

# The Phonology of Postvocalic R in Brabant Dutch and Limburg Dutch\*

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## 0. Introduction

The fact that /r/ is (becoming) extremely variable in its possible articulatory realisations in many languages of Europe may be considered a well-established fact, if we study e.g. the contributions to this volume. The question now arises what the implications of this phonetic variability are for the *phonology* of /r/; Wiese (2000) has shown, quite convincingly in our view, that there are reasons to still consider /r/ as one uniformly behaving segment from a phonotactic point of view. In this paper, I aim to show that in spite of Wiese's arguments, /r/ is *not* a fixed point on the sonority scale. It shows chameleonic behaviour with respect to consonantality, depending on its position within the word even from a purely phonological point of view. I will point to a number of facts which seem to support the following generalisation: the more 'consonantal' the position in which /r/ occurs, the less likely it is to pattern with the sonorants. The relevant facts are from Brabant Dutch and Limburg Dutch — dialects spoken in the southernmost provinces of the Netherlands. In these dialects, phonological /r/ behaves as a fricative or as a sonorant consonant, the fricative realisation taking place word-finally.

I will argue in this paper that the reason for this phonological chameleonic behaviour of /r/ is a universal constraint FINALC, demanding words to end in a consonant; and that /r/ is particularly sensitive to this constraint because /r/ is not predetermined for place.

This paper is structured in the following way. First, I will discuss some recent thoughts in the literature on the phonology of /r/ based on facts from non-rhotic dialects of English and on the Groningen dialect of Dutch. Secondly, I will show how the behaviour of /r/ in the Brabant Dutch dialect of Tilburg provides us with evidence for a constraint FINALC. Finally, I will show how Maasbracht Dutch tone facts give us evidence for the placelessness of /r/ and why it should be exactly /r/ that behaves in this particular way.

## 1. The Representation of /r/ in Non-Rhotic Dialects of English and Groningen Dutch

In the recent phonological literature on /r/ we find arguments in favour of two (possibly related) assumptions. In the first place, /r/ has a rather unstable position on the sonority scale (such as the one in (1)); it can behave as if it is one type of segment when in one position in the word, and as another type of segment if it is in another position of the word.

- (1) Sonority scale: stop < fricative < sonorant < glide < vowel

In a given language, the rhotic can behave alternately as vowel-like and glide-like, or sonorant-like and fricative-like. The precise behaviour depends on the specific position in the word: the more consonantal the position, the less sonorous the realisation of /r/. This chameleon-like behaviour to us seems to be the key to the phonological representation of /r/.

As to the second assumption, we find evidence in the literature that /r/ is a segment which is (almost) empty in feature content.

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Evidence for the first assumption is adduced in several recent works on the phonology of non-rhotic dialects of English such as Giegerich (1999) and Ortmann (1998).

The facts from the non-rhotic dialects of English are well-known. The core cases are presented in (2):

- |     |                                |     |                                 |
|-----|--------------------------------|-----|---------------------------------|
|     | <i>Non-rhotic dialects</i>     |     | <i>Rhotic dialects</i>          |
| (2) | a. I have seen the spar [spa]. | (3) | a. I have seen the spar [spar]. |
|     | b. The spar [spar] is nice.    |     | b. The spar [spar] is nice.     |

Authors such as Giegerich (1999:189-190) provide us with several arguments in favour of a representational approach to this. Giegerich observes, for instance, that [ə] and [r] are in complementary distribution: while schwa is always attached to a syllable nucleus, [r] is rather attached to marginal positions within the syllable, such as the onset and the syllable coda. Secondly, he cites Kahn (1976) who has argued that [ə] and [r] are acoustically very similar (at least in RP). An additional argument, we might say, is that the resulting analysis provides more insight into the question why it is exactly [r] that is inserted in exactly the environment after a [-high] vowel. Giegerich (1999) therefore assumes that in English non-rhotic dialects there is an empty segment / /, which is realized as [ə] before consonant or pause, and as [r] before a vowel (cf. Van Oostendorp 2000; and see McMahon 2000 for a different position).

Independently of the debate on these English dialects, Humbert (1996) has proposed that in Groningen Dutch (a dialect spoken in the northernmost ) / r / alternates between [r] and zero, because of its placelessness. Humbert's analysis is based, among other things, on the fact that /r/ get deleted after low vowels before labial and dorsal consonants in these dialects (leaving a trace of lengthening on the vowel).

- (4) (Schuringa 1923)
- |      |                                     |                 |                |
|------|-------------------------------------|-----------------|----------------|
| /ar/ | [ɔ:r] in front of coronals          | [ʏɔ:rɪŋ] 'yarn' | [wɔ:rt] 'word' |
| /ar/ | [ā] in front of labials and dorsals | [ām] 'arm'      | [sxāp] 'sharp' |

According to Humbert (1996:149), the reason why /r/ is the segment that is subject to deletion in these cases is that it "has a relatively unspecified vowel-like structure which could be filled in by the environment. [...] This structure, which might be interpreted as schwa, is unacceptable as a segment in Groningen Dutch<sup>1</sup>" (our translation).

It should be noted that both in the Groningen Dutch case and in the non-rhotic dialects of English, the relevant /r/ segments are in postvocalic position. It is this position in which /r/ seems particularly eligible for displaying vowel-like behaviour. All cases to be discussed below also involve postvocalic /r/; whether or not this is a coincidence is unclear as yet.

McCarthy (1993) has shown that another positional factor is involved in the phonology of (at least some) non-rhotic dialects as well. McCarthy noted that in Eastern Massachusetts English, there is a clear contrast between the example in (5b), in which /r/-insertion is allowed, and (5a), in which it is not:

- (5) (McCarthy 1993)
- a. \*I'm gonna [r] eat.  
I'm gonna eat.

<sup>1</sup> "De klank [...] heeft een relatief ongespecificeerde klinkerachtige structuur die door de omgeving verder ingevuld zou kunnen worden. [...] Deze structuur, die als schwa geïnterpreteerd zou kunnen worden, is als segment onacceptabel in het Gronings."

- b. I said I was gonna[r] and I did.  
 \*I said I was gonna and I did.

The difference between the two examples is that *gonna eat* in (5a) clearly forms one (syntactic and possibly also phonological) phrase, whereas there is no direct connection between *gonna* and *and* in (5b). In the latter case, *gonna* is at the end of a phrase, and *eat* at the beginning of the next phrase. McCarthy (1993) therefore proposes that a relevant factor for /r/-insertion (or lack of /r/-drop) in Eastern Massachusetts English is a constraint called FINALC in the literature:

- (6) FINALC (Prince and Smolensky 1993, McCarthy 1993):  
 A phrase should end in a consonant.

/r/ is only allowed to surface if it helps to satisfy FINALC; this is not the case in (5a), but it is in (5b). Of course, other factors are involved as well. Being at the phrase is not enough, because if it were, /r/ would also surface at the end of a sentence. The fact that it only surfaces before a vowel shows that satisfaction of the constraint ONSET (syllables should have an onset) is a necessary condition in Eastern Massachusetts as well.

Interestingly, Humbert (1996:151) informally invokes something like FINALC in her description of Groningen Dutch as well, in order to explain why /r/ is not deleted in the very last position of the word: "the fact that /r/ is often realised before a word boundary can be easily explained [...]. There is a strong tendency in Dutch to close syllables, especially in word-final position, i.e. a syllable ends in a coda, not in a nucleus."<sup>2</sup> (our translation)

## 2. Tilburg Dutch /r/ and FINALC

If /r/ behaves like an empty segment, of which the variable phonological behaviour is explained at least in part by the constraint in FINALC some language systems, we might expect the same behaviour to turn up in other systems as well. I first turn to a Brabant Dutch dialect, viz. the dialect spoken in the city of Tilburg. The /r/ consonant displays several types of paradoxical behaviour, patterning with fricatives in word-final positions and with sonorant consonants in other positions.

Swets (in preparation) gives several pieces of evidence for this split. Firstly, Tilburg Dutch has a rule of vowel shortening, applying to long vowels in third person singular forms. This rule is obligatory if the first of these consonants is either a stop or a sonorant, but optional if the rule is a fricative — or /r/.

- (7) (Boutkan & Kossmann 1996)

ble:və	'to stay'	hej blɛft/ blɛ:ft	'he stays'
hy:rə	'to hear'	hej hyrt/ hy:rt	'he hears'
drɔ:xə	'to carry'	hej drɔ:xt	'he carries'
vɛ:rə	'to spring'	hej vɛ:rt	'he/it springs'

versus:

lɔ:pə	'to walk'	hej lɔpt	'he walks'
stɔ:tə	'to push'	hej stɔt	'he pushes'
bɛ:nə	'to tie'	hej bɛnt	'he ties'
vɛ:lə	'to file'	hej vɛlt	'he files'

<sup>2</sup> "Het feit dat /r/ voor een woordgrens vaak gerealiseerd wordt is makkelijk te verklaren [...]. Er is in het Nederlands een sterke neiging lettergrepen, vooral op wordeinde af te sluiten, d.w.z. dat een lettergreep met een coda eindigt, niet met een nucleus."

/r/ in this case is at the end of the verb stem, and it patterns with the fricatives. In other environments, however, /r/ behaves as a *sonorant* consonant. For instance, we find many instances of  $C_1\text{ə}C_2$ , in which  $C_1$  is a sonorant — or /r/ — and  $C_2$  an obstruent). There are no such clusters in which  $C_1$  is a fricative or any other kind of obstruent.

(8)	kæɾəf	‘basket’	* kæxəf
	ɛɾəm	‘arm’	* ɛkəm
	kələf	‘calf’	* kəvəf
	kələm	‘calm’	* kəpəm

Word medially, /r/ thus behaves as a sonorant, but at the end of the stem, it behaves like a fricative. I propose that the difference between (7) and (8) can be explained referring to the constraint FINALC. The difference between Tilburg Dutch and Eastern Massachusetts English is that in the latter case this constraint refers to the end of phrases, whereas in the former case it refers to the end of words (this actually is true for the original definition of McCarthy and Prince 1993).

Interestingly, we can find independent evidence that FINALC is active in Tilburg Dutch. In the first place, words with long lax vowels can be followed by all kinds of consonants (cf. (9))

(9)	rɛ:k	‘rich’
	pɛ:l	‘arrow, level’
	vɛ:f	‘five’
	ɣɛ:t	‘goat’

Yet there are no, or hardly any lexical words, which *end* in a long lax vowel. This is of course what we expect given a sufficiently active FINALC constraint. On the other hand, words, which consist of a diphthong, can generally only be followed by pause or by a coronal inflectional obstruent (cf. (10)):

(10)	blei	‘glad’
	reit	‘drives’

Diphthongs and long lax vowels thus are in (almost) complementary distribution in Tilburg Dutch. We find diphthongs at the end of the word (including before an inflectional coronal segment) and long vowels in other environments. Notice that this distribution exactly mirrors that of the distribution of /r/. We may assume that it is due to the same factor, and given the fact that diphthongs end in a glide, i.e. a more consonantal type of segment, it does not seem strange to say this factor is FINALC. We find the more consonantal variant at the end of the word in Tilburg. The inflectional -t apparently does not count in this respect. Words, such as rɛ:k, already have a FINALC and therefore the long lax vowel can remain as it is and does not have to be ‘split up’ in a vowel and a glide

Concludingly, /r/ shows chameleonic behaviour in Tilburg Dutch. /r/ appears as a fricative word-finally, in order to comply with the constraint FINALC and as a sonorant in all other positions, maybe because this is more in accordance with its ‘inherent’ nature.

### 3. Maasbracht Dutch tone as evidence for the placelessness of /r/

I now turn to the Limburg Dutch dialect spoken in the town of Maasbracht. Facts from this dialect in our view confirm the analysis given to Tilburg Dutch in a striking

way. Also in this dialect we discover a difference between word-internal coda-r's and r's at the end of the word.

Maasbracht Dutch has a two-way phonemic tone contrast. The main-stressed syllable of the word can bear either a so-called falling tone or a dragging tone, provided that this syllable contains sufficient 'moraic' material: either a long vowel or a short vowel followed by a sonorant consonant. Below I give a few examples of minimal pairs:

- (11) Maasbracht Dutch (Hermans 1994)
- |                     |  |                      |
|---------------------|--|----------------------|
| <i>falling tone</i> |  | <i>dragging tone</i> |
| bi: 'bee'           |  | bi: 'at'             |
| bu: 'build'         |  | bu: 'construction'   |
| mm 'minus'          |  | mm 'vile'            |
| mɔl 'to break'      |  | mɔl 'mole'           |

No such minimal pairs can be found, however, if the syllable is closed by an obstruent. In this case, we only find examples involving a falling tone:

- (12)
- |                     |  |                      |
|---------------------|--|----------------------|
| <i>falling tone</i> |  | <i>dragging tone</i> |
| pɪt 'kernel'        |  | —                    |
| zɔk 'sock'          |  | —                    |
| lɔp 'patch'         |  | —                    |

Hermans (1994) assumes that the difference between falling tone and dragging tone is a difference about the second part of the tonal melody. Both melodies have a high tone on the first 'mora' (i.e. the first part of the vowel). Dragging tones have a high tone on the second mora as well, whilst falling tones have no further specification.

- (13)
- |                 |                  |
|-----------------|------------------|
| a. falling tone | b. dragging tone |
| x x x           | x x x            |
| ɪh  r  l        | ɪm  r  n         |
| H               | H  H             |

The generalisation thus is that high tones can be linked to sonorant consonants but not to obstruents (cf. Hermans 1994 for further refinements). If we now have a look at word-internal /r/, it clearly behaves like a sonorant, in the sense that it allows for a contrast, as the following examples attest:

- (14)
- |                       |                        |
|-----------------------|------------------------|
| <i>falling tone</i>   | <i>dragging tone</i>   |
| H                     | HH                     |
|                       |                        |
| s p ε r . m a 'sperm' | f i r . m a 'firm'     |
| ε r . γ ə r 'worse'   | ε r . γ ə r 'to annoy' |

Yet *word-final* r does not allow a contrast. We only find falling tones on morphemes which end in a stressed syllable ending in /r/:

(16)	falling tone	dragging tone
	kər 'cart'	—
	hər (first name)	—
	vər 'far'	—

Clearly, then, also in Maasbracht Dutch postvocalic /r/ patterns with the obstruents if it is the last segment of the word, but with the sonorants in other positions. It will be clear to the reader that I think that FINALC has a role to play in the analysis of this phenomenon.

We still have to answer the question, of course, why it is exactly /r/ that can be reinterpreted as more obstruent-like or more sonorant-like depending on its position in the word. Why don't /l/, /n/, etc. get reinterpreted in the same circumstances?

A key to the answer to this question lies, I believe, in the fact that actually the velar nasal ŋ behaves in the same way in Maasbracht Dutch as /r/. Also this sonorant segment does not allow for a contrast if it occurs at the end of the word:

(17)	falling tone	dragging tone
a.	strɑŋ 'severe'	—
b.	stoŋ 'stood'	—
c.	krɪŋ 'bitch'	—

The question thus is what connects ŋ and r and is responsible for the fact that both of these segments do not allow for tone at the end of the word? Now there is evidence that [velar] is the default place (i.e. phonologically absent) for sonorants (or at least for nasals) in a postvocalic position. In Japanese (Yip 1991 among others) we see that the 'placeless' nasal (which assimilates in place if it occurs next to another consonant) surfaces as velar in syllable coda.

(18)	Japanese
	sekke[ŋ] 'zeep', ze[ŋ] 'goedheid', ho[ŋ] 'boek'

Similarly, in some dialects of Portuguese, nasalised vowels may turn into vowel+nasal consonant sequences. If so, the vowel in question is a velar nasal, showing that this is the default.

(19)	Portuguese
	rw[ĩ] rw[ɪŋ] 'basis', b[ɔ̃] b[ɔŋ] 'goed', [ũ] [uŋ] 'een'

Actually, in the example in (17c) we see that (some) Limburg dialects have undergone a process in which coda nasals turn into velars in some environments (stoŋ < stond). All of this may be taken as indications that ŋ, just like r, is a placeless, close to empty, consonant.

It should be this emptiness, then, which causes the chameleonic behaviour of these two sonorants. As to why exactly this is so, I can only speculate at this point. Maybe the fewer features a segment has, the more chameleonic its behaviour is. Maybe the presence of certain (place) features make a segment more strongly attached to a specific syllabic position. A segment without a lot of features does not have a very strong internal preference for a specific position within the syllable. It therefore is more likely to be subject to 'external' forces, such as the constraint FINALC.

#### 4. Conclusion

In previous literature we have seen it argued that (a) /r/ is a segment with a phonologically (almost) empty specification and (b) that /r/ behaves as more consonantal at the end of certain phonological or morphosyntactic constituents. In this paper we have seen some independent evidence from a Brabant Dutch dialect (Tilburg) and a Limburg Dutch dialect (Maasbracht) for both of these assumptions, and furthermore for the fact that they are connected. In both of these dialects, /r/ behaves as a (standard) sonorant when in the middle of the word but as an obstruent (or fricative) when at the end of it. The fact that /r/ shares this behaviour with /ŋ/, is a reason to believe that this chameleonic behaviour of /r/ is caused or at least reinforced by its phonological emptiness.

#### References

- Barbosa, J.M.M. (ed.) 1965. *Études de Phonologie Portugaise*. Lisbon: Barbosa.
- Boutkan, D. & M. Kossmann. 1996. *Het stadsdialekt van Tilburg*. Amsterdam: P.J.Meertens-Instituut.
- Giegerich, H. 1999. *Lexical Strata in English. Morphological Causes, Phonological Effects*. Cambridge: CUP.
- Hermans, B. 1994. *The Composite Nature of Accent*. PhD Dissertation, Free University of Amsterdam.
- Humbert, H. 1996. De kameleontische aard van de Groningse /r/ verklaard vanuit representatieve perspectief. *Taal en Tongval* 48.2:139-162.
- McCarthy, J. 1993. A Case of Surface Constraint Violation. *Canadian Journal of Linguistics* 38:169-195.
- McMahon, April M.S. 2000. *Lexical Phonology and the History of English*. Cambridge: Cambridge University Press.
- Oostendorp, M. van. 2000. Rule Inversion without Rules. Manuscript, Meertens Institute.
- Paradis, Carole and Jean-François Prunet (eds.) 1991. *The Special Status of Coronals. Internal and External Evidence. Phonology and Phonetics 2*. San Diego, CA: Academic Press.
- Prince, A. & P. Smolensky. 1993. *Optimality Theory. Constraint Interaction and Satisfaction in Generative Grammar*. Manuscript, Rutgers & University of Colorado, Boulder.
- Schuringa, F.G. 1923. *Het dialect van de veenkoloniën*. Groningen/Den Haag: J.B. Wolters.
- Swets, F. In preparation. *The Morphology-Phonology Interface in Tilburg Dutch*. Manuscript, Meertens Instituut.
- Trigo, R. Lorenza. 1993. The Inherent Structure of Nasal Segments. In: Marie K. Huffman en Rena A. Krakow (red.) *Nasals, Nasalisation and the Velum. Phonology and Phonetics 5*. San Diego (etc.): Academic Press. 369-400.
- Wiese, Richard. 2000. The unity and variation of German /r/. Paper presented at the 'r-atics workshop, May 27 2000.
- Yip, Moira. 1991. Coronals, Consonant Clusters and the Coda Condition. In Carole Paradis and Jean-François Prunet (eds.) 1991. *The Special Status of Coronals. Internal and External Evidence. Phonology and Phonetics 2*. San Diego, CA: Academic Press. , 61-78.