Parameters in generative grammar", financed by the Dutch Ministry of Education.
1. According to Kayne (1984: 202, Fn.17) the empty PP position can also be bound by a rightward moved A MP as in (1).
   (1) Je croyais beaucoup d'amis à ce garçon
   I believed many friends to this boy
2. In the CNO, when the subject is empty and bound by a clitic, it does not seem to induce opacity:
   (2) Je la lui crois fidèle (cf. (1a))
   I her(ACC) him(DAT) believe faithful

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Harry van der Hulst

Ambisyllabic in Dutch

0. Introduction

The purpose of this paper is to show that so-called ambisyllabic consonants are to be represented as long consonants. The particular representation I choose was suggested in Van der Hulst and Smith (1982) and more firmly substantiated with evidence from Danish in Borowski et al. (1983). Here I will substantiate the proposal on the basis of evidence from Dutch by proposing a coherent analysis of Dutch syllable structure, and in particular of the distribution of short and long vowels. I will furthermore show that ambisyllabic consonants have the property of inalterability, identified in Hayes (1984) as a property typical of long segments. This provides independent support for the proposal to regard ambisyllabic consonants as long consonants.

1. The distribution of Dutch vowels

1.1. Preliminaries

In the analysis of Dutch it has proved to be useful to distinguish four sets of vowels:

(1) a. i, e, o, u, œ - short, lax
    b. a, e, o, ë, y, u - long, tense
    c. Ej, Ow, Uj - diphthong
    d. ø - schwa

(The notation employed is provisional, but it suffices here. Cf. Cohen et al. (1959) for a description of Dutch phonology.) The main reason for distinguishing these sets is their distribution. In the next four sections I will go through the most significant distributional properties of the four sets and show how these properties are accounted for in an overall analysis of Dutch syllable structure. This analysis combines features of the analyses proposed in Trommelen (1983) and Van der Hulst (1984, 1985). Most of what is taken for granted here is discussed in these publications.

1.2. The distribution of short vowels

It has frequently been observed that short vowels cannot occur word-finally, whereas long vowels, diphthongs and the schwa can occur in this position. To explain this defective distribution of short vowels I assume that a syllable has the following canonical form (ignoring further internal structure):

(2) 
   \[ \begin{array}{c}
   \text{Onset} \\
   \text{Nucleus} \\
   \text{Coda}
   \end{array} \]
   \[ X X X X \]

For our purposes it is necessary to see that the nucleus is obligatory and contains two positions. These two positions must be filled, but a short vowel is only capable of filling one position, since its representation is as in (3):


1.3. The distribution of long vowels

Another classical observation is that long vowels cannot occur before two consonants of which the second is non-coronal, whereas a short vowel can. The requirement “non-coronal” allows us to disregard the so-called “appendix” which contains from one to three coronal consonants and which can be added to each syllable, provided that it stands in word-final position:

\[
\begin{array}{l}
a. /milk/ \quad \text{milk} \\
/\text{hulp}/ \quad \text{hulp} \\
/\text{tulp}/ \\
/\text{arm}/ \quad \text{arm}
\end{array}
\]

The way to explain this defective distribution is to say that a long vowel is represented as follows:

\[
\begin{array}{l}
X \\
X
\end{array}
\]

The contrast between long \(a\) and short \(A\) (where \(a\) and \(A\) are merely suggestive symbols) is one of multiple versus single association of the same “vocalic segment”, specified as \(\text{[low]}\).

A long vowel occupies both obligatory nucleus slots, and can be followed by one consonant only, since the coda is limited to one position. A short vowel can be followed by two consonants, one in the second nuclear position and one in the coda position.

1.4. The distribution of diphthongs

Diphthongs have essentially the same distribution as long vowels. There is one very striking extra gap in the distribution of diphthongs: they do not occur before \(/\text{r}/**/\).

It has been a long-standing question in Dutch phonology how diphthongs are to be represented: as primitives, as clusters of two short vocalic segments or as clusters of a short vowel and an approximant \(/\text{j}/**/\) or \(/\text{w}/**/\). In Van der Hulst (1984) I opt for the third possibility. On the face of it, short vowel-approximant clusters do not occur in Dutch. Since the second nuclear position can be associated with both vocalic segments (in the case of a long vowel) and all consonantal segments (in the case of a short vowel), we do not expect approximants to be excluded here. Under my interpretation of diphthongs they are not. The combination is subject to some limitations, however. Both segments must harmonise in backness, and the low vowel is excluded.

This solution offers a nice explanation for the fact that diphthongs are not allowed before tautosyllabic \(/\text{r}/**/\). In Van der Hulst (1984) I adopt a proposal advanced in Selkirk (1984) to the effect that syllabic positions are indexed with a sonority value, which indicates which segment classes may occur in such a position. I show, however, that the second nuclear position and coda position do not have to be indexed at all. We only have to state that segments which are associated to these positions may not be adjacent on the sonority scale:

\[
\begin{array}{l}
X \\
X
\end{array}
\]

We can now explain straightforwardly that diphthongs cannot be followed by \(/\text{r}/**/\).

1.5. The distribution of the schwa

Although phonetically a (very) short vowel, the schwa can appear word-finally, unlike the short full vowels. In addition, as Trommelen (1983) observes, schwas fail to occur before a cluster of two consonants of which the second is non-coronal. It seems then as if schwas have a distribution which is similar to that of long vowels, with one notable exception: they cannot occur in a stressed syllable.

To explain the distribution of schwa in a way that is compatible with the metrical theory of stress (cf. Hayes 1981), I propose in Van der Hulst (1984) (where a full analysis of stress in morphemic words can be found) to have two types of nuclei for Dutch:

\[
\begin{array}{l}
X \\
X
\end{array}
\]

The Dutch stress foot is assumed to be sensitive to the nucleus type of syllables. Syllables with a branching nucleus can be the head of a foot, syllables with a non-branching nucleus cannot.

It will be clear that the distributional properties of the schwa are explained on the assumption that the schwa (and only the schwa) can occur in a non-branching nucleus. Given that the coda contains at most one slot, the schwa cannot be followed by more than one consonant (again ignoring the appendix).

The requirement that only the schwa may occur in a non-branching nucleus is applicable to underlying representations only. I assume that in surface representation a rule may turn an unstressed branching nucleus into a non-branching one, thus paying the way for vowel reduction to take place. Reduction can only take place if a vowel is followed by a consonant but I will not go into this matter here any further.

2. The representations of ambisyllabicity

In section 2, I tacitly assumed that because short vowels are barred word-finally, they are barred syllable-finally. Another way to express the defective distribution of the short vowels is to state a word-level filter (as proposed by Boff 1984), thus claiming that word-internal syllables may end in a short vowel. At first sight this seems to be the case:

\[
\begin{array}{l}
\text{Kassa, watten, hebben} \\
, ,
\end{array}
\]

The words in (8) are given in their spelling form. The intervocalic consonant is phonetically short and this may lead one to assume the corresponding syllabic skeleton in (9), with a syllable division which is in accordance with the well-known principle according to which an onset is maximized at the expense of the coda of the preceding syllable (Maximal Onset Principle):

\[
C V . C V C
\]
If the representation in (9) is correct, we have evidence for the claim that syllables ending in a short vowel area only barred word-finaly. But it can be shown that this is inadequate. If it were true that word-internally short vowels may end syllables, then we would expect to find words having the structure in (10), alongside those having the structure in (9), since there is absolutely no problem with syllables starting with a vowel:

(10) C V V C

In fact, however, words of this type do not exist. If two vowels meet, the first one cannot be a short vowel:

(11) a. /hl.at/ histat "histate" b. /hl.at/ choes "choes" c. /kre.ol/ creool "creole"

Surely, to say that syllables ending in a short vowel cannot occur word-finally, and not before an onsetless syllable is to admit that one has not yet come to full grip with the distributional properties of short vowels.

A second argument against (9) can be based on stress assignment. Words of the type dilemma, confetti, program, madonna etc., (in which the last two syllables are phonetically of the form C V C V C) behave exactly the same as words like waranda, fissaco, agenda etc., (in which the penultimte syllable is clearly closed). Words of the dilemma type never have initial stress, because a prefinal VC syllable cannot be skipped by the rule which assigns main stress; cf. Van der Hulst (1984), chapter 5.

In Van der Hulst (1984), I therefore propose that the non-occurrence of short vowels in word-final position, their limited distribution word-internally and the stress facts just mentioned can properly be explained by assuming that every syllable containing a full vowel has a branching nucleus. Cf. (2).

It might now be asked how the words in (8) are to be syllabified. One possibility is as in (12):

(12) a. \[C V C V V\] b. \[C V C V C\] c. \[k a s a\] h e b o n

Apart from its awkwardness (violation of the Maximal Onset Principle), the parsing in (12) can be shown to be wrong. The second example in (12) shows a voiced obstructive in syllable-final position. However, Dutch has a rule of syllable-final devoicing, given in (13). For a fuller discussion of this rule, and its relation to voicing assimilation, I refer to Van der Hulst (1980). Voiced obstruents are not only absent word-finally, but also word-internally if syllable-final, as shown in (14):

(13) \[\sigma\] \[(\sigma [\text{son}])\] \[(\sigma [\text{voice}])\]

(14) a. /przms.m/ prism "prism" b. /przms.m/ Oslo "Oslo" /Os.lo/

Now we can change the formulation of the rule, blocking application if the following segment is a vowel. But it is not very likely that we must proceed in this way.

What then should be the parsing of the words in (8)? One approach, going back to at least Hockett (1965), is to say that in certain cases (the words in (8) are examples) intervocalic consonant (even consonant sequence) belong simultaneously to two syllables, constituting what Hockett called an interlude.

In our case, where a single segment is involved, phonologists have used the term ambisyllabic segment. Now we cannot put syllable boundaries in the middle of segments, so the necessity of assuming ambisyllabic consonants (AC's) is in any case an argument in favour of nonlinear representations of the syllable. But we still have two possibilities of representing AC's:

(15) a. \[a \sigma \sigma \] b. \[a \sigma \sigma \]

In (15b) we view AC's as a special sort of entity, which requires us to adopt improper bracketing. In (15a) it is claimed that AC's are represented phonologically in the same way as we represent long segments. To make this proposal acceptable, we have to claim that one and the same phonological configuration never receive the same phonetic interpretation in all languages, which does not strike me as an unlikely claim at all.

Furthermore, the two ways of representing AC's as in (15) have different empirical consequences. As is pointed out in Van der Hulst and Smith (1982), choosing (15b) makes it impossible to have a contrast between consonants which are long and those which are ambisyllabic, since both are identical at the phonological level. The claim that long consonants and ambisyllabic consonants are indeed mutually exclusive can be found in Vogel (1977). Borowski et al. suspect that the matter is more complicated. Long consonants may still contrast if we allow representations as in (16a), for a long segment, to contrast with the AC in (16b), ambisyllabic or long as the case may be. The point is that allowing representations as in (16c) always gives us one possibility too many, since it will then allow a three-way contrast which does presumably not exist:

(16) a. \[a \sigma \sigma \] b. \[a \sigma \sigma \] c. \[a \sigma \sigma \]

As far as Dutch is concerned, there is no contrast between so-called AC's and long consonants. So there cannot be any objection against representing AC's as long segments.

In addition to this argument in favour of treaching ambisyllabic consonants as long consonants, another line of argumentation would be to show that ambisyllabic consonants and (clearly) long consonants share certain properties. The question then is: do AC's have properties which are characteristic of long segments? In fact they do. Let us turn back to final devoicing. We saw that this rule does not apply to AC's, and one could argue that this is not expected since rule (13) seems applicable to the left-hand side of AC's:

(17) \[\sigma \sigma \] \[\sigma \sigma \]

In this connection, it is interesting that Hayes (1984) discusses three properties which are typical of long segments. One of these is the property of inalterability:

...
Following this rule, we get backward association, i.e., the intervocalic consonant becomes multiple-associated. I conjecture that rightward spreading does not have to be stipulated here. Spreading of the consonant takes precedence over spreading of the vocalic element, because the distinction between single and multiple association of consonantal segments is not contrastive, whereas the same difference is contrastive when it concerns vocalic segments.

The vocalic element will spread only if the consonant cannot. This implies that we can represent final vowels as short underlyingly, i.e., as melodic segments which are not lexically linked to two X's. Rule (23) will create two X's and, as there is no consonant available, the vowel will "lengthen".

In a few marked cases, however, spreading of the consonant is blocked, and there we get spreading of the vowel. At least, this is a way of dealing with cases in Dutch in which we find vowel lengthening:

(24) a. dag dagen "day(a)"
    speel spelen "play(a)"
    sleet sleuten "lock(a)"

b. satan satamisch "satan satan-like"
    demon demonisch "demon demon-like"
    Israël Israelisch "Israel Israeli"

These cases in (24a) represent an isolated and small group of morphemes. The alternation goes back to an open syllable lengthening process which took place in the Old Dutch period. Some of these morphemes also show lengthening before certain derivational suffixes. The lengthening in (24b) only takes place before certain non-native suffixes (=isch, =icus and a few others). Lengthening is morpho-lexically governed in both cases.

A third type of case were we find vowel lengthening instead of consonant lengthening will be discussed in section 4.3.

4. Some (apparent or unexplained) gaps in the distribution of ambisyllabic consonants.

4.1. Approximants do not appear as AC's.

Carlos Gussenhoven pointed out to me that /j/ and /w/ do not appear as AC's:

(25) a. /kajak/ kayak "kayak" b. */kajak/

However, given the analysis that I have proposed for diphthongs the gap is apparent only. Surely, if a short vowel is followed by an ambisyllabic approximant, the result will be a diphthong in the first syllable, which is followed by a homorganic glide serving as the onset of the second syllable. Words of this type are by no means missing:

(26)

4.2. Voiced fricatives do not appear as AC's.

With the exception of three words (puzzel, meszel, rassia) Dutch does not allow short vowels to occur before voiced fricatives. Conversely, after long vowels they are the rule (exceptions: heuse, kieze, and the non-native vocabulary; cf. Reul 1983). Dick Gilbers pointed out to me that this represents a gap in the
distribution of AC's.

At first sight, one might be inclined to say that final devoicing apparently does apply to ambisyllabic fricatives. It is known that fricatives do occur more easily. However, such an explanation is in conflict with our explanation for the fact that final devoicing cannot apply to AC's. It seems then that I have no explanation to offer for this fact.

4.3. The most curious gap

The gap that I will discuss in this section presupposes a discussion about onset clusters.

In Dutch there is evidence to distinguish between three types of consonant clusters, those that may occur as an onset both word-initially and elsewhere, those that may only occur as an onset word-initially and those that may never occur as an onset.

(27) Type I
Permissible word internal onsets
pr, pl, br, bl, kr, kl, st, sk, st, dr

Type II
Word-initial onset clusters
sp, st, sk, sn, sm, sl

Type III
Non-onsets
kr, mp, rt, ...

(A full treatment of syllabic structure is found in Trommelen 1983 and Van der Hulst 1984, chapter 3.) Kaye and Lowenstamm argued in a 1982 lecture (Paris 1982) that it is universally true that syllables (ignoring the onset) consist of either WV or VC, and no more. If there is more (i.e. VVC or VCC), they say that syllables of this 'superheavy' type stand in a special position, i.e. in front of either a word boundary or a morphological boundary. Ignoring then morphologically complex words, we would expect that in Dutch there are no word-internal VCV syllables. To the extent that Kaye and Lowenstamm are right, we do not expect them to find long vowels before type III clusters, since that would create VCV syllables word-internally.

Trommelen (1983) points out that this holds true, at least to a certain extent. She claims that internal VCV is ruled out if the C is a sonorant, but not if it is an obstructant. In the following example /mp/ is not a permissible cluster:

(28a) a. /tempom/ tempo "tempo" b. */tempo/

The empirical basis for the distribution between sonorants and obstructants is weak, and I will not adopt it here (see Van der Hulst 1984). However, it does seem to be true that internal VCV syllables are rather rare if compared to their frequent appearance as word-final syllables. I propose no formal mechanism to handle this strong tendency.

We can now show what is the difference between type I and type II clusters. Like type III clusters, type II clusters are only rarely preceded by a long vowel. So we find cases like the one in (28a) quite regularly, but not the one in (28b):

(28b) a. */moske/ moskee "moské" b. */moske/
Le subjonctif dans la relative: une question de champ

1. Jackendoff et la théorie de la Structure Modale

Jackendoff (1972) propose la théorie de la Structure Modale pour rendre compte, entre autres, de l'ambiguïté des phrases du type:

(1) John wants to catch a fish

dans laquelle le NP a fish peut recevoir deux interprétations: l'une spécifique, auquel cas il y a un poisson précis que John veut attraper, et l'autre non spécifique, c'est-à-dire qu'il n'y a pas de poisson précis que John en attrape un. Cette dernière lecture est la lecture prédominante.

Il attribue à cette phrase, pour les deux lectures, une seule structure syntaxique, dans laquelle le verbe wants porte sur le NP a fish, mais considère que ce dernier en est sémantiquement indépendant dans le cas de la lecture spécifique, et dépendant dans le cas de la lecture non spécifique. C'est ce que représentent (2a) et (2b) respectivement:

(2a) John, a fish, want ( )
(2b) John, want (a fish)

(2a) et (2b) sont des structures modales, structures de la représentation sémantique, qui indiquent les conditions dans lesquelles les NP de la phrase ont des référents identifiables. Elle sont obtenues à l'aide de la règle de projection modale suivante:

(3) étant donné un item lexical A dont la représentation sémantique contient un opérateur modal M, si un NP est dans le champ de A, il est facultativement (avec des degrés de préférence) dépendant de M dans