On schwa’s aberrant behaviour

Dominique Nouveau

1. Introduction
In his 1993 paper, Wim Zonneveld (henceforth, WZ) tackles “schwa’s aberrant behaviour” (1993:315). In a stress-timed language like Dutch, where full vowels regularly reduce to schwa in unstressed positions, the schwa status is not always very clear in final syllables. WZ sharpens up earlier accounts on Dutch (Kager and Zonneveld 1986; Trommelen and Zonneveld 1989; Kager 1989) by pointing out a significant parallel at the word edge in syllable structure between superheavies (final syllables whose rhyme exceeds two segments) and schwa syllables, and by putting forward differences between indigenous and non-native words in the Dutch lexicon. His new analysis of Dutch data not only eliminates superheavies from the inventory of Dutch syllables but it also drastically limits the amount of words containing underlying schwa in final syllables. Except for words containing an underlying schwa in their native affixes –lijk and -ig, all other cases are reinterpreted as a surface derived [ə] which is either: (i) an epenthetic vowel in closed schwa syllables as in simpel or (ii) an underlying full vowel which is reduced to schwa in open syllables.

Schwa is also a hard to grasp phenomenon in French. This vowel typically corresponds to <e> in spelling. Schwa’s unique properties have been, and still are, a hotly debated issue in French phonetics, phonology and morphology. A colossal body of literature has been devoted to the numerous facets of the topic, providing a testing ground for theoretical frameworks (Selkirk 1978; Tranel 1987, Morin 1987; etc.). French schwa may seem to be a catch-all concept when considering the collection of denominations used to refer to the pronunciation of orthographic e (e muet ‘mute e’, e féminin ‘feminine e’, e neutre ‘neutral e’, e caduc ‘unstable e’, etc.). In contemporary French, schwa’s timbre can be anywhere in between the open and the closed mid rounded vowels [œ] and [ø]. Importantly, French schwa never refers to a reduced vowel as it does in Dutch. As pointed out by Montreuil (2002:4) “the term ‘schwa’ is a misnomer (...). If pronounced, ‘schwa is a full mid rounded
vowel (...) Schwa is thus a term for an unstable vowel, primarily defined by alternations”.

From a diatopic perspective, as a result of dissimilar substrates and norms, the variable treatment of schwa is still an important marker for regional accents in Metropolitan France (Adda-Decker et al. 1999; Durand and Eychenne 2004; Coquillon 2007) between the northern and southern varieties.

The issue of French schwa retains much attention in the teaching/learning of the pronunciation of French as a foreign language. Schwa deletions in reference French can have severe effects on the pronunciation of words. They distort syllabic information in words and between words, and can therefore have detrimental consequences for word recognition. On the other hand, improper deletions of schwa from the foreign speakers’ part can be a serious hindrance for communication. This paper investigates the obstacles with respect to schwa encountered by Dutch learners of French. The topic is particularly relevant given the divergent behaviour of schwa in the two languages.

The paper is organised as follows. Section 2 presents the general characteristics of French schwas in Metropolitan French and focuses on the northern reference variety. Section 3 returns to WZ’s quest for Dutch schwa and attempts to elaborate on its innovative findings. Section 4 explores the difficulties encountered by Dutch learners of French as a foreign language. Finally, section 5 reports on elicited production by a group of first year university students. Looking into the Dutch schwa typology will help delimitate difficulties which may arise in the process of learning French as a foreign language.

2. French schwas

The stability of schwa in all contexts represents (together with the complementary distribution of mid-vowels and allophonic nasalisation) one of the salient features of the southern accent du midi1 (Brun 1931; Ségyu 1950; Durand and Eychenne 2004; Coquillon 2007). Typically, the vowel which corresponds in French to <e> in spelling is almost always pronounced in the south of France. The only context where it is deleted is when followed by a vowel-initial word.

On the other hand, a great unstability of schwa can be witnessed in the northern varieties of (reference) Metropolitan French, as illustrated in the following contrastive overview of pronunciations.

<table>
<thead>
<tr>
<th></th>
<th>Southern F</th>
<th>Northern F</th>
</tr>
</thead>
<tbody>
<tr>
<td>mer, mère</td>
<td>‘mother’ ‘sea’</td>
<td>[mɛʁ], [mɛʁa]</td>
</tr>
<tr>
<td>lac, laque</td>
<td>‘lake’ ‘gloss’</td>
<td>[lak], [laks]</td>
</tr>
<tr>
<td>film, filme</td>
<td>‘movie’ ‘film’</td>
<td>[film], [filma]</td>
</tr>
</tbody>
</table>

1 Some evidence points to increasing convergence to the dominant northern standard variety in the treatment of schwa among younger speakers of Southern French, particularly word-finally and in clitics (Durand et al. 1987; Amstrong and Boughton 1999) but also in initial syllables of frequent verbs (for instance in sera ‘will be’) and specific constructions such as un p(e)tit peu ‘a little bit’ (Eychenne and Pustka 2007).
Regarding schwa's characteristics in the northern variety of reference French, one should make a distinction between potential realisations of <e> in word final syllables and elsewhere. Orthographic e is never pronounced word-finally. Consequently, the words mère ‘mother’ and mer ‘sea’ are homophones. Yet, in the context of the famous 'loi des trois consonnes', first observed and formulated by Grammont (1894:35), a schwa insertion is required to facilitate the articulation across word boundaries of a complex cluster made of three consonants or more between two full vowels (casque rouge). This epenthetic [a] is not always etymological as illustrated in film tchèque [filmatęp].

Whereas the situation is quite steady word-finally, there are schwa/zero alternations in the other contexts. Therefore, it looks legitimate to adhere to Geerts’ definition according to which “Standard French schwa is a word-internal or clitic-final instance of [a] or [ɛ] that can change into zero in informal speech without a change of meaning”(2008:20). For instance, la fenêtre may be pronounced either as [lafɛnɛt] or as [lafɛnt] in conversational French. Whenever complex clusters of three consonants or more (Grammont’s ‘three consonant law’ context) are formed, again a schwa is obligatory, e.g. une fenêtre [yfɛnɛt].

\[
\begin{array}{c|c|c}
\text{Final} & \text{0} & \text{epenthetic [a]} ^* \text{CCC} \\
\text{mère, le masque} & \text{le masque rouge} & \text{film_tchèque} \\
\end{array}
\]

\[
\begin{array}{c|c|c}
\text{Non final} & \text{a–0} & \text{a} \\
\text{la fenêtre, samedi} & \text{une fenêtre, vendredi} & \text{lentement} \\
\text{je le dis, je le dis} & \text{brusquement} & \\
\end{array}
\]

In modern French, the e in orthography is often inherited from the vowel a. From a diachronic perspective (Horne 1976; Morin 1978), the evolution from the Gallo-Roman variable stress system, where words could be proparoxytonic, paroxytonic or oxytonic, to the modern French’s fixed system with final stress\(^2\)\(^3\),

---

\(^2\) This definition excludes words containing a non-alternating full stable vowel corresponding to <e> which is in phonological opposition with zero in another word (e.g. pelage vs. plage).

\(^3\) French assigns stress to the final vowel of a stress group which is built on the basis of (i) stressability depending on the grammatical nature of words (content vs. function words), (ii) syntactic boundaries and (iii) semantic relationships (Montreuil 2002).
results from a dramatic reshuffling of syllabic structure in words yielding new lexical representations. The processes of syncope and apocope (cf. 3a) delete most Vs in unstressed position of polysyllabic words but retain [a] due to its greater sonority. Pre-tonic syncope excludes a (Fouché 1969) from deletion: it either reduces [a] to schwa in an open syllable (ornement < orrēgmentum ‘ornament’) or keeps it as [a] in a closed one (arbaleste < arc(ũ)ballista ‘cross-bow’). Apocope elides all final Vs except [a] which is first reduced to schwa. Final [s] sometimes replaces other vowels as a supporting vowel after a complex cluster (duplu > doble ‘double’) or it indicates gender in nouns and adjectives and mood in verbs (cf. 3b). At a later stage, internal schwas show a “tendency to camouflage” (Silverman 2011) and are optionally dropped (cf. 3c) whereas final schwas are deleted (cf. 3d).

(3) a. Reduction of an unstressed a a > ə CaC~ Cə a~ə#
b. Supporting V V > ə *CCC
c. Schwa camouflage alternation ə~0
d. Schwa deletion no alternation 0#

In a historical survey devoted to the phonetic reality of schwa, Horne (1976) finds evidence in grammatical treatises ratifying the erasure of final schwa: “at the beginning of the 18th century, practically all accounts attest to the apocope of schwa in conversation, both in prepausal as well as in preconsonantal position” (319). Horne (1976:323) also invokes Fauleau’s comments (1781) indicating the divorce between orthography and the phonological status of final schwa existing at the time: “Si le mot commence par une consonne, on appuie sur la dernière consonne du premier mot, comme si il n’y avait point d’e; ainsi on prononce terre natale comme s’il y avoit ternatal”.

To summarise, schwa’s tendency to camouflage (Silverman 2011) leading to schwa-zero alternations only involves word internal schwas and clitics. Supporting vowels are inserted to facilitate the articulation of complex consonant clusters in all contexts. Deletion is completed word-finally⁴, even if e remains in spelling (sometimes as morphological information for the feminine gender). Alluding to this, Horne suggests that “[i]t's survival today in the orthography can at best be regarded as a ‘fiction graphique’, a remnant in some cases of the function it served grammarians in the 17th and 18th centuries in preventing the truncation of final consonants” (1976:202). In the next section, Dutch schwas will be considered.

3. Dutch schwas with a touch of French

Dutch stress (Kager 1989; Zonneveld and Nouveau 2004) defines itself as a moraic trochee on the right word edge. When considering Dutch regular data in (4), it can

---

⁴ Deletion seems to be effective word internally in some French lexemes in conversational speech but not in songs, poetry and formal speech.
be observed that primary stress (indicated here by means of an accent) is clearly disfavoured in a word final position with one exception: words ending in a VXC syllable. In words ending in schwa syllables, stress falls on the penultimate syllable.

(4) VC# VV# a(C)# VXC#

robot sombrero garáge banán, acetáat
marathon Alása théater, régel asfáit, presidént

WZ (1993) ties together the behaviour of superheavy syllables and final syllables containing schwa. In an earlier account, Kager and Zonneveld (1986) suggest that excess segments in superheavies are ‘appendix consonants’ adjoined as a coda of the preceding bipositional rhyme. They define a template of two word-final appendices expressing the generalisation that any Dutch word-final VX-rhyme may optionally be followed by (i) an appendix made of excess consonants which themselves may optionally be followed by (ii) an appendix made of a schwa followed by consonants. To avoid such postulations, WZ reconsiders the status of excess consonants in VXC syllables and proposes a syllabic analysis where final segments are word final onsets at the underlying level. This approach has several advantages: (i) it conforms to the bipositional VX-rhyme constraint (ii) it eliminates superheavies from the inventory of Dutch syllables and the “extrasyllabic but not extrametrical paradox” of their final segments in superheavies. Furthermore, final-schwa syllables are assumed to end in final Obstruent-Liquid onset clusters. In (5), we reproduce some of WZ’s data representing schwa/zero alternations in underived words and their derived forms.

(5) arbiter arbitrage cylinder cylindrisch
filter filtreran kader kadreer
meter metrisch theater theatraal
simpel simplism soepel soulesse

For these words, WZ suggests a unified analysis of underived and derived words. Underived words end in a complex onset (thea.tr). This onset cluster immediately precedes the suffix in the derived forms (thea.traal). This yields an interesting parallel between metrical representations of words ending in so-called superheavies (ending in an onset: vul.kaa.n) and final closed schwa syllables which, according to him, are schwa-less (ending in a complex CL onset: the.aa.tr). Schwa in underived words of the type theater is now interpreted as an epenthetic surface vowel which avoids this complex onset word-finally. Yet, as WZ observes, there are exceptional cases (e.g. Montmartre, Louvre, Sartre) and a set of less frequent data where the liquid is always [I] (e.g. meubel/meubilair, regel/regulier), which present schwa/V-alternations and would require a different account.

Noteworthy, complex issues in Dutch stress accounts regarding irregular patterns, superheavies and schwas are inherited from loanwords. WZ puts forward differences between indigenous and non-native words in the Dutch lexicon. Whereas native Dutch words are monosyllabic, unless they contain semi-affixes of which the vowel is mostly a schwa, polysyllabic words with more than one full vowel are foreign. Among these foreign words, the French heritage is substantial and the
idiosyncrasies that occur in Dutch could be attributed to that. Van der Sijs (2009) underlines the great influence of French on the Dutch language from the 12th century onwards (with a decline in favour of English in the 20th century). French loanwords have been adapted to Dutch, but residues of the French identity are somewhat preserved in Dutch borrowings. For instance, several phonemes have been kept in Dutch, such as /-gay/ (e.g., etage ‘floor’) and lax vowels (with additional length, e.g. [æ:] in migraine ‘headache’). Moreover, the large influx of French loanwords has contributed to Dutch words getting a mixed stress pattern, with primary stress falling typically on the final syllable (idee, adres, muziek, president, etc.). A search into the Dutch etymological dictionary and Van der Sijs’ listing of loanwords (2009:357) shows that a large amount of the data ending in open and closed schwa syllables are loanwords borrowed from the French language.

(6) Open schwa syllables: accolade, affaire, affiche, arcade, asperge, attaque, ambassade, barricade, barrage, collecte, dame, etappe, estafette, garage, gazelle, geste, mange, manoeuvre, migraine, mode, nuance, parterre, pommade, polonaise, robe, ruine, lagune, savanne, etc.


These French data are quite informative as to the adaptations made in Dutch loanwords. They have been partially adjusted to the Dutch phonology while keeping an air de famille with French. You may remember that stress was becoming oxytonic in French due to the effect of apocope leading to the deletion of final schwas. First, stress has been well-kept on the same last full vowel of the words. Second, final schwa is transferred as a central vowel [ə] in loanwords. As a result, stress falls on the penultimate syllable in Dutch in accordance with the native trochaic pattern. In addition, final schwa blocks the effect of final consonant devoicing (in robe, asperge, polonaise for instance) for the sake of a certain French identity. Regarding words of the type theater, borrowed from the théâtre category with a final supporting V (CIL), a metamorphosis takes place: adaptation by schwa epenthesis inside the final complex cluster (C0L) happens in accordance with Dutch syllabification. Delattre (1944:371) observes that one of the keys of French syllabification resides in vocalic anticipation. In other words French clearly favours open syllables. Dutch being (as English) a language with consonantal anticipation defines itself as a CVC language which can form closed syllables containing schwas. These schwas spelled <e> seem to be lexicalised, contrary to other epenthetic schwas in modern informal speech which alternate in final complex clusters (e.g., melk [melək]) and do not appear in orthography.
4. Dealing with schwa in French as a foreign language

Learning to master the multiple facets of French schwa is a real challenge for foreign language learners. First, this phenomenon constitutes a significant source of perceptual difficulty when learners are confronted with optional deletion\(^5\) in casual speech, and variants of the same word arise. The more informal the register, the more of these optional schwas will be omitted. Besides, schwa/zero alternations that occur word-internally (in initial and internal syllabes) are sometimes regulated by the segmental context. For instance, schwa shows up when a consonant precedes the word and tends to be omitted if it is a vowel (e.g. une fenêtre [ynfɛnetʁ] vs. la fenêtre [lafɛnetʁ]). In addition, the non-realisation of a final <e> in French leads to the *enchaînement* of a word-final consonant to the following word-initial vowel (or consonant) across word boundaries (as *la grande amie* > *la.gran.damie*). Cases of coarticulation due to non-alignment between word- and syllable-boundaries are rather frequent. Hence, determining individual words is fairly difficult. This syllabification of the speech chain (even if it is phonetically cued, as argued by Fougeron et al. 2003) may affect word recognition to such extent that “quelqu'un qui ne sait pas où commencent et où finissent les mots français, ne pourra jamais le deviner en entendant parler\(^6\)” (Grammont, 1938: 102). Consequently, a foreign listener may have difficulty differentiating almost homophonic utterances such as: *il le r(e)prend* ‘he takes it again’ vs. *il leur prend* ‘he takes it from them’ or *je veux la j(e)ter* ‘I want to throw it away’ vs. *je veux l’ach(e)ter* ‘I want to buy it’.

Furthermore, perception problems resulting from schwa/zero alternations are enhanced by the phonological filter (Troubetzkoy, 1939/1986: 54), which occurs when speakers use their own phonological features while learning a foreign language. Dutch is a stress-timed language and tends to pause between words, while French allows pauses between phrases and is a syllable-timed language that gives equal prominence to all syllables (Nishihara and van de Weijer 2012). And, as already noted, French links sounds across certain word boundaries.

A second obstacle which must be borne in mind is the impact of orthography on the acquisition of L2 (Detey 2005). As Saussure points out, “le mot écrit tend à se substituer dans notre esprit au mot parlé”\(^7\)” (1916: 48). At least two aspects of French orthography affect the Dutch speakers’ perceptual and productive abilities: on the one hand, the relative lack of transparency of the French spelling system with its silent letters and phonemes with multiple written forms, and on the other hand, the interfering effect of orthography in L1 language processing (Nunn 1998). Dealing with a letter such as <e> which is either a vowel or silent, as well as the mismatch between Dutch and French grapheme-to-phoneme correspondences may lead to orthography-induced transfer from Dutch spelling where written <e> is always realised as a vowel and corresponds to three phonemes /ɛ/, /e/ and /e/.

---

5 Nouveau (2012) conducted a word recognition test with Dutch students. Recognition rates of French words where optional deletion occurred were much higher in known vocabulary.

6 For someone not knowing where French words begin or end, it is virtually impossible to guess what people are saying (my translation).

7 The written word tends to replace the spoken word in our mind (my translation).
Third, learners must overcome certain difficulties in producing schwas in the right contexts. In his *Traité pratique de prononciation française*, Maurice Grammont reports on two tendencies in production of French schwa that characterise foreign learners. Beginners tend to produce in all contexts the vowel that corresponds to <e>, even word-finally where it is dropped. At a later stage of acquisition, they tend to skip schwa everywhere, disrespecting epenthetic contexts constrained by the ‘three consonant law’.

Another difficulty in production relating to the interference of L1 (Dutch) schwa into L2 involves vowel reduction. Dutch schwa partly defines itself as a reduction of full Vs in unstressed syllables. This is never the case in syllable-timed French where unstressed full vowels are kept intact. As will be shown in the following section, Dutch learners mostly find it difficult not to reduce full pre-tonic unstressed vowels.

5. Dutch production of French schwas

This section examines French schwa in oral productions of Dutch students. A preliminary tracking of Dutch learners’ difficulties has been carried out with bachelor students in the department of French language at the Radboud University, in Nijmegen during pronunciation sessions. The elicited recorded data tested the contexts we have considered in our overview of French and Dutch schwa.

(7) Northern French Dutch
a. final Silent <e> C# and C# <c> and <c> <c>
b. non final Alternations 0~0 Alternations V~<e> V never reduced to <e> <e> never deleted
   V never reduced to <e> <e> never deleted
   V never reduced to <e> <e> never deleted
c. epenthesis *CCC supporting <e> *VCC supporting <e> creates an open syllable
   creates a closed syllable
   word final + non final word final
   word final

5.1. First context: word final

In this context where Dutch schwas are never dropped (e.g., *etage* [etəʒ], *meubel* [mœtbɛl]), we observe a clear transfer in the beginners’ productions. They systematically pronounce final <e>. As shown in the spectrogram, the presence of a vowel is clearly detectable at the end of the utterance *un régime*.

Figure 1. Spectrogram of *un régime* (speaker E, beginner)
Since the grapheme <e> corresponds to a schwa word-finally in Dutch words, the learners transfer this property to French. Typically, when they manage to handle the non-realisation of a final schwa in a word as malade ‘ill’, they are faced with a new stumbling block since in this context Dutch final plosives are systematically devoiced. The singular-plural pair bed [bet] - bedden [bedə] ‘bed(s)’ exemplifies final devoicing in the singular form. This characteristic of Dutch is transferred when the learners have mastered French schwa’s absence word-finally. Thus, when they drop the final schwa, they automatically devoice the final consonant in utterances such as: il est malade [t] ‘he is ill’, en désespoir de cause [s] ‘in desperation’ et un bon élève [f] ‘a good pupil’. This improper devoicing of French final voiced plosives sounds typically Germanic to a French ear. And, it is only after having acquired/learnt the non-devoicing of final consonants that they will control the production process. So, in this final word context, learners undergo three stages.

The Dutch and the French epenthetic schwas are quite different in nature. Dutch inserts schwas inside a liquid-plosive complex coda word-finally (e.g., film [filəm] ‘id’). Van Oostendorp (1998:118) considers these e-schw as “almost obligatory” in current speech and not likely to occur in formal speech. French e-schw as are neither related to style nor optional. They are required to avoid too complex consonant clusters between two full vowels. How does the learner deal with the mechanisms of epenthetic schwa resulting from the Grammont’s ‘three consonant law’? Noteworthy, learners never transfer the properties of Dutch e-schw when they speak French. For example, they never say un film tchèque [filəmtʃek]. They also fail to insert the expected non-etymological epenthetic supporting [a] which is required in French to support the complex co-articulation of consonants at the junction of the two words. We do not find productions such as [filəmtʃek]. Our results corroborate Csécsy’s observations (1968: 74) that this tendency persists by most (even very advanced) foreign speakers. Although final schwa is never pronounced in reference French, its orthographic presence prompts Dutch learners to produce it. On the other hand, a supporting V absent in spelling is difficult to acquire.

5.2. Second context: non final schwa
Recall that Dutch non-final schwas are mostly reduction schwas in informal speech, which alternate with a full pre-tonic vowel. In non-final syllables, French schwa alternates with zero depending on style. French schwa is therefore often omitted in conversational speech. The obligatory realisation of this schwa is conditioned by the ‘three consonant law’. As we will see, the shortcomings in the learners’ productions appear to be interferences of two main properties of their native schwa: (i) its obligatory character and (ii) its ability to act as a substitute to a full vowel.
At an initial stage, learners present a natural predisposition for producing all schwas. In their productions of *petit* in *le petit cahier* ‘the small exercise book’, *appartement* ‘flat’ and *je ne le sais pas* ‘I do not know it’, all schwas are systematically present. At an intermediate level, they consistently elide schwa. By so doing, they extend schwa deletion to contexts where the schwa should be retained according to the ‘three consonant law’. The same developmental error has been mentioned by Csécsy: ‘Numerous foreigners, abused by a superficial observation of facts, believe that it is more natural, more ‘French like’ not to utter the so-called mute e. They omit all of them, even the obligatory ones in the context of the ‘three consonant law’ and say */zystmʌ/, */apartmʌ/, */direktmʌ/. Paradoxically, a foreigner betrays himself more by abusively dropping an obligatory ə than by pronouncing an optional one’ (1968:74, my translation).

(9) Productions Dutch transfers Acquired
Beginner *le petit cahier* /apartement/ ə realised
Intermediate *le ptit cahier* *apartment* ə deletion
Advanced *le ptit cahier* *apartement* *CCC*

Furthermore, the Dutch learners tend to modify the nucleus quality of French unstressed penultimate syllables. They regularly make an illegitimate use of reduction schwas in transferring them into French words where they never occur. For instance, learners produce a reduction schwa in the pre-tonic syllable in *Il joue du saxophone* ‘he plays saxophone’. As observed by Kleijn (1967:9), these nagging problems, which can only be overcome by means of an assiduous practice, arise as a result of Dutch word stress. The stress-timed character of Dutch (with approximately the same intervals between stressed syllables in the utterance) corrupts the learners’ productions in French. Particularly, vowels in unstressed syllables are often articulated less clearly in speech than stressed vowels and, their timbre being less accurate, different vowels tend to merge and are reduced to schwa. In addition and complementary to the inappropriate reduction of pre-tonic vowels, Dutch learners will also diphthongise word final stressed syllables.

To sum up, in non-final syllables, the Dutch learners not only find it difficult to master schwa-zero alternations and the obligatory retention of schwa in obedience to the ‘three consonant law’, but they introduce in their interlanguage a rhythmic distortion by producing reduced vowels and diphthongs instead of full vowels.

6. Conclusion
This paper sheds light on some of the major difficulties encountered by Dutch learners of French dealing with schwa. French and Dutch greatly differ as being syllable-timed and stress-timed languages, respectively. This has great implications for syllabification and partly explains vowel quantity transfers in the students' productions. Orthography is the second factor prompting Dutch learners to
pronounce the schwas which either no longer exist or alternate with zero in French. Besides, the fact that many Dutch words with final (open and closed) schwa syllables are adapted French loans (often preserving a French identity regarding consonant voicing and vowel quality) could predispose learners to utter a mute e in resembling words. More archive research into diachronic changes, especially into the loanword phonology of Dutch and the evolution of the spelling of these final schwa syllables, would maybe help to gain a deeper insight into the sometimes seemingly 'aberrant behaviour of Dutch schwa'.

References


