stem of <i>lûke</i> ‘to pull’ |

All closed vowels count as long, which means that they occupy two structural positions. The question then is how they are to be distinguished from each other. De Haan (1999: 26–27) notes that “monophthongs have to be specified for their positional characteristics, although it may be the case that these properties can be predicted from an independently needed feature”. In a footnote, he refers to Van Oostendorp (1995), “who derives distributional properties from the feature <lax>”, thereby suggesting that the feature pair “tense-lax” might play a role in the phonology of Frisian. Although he does not elaborate on this, De Haan is likely to have had the correspondence tense-bipositional and lax-monopositional in mind.

Invoking “tense-lax” as a qualitative distinction in Frisian phonology, however, meets with several objections.¹⁸ First, there is the general problem that “tense” is

17. These are the only pairs I have been able to find.

18. Cohen et al. (1959: 108–109) wonder whether the distinction between short and long vowels in Frisian could not be expressed by invoking the features “tense” and “lax”, as they do with respect to the Dutch vowels. Preference, however, is given to a classification along the short-long dimension “since the vowels give that impression in hearing and are also shorter and longer when measured instrumentally” [translated from Dutch]. Besides, it is noted that several short vowels can occur in an open syllable, whereas the comparable Dutch lax vowels cannot. As noted, this

a feature with no clear phonetic correlate. This leads Lass (1984: 92) to state that “there are no qualities attributable to “tense” that can’t be reduced to the traditional dimensions of height, backness and duration”. According to Ladefoged (1993: 297), “tense” is “[a] term with no specific phonetic correlates, used when dividing vowels into classes *on phonological grounds* [my emphasis, wv]”. Besides, if /i/, /y/ and /u/ occupy two structural positions and must be characterized as “lax”, this goes against the general assumption that bipositionality links up with [+tense] and monopositionality with [–tense] (i.e. [lax]).

The A-vowels /i, y, u/ pattern with the other A-vowels, so they can safely be assumed to occupy two structural positions. Witness the minimal pairs in (3). We must, however, also be able to distinguish phonologically the closed vowels with a short duration from their counterparts with a long duration, which is exactly what forces De Haan to hint at invoking the feature pair “tense-lax” here.

The difference between both kinds of vowels can, however, be expressed representationally. This can be done as in (4), with a four-way distinction between (a) vowels like /ε, ɔ, ɪ/, which are short both phonetically and phonologically, (b) vowels like /e, o/, which are long both phonetically and phonologically, (c) the closed vowels /i, y, u/, with a mismatch between phonetic duration and phonological length and (d) the long counterparts of these, which are long as to both their phonetic duration and their phonological patterning:¹⁹

(4) a four-way distinction between vowels as to length and duration

a. /ε, ɔ, ɪ/

structural tier:	X
melodic tier:	/ε, ɔ, ɪ/

b. /e, o:/

structural tier:	X	X
	\	/
	\	/
melodic tier:	/e, o/	

analysis has generally been accepted among Frisian phonologists, as evidenced by the classification in (1). See also Visser (2003: 148–150) for objections against the distinction “tense-lax” in the phonology of Frisian.

19. Booij (1995: 15–16) proposes the representations (4c) and (4d) for the Dutch closed vowels. For Dutch native words there are no minimal pairs with the long and short variants. The long vowels only show up in the stressed syllable of loanwords, like *analyse* [ana'li:zə] ‘analysis’ and *centrifuge* [sɛntri'fy:zə] ‘spinner’. In the related verbs *analyse*(*en*) ‘to analyse’ and *centrifuge*(*en*) ‘to spin-dry’, primary stress is on the suffix *-eer*, as a result of which the closed vowel is realised as short: [anali'ze:r] and [sɛntrifi'yɛ:r].

- c. the short versions of /i, y, u/
 structural tier: X X
 |
 |
 melodic tier: /i, y, u/
- d. the long versions of /i, y, u/
 structural tier: X X
 \ /
 \ /
 melodic tier: /i, y, u/

The representations (4c) and (4d) contain two structural positions, which expresses that both vowel types count as phonologically long. The difference lies in the association between the structural tier and the melodic tier. In representation (4c), there is only a link between the (left-most) X-position and the melodic tier. This means that the other (right-most) X-position cannot receive a phonetic interpretation. The phonetic implementation of this representation, therefore, is that of a vowel with a short duration, just like the implementation of representation (4a).²⁰ In (4d), both X-positions are linked to the melodic tier, a representation which, just like (4b), is implemented as a vowel with a long duration.²¹

In Frisian, long vowels can alternate with short vowels, should the stems they are part of appear in inflected forms, in derivations, and as the left-hand member of a compound.²² Examples with the closed vowels with a long duration are *iis* /i:z/ ‘ice’ – *yslik* [islək] ‘hideous, dreadful’, *tiid* /ti:d/ ‘time’ – *tydskrift* [titskrɪft] ‘magazine’,

20. An anonymous reviewer remarks that although the representations in (4) seem to allow for an elegant account of the length differences between the various vowel types, all this is not without problems. The main one being that the rightmost X-position in representation (4c) floats in the air, so to speak, for it is neither associated with melodic content nor rooted in the higher prosodic structure. The question then is how the X-position at hand is prevented from undergoing the fate of Stray Erasure, an operation which removes unassociated phonological material. A way out might be to link this position to the syllable nucleus in the underlying representation, together with the assumption that such prelinking cannot be overridden by syllabification.

21. In Frisian simplex words vowels preceding the sequence /-n{s/z}/ are long (see the *Language Portal Dutch/Frisian/Afrikaans* (> Frisian > Phonology > Phonological Processes > Vowel nasalization > Nasal vowels and vowel length)). This means that the short closed A-vowels are expected to occur in this position. This, however, is not the case. Words like *Wyns* /vi:nz/ [vī:s] ‘place name’ and *ûns* /u:nz/ [ū:s] ‘hectogramme’ have long vowels, both phonologically and phonetically, and their short counterparts are not allowed in this constellation. Preceding /-n{s/z}/ vowels of the type (4b)/(4d) are called for. This is all the more strange since the sequences /i:n/ and /u:n/, from which the nasal vowels in *Wyns* and *ûns* derive, do not occur outside the context of vowel nasalisation.

22. For a full treatment of the alternation at hand, see *Language Portal Dutch/Frisian/Afrikaans* (Frisian Phonology > Phonological Processes > Vowel Shortening).

drúf /dry:v/ ‘grape’ – *drúfke* [dryfkə] ‘small grape’, and *mús* /mu:z/ ‘mouse’ – *múske* [muskə] ‘little mouse’. Words with a short closed vowel do not show this alternation, so both *knyn* /knin/ ‘rabbit’, *tút* /tyt/ ‘kiss’ and *hûn* /hun/ ‘dog’ and their diminutives *knynsje*, *tútsje*, and *hûntsje* are realised with a short vowel. Shortening of a long vowel implies a reduction, from two to one, of its structural positions. The short closed vowels /i, y, u/ occupy two structural positions, only one of which is linked to the melodic tier (see representation (4c) above). Shortening, therefore, will not have an audible effect on these vowels’ duration.

5. The representation of diphthongs

With representation (4c) one runs into problems as to a proper understanding of the behaviour of the falling diphthongs of Frisian. Since these diphthongs have the same distributional properties as long vowels, they are safely assumed to occupy two structural positions. The falling diphthongs <ei/ij> and <au/ou> are regularly represented as /ɛi/ and /ɔu/, so as the combination of a (half open) B-vowel and a (closed) A-vowel. This combination occupies three structural positions. This is at odds with the general assumption that the syllable nucleus should not occupy more than two such positions, whereas the fact that these diphthongs can be followed by non-coronal consonants in word-final position, as in *geheim* ‘secret’ and *hawk* ‘hawk’, also points to a bipositional nucleus. A way out here is either to represent the second part of these diphthongs as the half closed short counterparts of the closed vowels – /ɛɪ/ and /ɔʊ/ instead of /ɛi/ and /ɔu/ – or to abandon the idea of representing glides as closed vowels at the underlying level – and, as a consequence, to represent these diphthongs as a combination of two vowels – but as segments in their own right, so that these diphthongs can be represented as the combination of a vowel and a glide, as /ɛj/ and /ɔw/ instead of /ɛi/ and /ɔu/. Both /ɛɪ/ and /ɔʊ/ and /ɛj/ and /ɔw/ occupy two structural positions, so that these diphthongs can regularly be followed by one non-coronal consonant in word-final position.

6. Concluding remarks

Elaborating on a proposal by De Haan (1999), I have tried to adduce further evidence for the claim that the Frisian closed vowels /i, y, u/, in spite of the short duration with which they are realised, should be represented as long, bipositional vowels phonologically.

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