

Rhyme as phonological multidominance

Marc van Oostendorp

Abstract

This paper presents an analysis of rhyme in terms of multidominance: rhyming words are argued to share part of their phonological representation. It is shown how this analysis differs from two other formal phonological approaches to rhyme — one in terms of Correspondence Theory and one in terms of Loop Theory — and in particular it is studied how the theory can account for imperfect rhymes and the fact that onsets of rhyming syllables (or feet) have to be different. A short case study of a rhyming style that ignores voiceless coronal obstruents concludes.

1 Introduction

Poetry is a form of language that makes prominent use of phonological identities and near-identities. A typical (classicist) poem consists of stanzas that have the same shape — e.g. three lines of four trochees each, followed by a line of two trochees (Kiparsky, 2006). The repetition of feet — the fact that each line consists of a sequence of trochees — is another example. And a third well-known example is rhyme: the fact that sequences of vowels and/or consonants reoccur throughout the poem in the same order:

- (1) Love looks not with the eyes, but with the mind;
And therefore is winged Cupid painted blind.
(William Shakespeare, *Midsummer Night's Dream*)

People clearly have intuitions about poetic rhyme (Katz, 2008; Kawahara & Shinohara, 2009; Kawahara, 2007): some rhymes may be more perfect than others. Furthermore, it is commonly accepted that rhyme (and alliteration) typically are based on phonological constituency. The prototypical alliteration pattern affects an onset; the prototypical rhyme affects a nucleus and a coda (i.e. a phonological rime; I will use the two spellings to distinguish the two theoretical objects). There are no known poetic traditions that use sound patterns which are not known in one way or the other in 'ordinary' phonologies of human language (Fabb, 2010).

How is rhyme calculated and how is it represented? The literature about this topic is far from extensive, but several linguists have pointed out the similarity between reduplication and rhyme (Kiparsky, 1970, 1973; Holtman, 1996; Yip, 1999), and it seems indeed quite plausible that rhyme somehow uses the same machinery as reduplication. In this article, I will explore this view a little more. What representational power do we need to get a satisfactory view of rhyme? If it is based on reduplication, what is a plausible view on the latter that can also accommodate rhyme? And what about the fact that rhyme does not work with perfect copies?

2 The representation of reduplication

Adopting the view that rhyme uses the means of reduplication does not immediately answer the question how to represent rhyme, as there are several very different theories of reduplication.

One important split concerns the question which module is responsible for the actual copying. A relatively large body of literature opts for phonology. For example, within Prosodic Morphology and Optimality Theory (see McCarthy & Prince, 1993, 1995a; McCarthy *et al.*, 2012, for a few representative publications), it is often assumed that a reduplicative form has a phonologically abstract morpheme RED in the input to the phonology (see also Marantz, 1984):

- (2) $t^{\text{h}}ilpa-t^{\text{h}}ilparka$ ‘bird species’ (Diyari)
 - a. input to phonology: RED- $t^{\text{h}}ilparka$
 - b. output of phonology: $t^{\text{h}}ilpa-t^{\text{h}}ilparka$

The morphosyntax thus in some languages sometimes can insert the abstract morpheme RED; it is sometimes assumed that this morpheme is specified as a prosodic constituent (a syllable, a foot, a word) without segmental content, and at other times as even more empty and abstract (in which case the prosodic shape is determined by independent constraints). The phonology then fills this empty space with copies from the ‘base’ morpheme.

An alternative view of reduplication, espoused by (Inkelas & Zoll, 2005; Aboh, 2007; Alexiadou, 2010), on the other hand, claims that morphosyntax is responsible for the copying. Phonology merely prunes the full input representation:

- (3) $t^{\text{h}}ilpa-t^{\text{h}}ilparka$ ‘bird species’ (Diyari)
 - a. input to phonology: $t^{\text{h}}ilparka-t^{\text{h}}ilparka$
 - b. output of phonology: $t^{\text{h}}ilpa-t^{\text{h}}ilparka$

In this case, morphosyntax does not hand any abstract node over to the phonology, but puts the same segments twice in adjacent positions. The phonological

module then may sometimes decide to not realize all the material; according to Inkelas & Zoll (2005) the reason for this will often be templatic. In the Diyari case, for example, the first copy will be interpreted as a prefix, and prefixes have a templatic length requirement so that they cannot be longer than one bisyllabic foot. Everything outside of that template will get cut off by the phonology.

There are several reasons to prefer the second one, in which the syntax does the copying. The most important is one of generative power. In the first model, we have to award to phonology the power to copy material; in the second model, this power is given to syntax (and furthermore phonology needs the power to leave material unpronounced). Which of these options is most likely, given what we already know about these modules?

According to most current theories of (generative, minimalist) syntax, the syntactic component already has the power of copying; that is the interpretation given to movement, as ('internal') Merge Chomsky (2001); Hauser *et al.* (2002): one takes a structure {A B} (with A and B each syntactic constituents or heads), and forms a new structure {A {A B}}. This for instance would be a simplified representation of a *wh*-question:

- (4) { what_i { do { you { eat what_i } } } }

The two instances of *what* are literally the same item, occurring in two positions for the purposes of syntax. The phonology then decides to delete ("not spell out") the lower copy of the two, although it has also been proposed that in some cases both copies can be spelled out. For instance, Barbiers *et al.* (2008) point out that Dutch dialects can have questions of the following type:

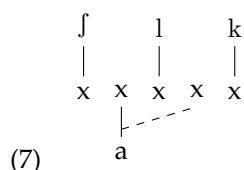
- (5) *Wie_i denk je wie_i ik gezien heb?*
Who think you who I seen have?
'Who do you think I have seen?'

However this may be, it seems clear that current syntactic (Minimalist) theory is working under the assumption that syntax has the power to copy, whereas phonology has the power to sometimes delete material.

On the other hand, there is not a lot of evidence that phonology has the power to copy strings of segments outside of reduplication. It does have the power of autosegmental association, obviously, which can give us, for instance vowel copying, such as in Scots Gaelic (Borgström, 1940; Oftedal, 1956; Hall, 2011):

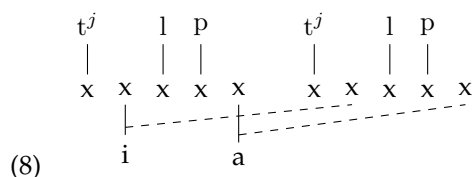
- (6) a. ʃalak 'hunting'
b. k^hɛn^jɛp 'hemp'

In this example, I underlined epenthetic vowels, which are inserted in Scots to break up impermissible consonant clusters. Such vowels are always complete copies of the preceding vowel. The typical solution is to represent this as feature spreading:



However, the conditions under which such spreading ('copying') can occur, are heavily restricted. In the case at hand, we can only spread 'across' the intervening consonant [l] because we can assume that vowels and consonants exist on different dimensions and are basically invisible to each other (Mester, 1986; Clements & Hume, 1995). Otherwise, spreading of features across other association lines is never allowed, by the so-called NO CROSSING CONDITION (NCC) (Goldsmith, 1976; Sagey, 1988).

The result of this is that autosegmental spreading can never serve to copy *strings* of segments. Even if we would try to just copy the vowels of the Diyari example, association lines would necessarily cross:



The line between the features of [i] and the second position in which these should occur necessarily cross the association line(s) between the position for [a] and whatever feature(s) it has. But the NCC is an absolute, inviolable condition on phonological representations, as a matter of logic. The reason is that the precedence relation on association lines are interpreted as temporal precedence: if α occurs before β on a line, it means that α is pronounced before β . Association lines on the other hand, mean contemporaneity: if α is associated to x , then the pronunciation of α overlaps with that of x . From this, and the general logic of time, it follows that if α precedes β , α is associated with x , and β with y , y cannot precede x . And that is the No Crossing Constraint.

For this reason, various other devices have been introduced into the theory (Marantz, 1982; Raimy, 1999, 2006), but none of them seems sufficiently motivated independently.

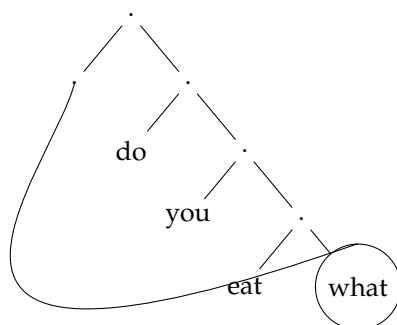
Thus copying is independently needed in syntax, but not in phonology. That might lead us to adopt a 'syntactic' view on reduplication, but the question is what the implications of this choice would be for the analysis of rhyme. There are at least two serious problems. First, in rhyme the elements which are copied are typically smaller than even the smallest thing which is visible to syntax (the X^0 , whether a word, a morpheme, or a morphosyntactic feature bundle), viz. some phonological constituent, such as the rime or the onset. Secondly, if the relation between rhyming elements were syntactic, we would expect a syntactic relation to hold of them which is also found between

moved elements and their traces (e.g. syntactic locality), which obviously is not found in rhyme: words can rhyme even if they are in two completely different sentences — which is not typically an option for movement.

This may seem to lead into conundrum: how can we say that rhyme shares phonological but not syntactic properties with reduplication, while still using the same syntactic mechanism?

In order to find a way out, I believe we have to go a little deeper into representations such as that in (4). What does it mean to say that there are two instances of the same word in the syntactic representation of that sentence? The Chomskyan view (Chomsky, 1995) seems to be that the structure is very much as is given here: there are indeed two instances of an object — which nevertheless still counts as one object, basically because of the derivational history: at the point we had arrived at the structure $\{ do \{ you \{ eat \textit{what}_i \} \} \}$, we have chosen to not apply external merge, adding another word, but internal merge, adding an object which is inside the structure itself.

Another, more representational, view of internal merge is to assume that the same node is really attached to two mother nodes. We give up the graph theoretic notion of a tree (in which every node except for the root has exactly one mother node), and assume that nodes can simply be linked to more than one mother in a tree. There are different versions of this idea; de Vries (2009); Citko (2012) give nice overviews. The syntactic representation will then be as follows:



(9)

At the moment of linearization, we will have to choose which of the mother nodes is relevant for spell-out of the content of the doubly linked node; de Vries (2009) offers an algorithm, assuming that only one of the two will be realized. But apparently, under certain circumstances, such as reduplication or the dou-

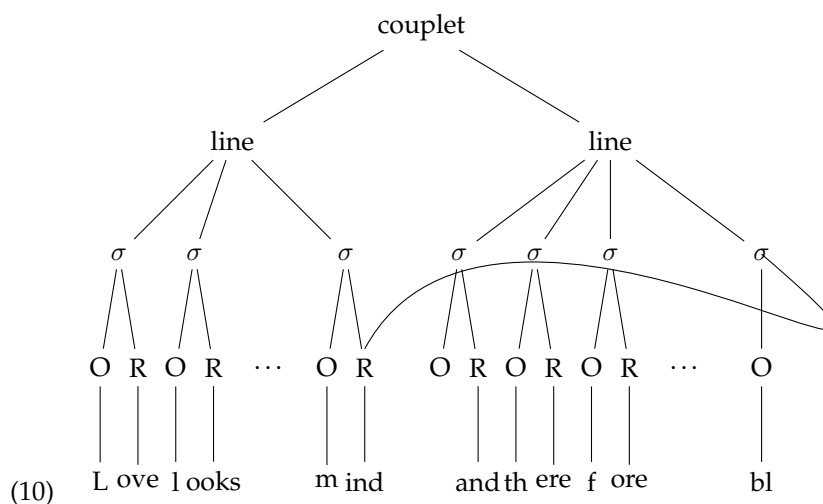
bling in (5), both nodes of attachment are relevant.

3 Rhyme as multidominance

If we accept that all poetic forms are based on ‘normal’ linguistic forms; that rhyme is based on reduplication; and that reduplication is represented as multidominance; we thus come to the conclusion that also rhyme should be represented as a multidominance relationship.

The two crucial differences between rhyme and reduplication — that rhyme involves smaller, phonological constituents than are usually handled by syntax and that rhyme also does not seem subjected to the same locality restrictions typical for movement and other syntactic dependencies — suggest that the tree in which a multidominance relation holds, is different from the syntactic tree. The prosodic tree suggests itself, as it can host everything from the level of subsyllabic constituents, such as the rime, to the level of the Intonational Phrase and even the Utterance. We may assume that a work of poetry could be analysed as such a larger constituent as well. Plays written in verse may contain more than one Utterance, if we consider the lines attributed to an individual speaker as such an Utterance. Some authors have the last line of the text of one speaker rhyme with the first line of the next speaker. In such cases, still the text as a whole will count as a relevant unit.

Abstracting away from a lot of irrelevant analytical detail, we can then represent the Shakespearean couplet in (1) as follows:



Several questions arise at this point. One of them is whether the new representation does not violate the No Crossing Constraint. If the lines drawn here would be autosegmental associations, there would obviously be a violation. But metrical structures are trees and not necessarily autosegmental representations. The interpretation of a dominance line between, say, a foot and a

syllable is not one of temporal overlap (the foot is pronounced at more or less the same time as the syllable), but of dominance: the syllable is part of the foot.

Under such an interpretation, 'crossing' lines do not establish a contradiction: a prosodic constituent in principle can be part of more than one sub-constituent. This is also not entirely uncommon. A well-known example is provided by ambisyllabic consonants which are attached to the coda of one syllable and the onset of the next (Kahn, 1976). Now it is true that such examples are not very widespread, and furthermore, they are also not uncontroversial; but there is nothing to block them.

This holds *a fortiori* for non-distance sharing of constituency, although the next question now obviously is whether there are any long-distance shared prosodic constituencies in natural language. They do not seem to be too easy to find; possibly some of the cases which have been analysed as long-distance agreement of consonants can be analysed in this way (Rose & Walker, 2004, see section 4).

Note that in the end obviously any theory of rhyme as building on the resources of natural language will reach the conclusion that the 'natural' mechanism on which it builds is not widespread in natural language, as rhyme itself obviously is not a device used by non-poetic language. In this particular case, what may prevent rhyme from being used in ordinary language is the fact that multidominance by definition gives a problem for linearization and phonology, being relatively close to the linearization module, tangled representations such as these become difficult.

This might at the same time be the special attraction of such representation for poetic means. Since constituents get shared among very different parts of the representation — even parts different utterances may rime, in a play —, the rhyme works literally as an extra dimension to the representation, and thereby making sure that the whole poem is interpreted as a whole, where various parts resonate with each other. Rhyme, seen this way, is a device which openly contests linearization of the sound structure — more or less in the way in which prolongational structure does in music (Lerdahl & Jackendoff, 1983; Katz, 2008).

My proposal thus is that this rhyme is special because it introduced multidominance into phonological representations, thereby stretching those representations in exactly the same way as internal Merge (movement) does in syntactic representations. Since we are in the phonological component, these representations are not restricted by the usual syntactic locality restrictions, although there might be others. This might be subject to different restrictions in different styles and for different authors. Even though it is common for

lines in a verse to rhyme, there can also be rhyme internal to a line.

4 Correspondence theory and loops

In order to understand the predictions of this model of rhyme, it is useful to compare it to alternative (formal) views, i.e. the one presented in Holtman (1996), as well as the Loop Model of Idsardi & Raimy (2005).

The former theory is embedded within Optimality Theory, and it is assumed that rhyme is a form of a correspondence relation. Taking rhyme as a form of correspondence makes sense if one accepts Correspondence Theory (CT, McCarthy & Prince, 1995b) to begin with, since this is a theory which explicitly is designed to model reduplication. Phonological representations get enriched with a correspondence relation, which holds between segments. To see what is the motivation for this, consider the following data from Tagalog:

- (11) a. *putul* 'cut (n.)'
 b. *pang-putul* 'that used for cutting' >[pamutul]
 c. *pa-mu-mutul* 'a cutting in quantity' (reduplication; **pa-mu-putul*)

The prefix *pang* nasalises the immediately following obstruent, which can be analysed as the result of a normal assimilation, obeying normal requirements of adjacency. But in reduplicated forms, both the prefix and the stem start with a nasalised segment. Under correspondence theory, this can be understood in the following way: the first segment of the prefix assimilates because it is adjacent to the underlying nasal; the first segment of the stem turns into a nasal, because it is in a correspondence relation with the first segment.

Holtman (1996) uses this technology in order to describe rhyme as well: the segments at the end of lines are in a correspondence relation to each other, and constraints evaluate these correspondence relations.

Technically, it is quite obviously possible to make this work. As I have argued elsewhere (van Oostendorp, 2007), Correspondence Theory is very powerful and there is very little which it cannot do; it therefore is also not very restrictive, and this may count as a disadvantage.

There is another difference between the account presented here and a Correspondence Theoretic one. This concerns the fact that rhyme is based on phonological constituency. The stretches of segments that rhyme are not random, but correspond to phonological constituents. This follows from a multidominance approach, since the stretches that rhyme have to be nodes in the phonological representation by definition.

Holtman (1996), by contrast, needs separate constraints to get this effect: RHTEMPLATE(foot) for instance, forcing the rhyming sequence to be a metrical foot. The problem this creates is at least one of rhyme system typology: one can easily construct a ranking in which all constraints on template form are lower ranked, so that random stretches of segments may rhyme. The question then is why no poetic tradition employs such a system.

A similarity between both accounts obviously is that they connect rhyme to reduplication: both are represented in the same way. Typical arguments in favour of the Correspondence account have been overapplication and underapplication of phonological processes Wilbur (1974).

The Tagalog example above is an example of *overapplication*. Nasalisation has applied to the stem segment, even though it does not seem adjacent to the prefix that causes nasalisation.

Underapplication, by contrast, is the phenomenon by which a process does not seem to apply to one of the two copies, even though it occurs in the right environment. A well-known case of this is found in Chumash. This language has a process deleting *l* before a *t*. However, this process does not apply across the boundary of a base and a reduplicant:

$$(12) \quad /s\text{-}tal'ik\text{-}tal'ik/ \rightarrow [s\text{-}tal'\text{-}tal'ik], *[s\text{-}ta\text{-}tal'ik] \text{ 'his wives (i.e. of a chief)'}$$

In Correspondence Theory, this follows from the specific ranking of the constraint demanding maximal correspondence between the segments of the base and the reduplicant and certain other constraints. In the Tagalog case, this constraint forces unfaithfulness of the base stem which is not otherwise warranted; in the case, correspondence in tandem with a templatic constraint forcing the reduplicant to be (at least) a heavy syllable, disallows deletion.

Under a multidominance account, we would have to observe that some constituents occur in more than one position. In Tagalog, the syllable /pu/ occurs both immediately after a nasal and immediately after a non-nasal. Apparently, it is the nasal context which here decides, so in some sense the position of the *first* copy. In Chumash, in contrast, *tal* occurs both before a *t* and before another segment. In this case, one could say that it is the second copy which decides.

In the latter sense, this work is reminiscent of the loops in the work on the representation of reduplication in Raimy (1999, 2006); Idsardi & Raimy (2005). In this work, the precedence relations are relativized: segments are not necessarily ordered in twodimensional strings, but can contain loops. (I will refer to this theory as Loop Theory.)

$$(13) \quad \# \rightarrow p \rightarrow a \rightarrow \eta \rightarrow p \rightarrow u \rightarrow t \rightarrow u \rightarrow l \rightarrow \%$$

In this representation, there are two arrows from the first *u*: one leading to *t*, and one leading to *p*. Similarly, there are two arrows point to the *p*: one from the *η*, and one from the *u*. This means that the *p* is effectively adjacent on its left to two different segments. If it changes, because it is adjacent to the nasal, the arrow coming from the *u* will now point to it. Overapplication therefore is even the norm in this kind of theory.

$$(14) \quad \# \rightarrow p \rightarrow a \rightarrow \eta \rightarrow m \rightarrow u \rightarrow t \rightarrow u \rightarrow l \rightarrow \%$$

What this theory has in common with the multidominance account is, obviously, that the copies are considered to be instances of the same object. This means that the phonological representation has to be rather abstract: other than is sometimes assumed, it cannot (yet) be fully linearized even if notions like ‘precedence’ arguably play a role. This presumably has to be done then in the interface with phonetics. Both theories offer purely representational accounts of reduplication, and possibly, rhyme.

The main difference is that Raimy’s theory is strictly segment based, whereas the account we present here is based on the notion of the phonological constituent. This, then, seems the main difference between a multidominance account of rhyme and its alternatives: the latter always allow for the possibility of random stretches of segments to rhyme. To the extent that only phonological constituents can be involved in rhyme processes, this is an argument for multidominance.

Idsardi & Raimy (2005) argue that indeed non constituents rhyme. They cite two pieces of evidence. The first is that in English poetry (among others) rhyme is defined as follows: ‘either of two or more words which have identical nuclei in their stressed syllables and identical sequences of segments after these nuclei’ Trask (1996). Idsardi & Raimy (2005) point out that this is not a constituent under any theory of metrical phonology. I will come back to this in the following section.

The other piece of evidence is Tuareg. Idsardi & Raimy (2005) cite Fabb (1997) who observes: “the rule for rhyme is complex in its reference to syllable structure: the syllable nucleus must be identical and the final consonant in the coda must be equivalent. (Other consonants are apparently ignored: thus in one poem *-at* rhymes with *-art*, and also with *-ayt* and *-ant* and *-alt*.”

It seems to me that the conclusion that “rhyming in English and other poetic traditions operates on strings of segments that do not necessarily match to a phonological constituent” is too strong. In both cases one does actually need to refer to prosodic constituents, but the definition is a little more complex. Actually in both cases, the right definition seems to be:

- (15) α and β rhyme *iff* α and β are prosodic constituents, α and β are the same, except that there is one (designated) daughter constituent that may differ.

Although it is therefore true that rhyming is in these not the simple similarity of two (prosodic) constituents, it is also not as random as both Correspondence Theory and the theory of Idsardi & Raimy (2005) would predict.

5 Imperfect rhyme

An important problem for any account of rhyme is that it can be imperfect: the words or phrases are *almost* but not *exactly* the same. We can distinguish two versions of this. First, sometimes we find ‘imperfections’ in the rhyme as

something which the poet allows himself to do, for instance in the following examples from nursery rhymes, collected by Holtman (1996):

- (16) a. Hush-a-bye, baby, on the tree *top*
 When the wind blows, the cradle will *rock*
 b. Peter stands at the *gate*
 Waiting for a butter *cake*
 c. One for the master, and one for the *dame*,
 And one for the little boy who lives down the *lane*

In many cases, like here, the rhyming sequences are really very similar. In the examples just provided the differ only in one consonant, and in those consonants only in one (place) feature.

The second type are *obligatory* differences. The most important among these is that in several poetic traditions (e.g. the Anglosaxon one) two words are not supposed to rhyme if the onsets of the rhyming syllables are the same: rhyming *two* to *too* is supposed to be bad practice. There are other styles in which ‘rich rhyme’ is explicitly allowed. Chaucer, for instance, employs it quite regularly in the *Canterbury Tales*:

- (17) a. Therefore I pass as lightly as I *may*
 I fel that in the seventhe yer, of *May*

What makes this different, though, is that even in Chaucer, these rich rhyme pairs are exceptional, even if they are rather frequent. It thus seems that having a different onset is somehow the rule, whereas the kinds of small alternations in folk poetry are the exception.

Idsardi & Raimy (2005), in whose theory the consonants before the stressed vowel should be completely irrelevant, claim that the avoidance of rich rhyme falls outside of the scope of linguistic theory: “Repeating a word to make a rhyme is trite. It is too easy. There is no game or art involved in rhyming in this way. Consequently, ‘good’ rhymes avoid this triteness and strive to create rhymes that are creative and playful. Once the artist knows how to rhyme, the art form is the pursuit of combining non-trivial rhymes with the message of the poem.”

This explanation does not seem completely satisfactory. One can easily imagine possible restrictions on rich rhyme which would make it more difficult, for instance by requiring that it should not be the same word, but a homophone. Actually Wikipedia (July 2013) gives as its definition: “a form of rhyme with identical sounds, if different spellings” and gives *pair-pear* as an example. It also mentions that French is much more tolerant of *rime riche*, even though French seems to have more homophones to begin with — going completely in the opposite direction of Idsardi & Raimy (2005)’s explanation.

It does seem, however, that poetic traditions seem to require some form of non-identity among the rhyming pairs: this can be either a different onset,

or a different nuclear consonant in Tuareg, or belonging to a different lexical item, signalled by different spelling, in *rime riche*.

At first sight, this might seem to argue in favour of a Correspondence approach, since that holds that the segments of a rhyme are not the same, but merely resemble each other. Differences can then be allowed. Notice, however, first, that to some extent this is just a function of the fact that Correspondence Theory is relatively unrestricted, and secondly, that in order to account for this, we still need to introduce non-identity constraints of which the status as a phenomenon in natural language is unclear. It is not identical to the OCP, or at least I am not aware of OCP's targeting complete onsets. (In rhyme, *blair-bair* is fine, as is *blair-lair*; I am not aware of OCP systems that work that way.)

A representational solution may be found if we incorporate into our multidominance analysis the idea that the identity of items is preserved in phonology, as it has been developed in Coloured Containment. We know that for certain processes the phonology has to see the difference between stems and affixes, or between epenthetic material and lexically sponsored material. One way to represent this, is to assume that every element of a phonological representation is marked for its lexical affiliation. Every lexical item has its 'colour' and every feature, root node, prosodic node, etc., belonging to the phonological exponent of that item shares that colour. I will mark those colours as indices. A simple derivation such as (Dutch) /mɛlk-ə/ → [mɛləkə] 'to milk (INFINITIVE)' will lead to the following representation:

$$(18) \quad m_i \varepsilon_i l_i \partial k_i \partial_j$$

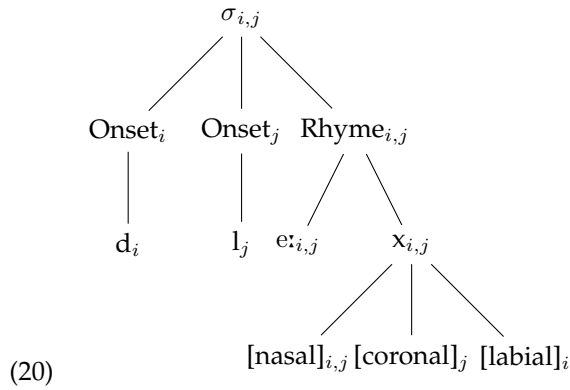
The segments of the stem /mɛlk/ each have one colour, whereas the segment of the infinitival suffix /ə/ has another colour. The epenthetic vowel has no colour since it is not sponsored by any lexical item. What is drawn here for segments, holds (also) for the features of segments: so features like [labial] and [nasal] which constitute the /m/ also have the index *i* in this case.

This technology allows us to differentiate between different 'copies' in a rhyming pair, such as the pair *dame-lane*

$$(19) \quad \begin{array}{c} \text{Rhyme}_{i,j} \\ \swarrow \quad \searrow \\ e_{i,j} \quad x_{i,j} \\ \swarrow \quad \downarrow \quad \searrow \\ [\text{nasal}]_{i,j} \quad [\text{coronal}]_j \quad [\text{labial}]_i \end{array}$$

Most elements in this representation have two lexical colours, except the place features on the nasal. When this representation gets linearized, only the features with the right colour are spelled out.

Obviously, this can be extended to the onset nodes, which are even obligatorily differently coloured in most rhyming styles:



Obviously, this coloured representation has to be embedded in a multidominance tree, to make sure that the two rhyme words are pronounced in the appropriate place in the text. We may speculate that the reason why the (initial) onsets have to be different is that in this way one indicates immediately the 'right' lexical colour.

6 The invisibility of coronals

I submit that the following can count as a piece of evidence for this account. It is known that in some rhyming styles voiceless coronals do not seem to count: they can be added or deleted rather freely, for instance in rap style Zwicky (1976). Here is an example of the Dutch literary author Gerrit Achterberg (1905-1962):

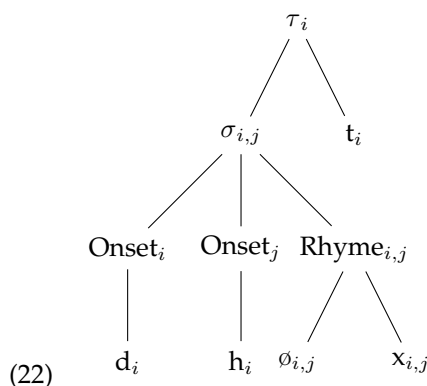
- (21) Den Haag, stad, boordevol Bordewijk
 en van Couperus overal een vleug
 op Scheveningen aan, de villawijk
 die kwijnt en zich Eline Vere heugt

Maar in de binnenstad staan ze te kijk,
 deurwaardershuisen met de harde deugd
 van Katadreuffe die zijn doel bereikt.
 Ik drink twee werelden, in ene teug.

In this example (the first quatrains of a sonnet describing the literary past of The Hague), *vleug* 'a little bit' [vløx] and *teug* 'sip' [tøx] rhyme with *heugt* 'remembers' [høxt] and *deugd* 'virtue' [døxt]; and *kijk* 'view' [kɛik] with *bereikt* 'reaches' [rɛikt].

It is well known that voiceless coronals behave as if they are somehow outside of the phonotactic template in many languages (Paradis & Prunet, 1991). This is definitely also the case in Dutch: if a word ends in more than two consonants, the last one is guaranteed to be [s] or [t] (*herfst* ‘autumn’); if a word starts with more than two consonants, the first one is an [s] (*straat* ‘street’), and similarly in word-internal clusters of four consonants, at least one of them will be a voiceless coronal obstruent (*extra* (id.)) A well-known way to describe this is to state that these obstruents are not parsed into regular prosodic templates (but, for instance, adjoined to a higher level).

If we adopt this assumption, it is easy to describe the Achterberg rhyme pattern:



Only the syllable is multidominated; the *t* is simply outside of the shared domain. In poetic styles in which voiceless coronals do count, it will obviously be the higher prosodic node (here marked as τ), which is shared.

As far as I see, it will be difficult to account for the exceptional behaviour of voiceless coronals in Correspondence Theory or in Loop Theory. The reason is that the existing constituency does not play a role in those frameworks. To the extent that this is true, this is an argument in favour of a multidominance approach.

7 Conclusion

In this paper, I propose an interpretation of poetic rhyme that is, as far as I know, new, but which at the same time fits into an existing interpretation of copying in linguistics: that the copies are actually the same thing, showing in different places.

Not every issue could be covered in this paper, such as the question why rhyme tends to occur at the end of the line — which is presumably a metrical unit — or why ‘imperfect rhyme’ has a preference for non-matching place features over non-matching manner features, as is apparently the case (Holtman, 1996). Furthermore, more empirical research would clearly be necessary to

establish what individual variation we find in what counts or does not count as acceptable rhyme.

The main goal of this paper is therefore mostly to show that a multidominance analysis of rhyme is feasible. To the extent that multidominance is a plausible analysis of other types of copying (de Vries, 2009), this is already a positive result; but I believe to have shown that the analysis also has some interesting characteristics on its own which may make it worth studying.

Bibliography

- Aboh, Enoch (2007). 'A 'mini' relative clause analysis for reduplicated attributive adjectives'. *Linguistics in the Netherlands*, 24: 1–13.
- Alexiadou, Artemis (2010). 'Reduplication and doubling contrasted. Implications for the structure of the DP and the AP'. *Linguística. Revista de Estudos Linguísticos da Universidade do Porto*, 5: 9–25.
- Barbiers, Sjef, Olaf Koenenman, & Marika Lekakou (2008). 'Syntactic Doubling and the Structure of Chains'. *Proceedings of WCCFL 26*, pp. 77–86.
- Borgström, C. Hj. (1940). *A Linguistic Survey of the Gaelic Dialects of Scotland*, vol. 1: The Dialects of the Outer Hebrides. Norsk Tidsskrift for Sprogvidenskap, Suppl. Bind 1.
- Chomsky, Noam (1995). *The Minimalist Program*. Cambridge, Mass.: MIT Press.
- (2001). 'Beyond explanatory adequacy'. *Occasional Papers in Linguistics*.
- Citko, Barbara (2012). 'Multidominance'. In: *The Oxford Handbook of Linguistic Minimalism*. Oxford University Press. URL 10.1093/oxfordhb/9780199549368.013.0006.
- Clements, George Nick & Elizabeth Hume (1995). 'The internal organization of speech sounds'. In: Goldsmith, John A. (ed.), *The Handbook of Phonological Theory*. Oxford: Blackwell.
- Fabb, Nigel (1997). *Linguistics and literature*. Cambridge: Blackwell.
- (2010). 'Is literary language a development of ordinary language?' *Lingua*, pp. 1219–1232.
- Goldsmith, John (1976). *Autosegmental Phonology*. Ph.D. thesis, MIT, Cambridge, Mass. Published by Garland Press, New York, 1979.
- Hall, Nancy (2011). 'Vowel epenthesis'. In: van Oostendorp, Marc, Colin J. Ewen, Keren Rice, & Beth Hume (eds.), *The Blackwell Companion to Phonology*, pp. 1576–1596. London & New York: Blackwell-Wiley.
- Hauser, M.D., N. Chomsky, & W.T. Fitch (2002). 'The Faculty of Language: What Is It, Who Has It, and How Did It Evolve?' *Science*, 298: 1569–1579.
- Holtman, Astrid (1996). *A generative theory of rhyme: an optimality approach*. Ph.D. thesis, University of Utrecht.
- Idsardi, William J. & Eric Raimy (2005). 'Remarks on language play'. Manuscript, University of Maryland and University of Wisconsin-Madison.
- Inkelas, Sharon & Cheryl Zoll (2005). *Reduplication: doubling in morphology*. Cambridge: Cambridge University Press.
- Kahn, Daniel (1976). *Syllable-based Generalizations in English Phonology*. Ph.D. thesis, MIT, Cambridge, Mass. Published by Garland Press, New York, 1980.
- Katz, Jonah (2008). 'Towards a generative theory of hip-hop'. URL <http://web.mit.edu/jikatz/www/KatzGTHH.pdf>. Handout from a talk presented at Tufts.
- Kawahara, Shigeto (2007). 'Half-rhymes in Japanese rap lyrics and knowledge of similarity'. *Journal of East Asian Linguistics*, 16: 113–144.

- Kawahara, Shigeto & Kazuko Shinohara (2009). 'The role of psychoacoustic similarity in Japanese puns: A corpus study'. *Journal of Linguistics*, 45: 111–138.
- Kiparsky, Paul (1970). 'Metrics and morphophonemics in the Kalevala'. In: Freeman, D.C. (ed.), *Linguistics and literary style*, pp. 165–181. New York: Holt, Rinehart and Winston.
- (1973). 'The role of linguistics in a theory of poetry'. *Daedalus*, 102: 231–245.
- (2006). 'A modular metrics for folk verse'. In: Drescher, B. Elan & Nila Friedberg (eds.), *Formal approaches to poetry*, pp. 7–49. Mouton de Gruyter.
- Lerdahl, Fred & Ray Jackendoff (1983). *A Generative Theory of Tonal Music*. Cambridge, Mass.: MIT Press.
- Marantz, Alec (1982). 'Re Reduplication'. *Linguistic Inquiry*, 13: 483–545.
- (1984). *On the Nature of Grammatical Relations*. Cambridge, Mass.: MIT Press.
- McCarthy, John & Alan Prince (1993). 'Prosodic Morphology I. Constraint Interaction and Satisfaction'. Available on ROA 485-1201.
- (1995a). 'Faithfulness and Reduplicative Identity'. In: Beckman, Jill, Laura Walsh Dickey, & Suzanne Urbanczyk (eds.), *Papers in Optimality Theory*, vol. 18. Amherst, MA: Graduate Linguistic Student Association. Rutgers Optimality Archive 60, <http://roa.rutgers.edu>.
- (1995b). 'Faithfulness and Reduplicative Identity'. In: Beckman, Jill, Suzanne Urbanczyk, & Laura Walsh Dickey (eds.), *University of Massachusetts Occasional Papers in Linguistics 18: Papers in Optimality Theory*, pp. 249–384. GLSA Publications.
- McCarthy, John J., Wendell Kimper, & Kevin Mullin (2012). 'Reduplication in Harmonic Serialism'. *Morphology*, 22: 173–232.
- Mester, Armin (1986). *Studies in Tier Structure*. Ph.D. thesis, University of Massachusetts, Amherst. Published 1988. Outstanding Dissertations in Linguistics series. New York: Garland.
- Oftedal, Marge (1956). *A Linguistic Survey of the Gaelic Dialects of Scotland III*. Oslo: Aschehoug.
- van Oostendorp, Marc (2007). 'Derived Environment Effects and Consistency of Exponence'. In: Blaho, Sylvia, Patrik Bye, & Martin Krämer (eds.), *Freedom of Analysis?*, pp. 123–148. Berlin: Mouton de Gruyter.
- Paradis, Carol & Jean-Francois Prunet (1991). *The special status of coronals: Internal and external evidence*. San Diego: Academic Press.
- Raimy, Eric (1999). *Representing Reduplication*. Ph.D. thesis, University of Delaware, Newark, DE.
- (2006). 'Reduplication: Doubling in Morphology'. *Journal of Linguistics*, 42, 2: 478–486. Review of: Inkelas, Sharon; Zoll, Cheryl; CD: JLINAJ; Edition date: 2005.
- Rose, Sharon & Rachel Walker (2004). 'A typology of consonant agreement as correspondence'. *Language*, 80, 3: 475–532.
- Sagey, Elizabeth (1988). 'On the ill-formedness of crossing association lines'. *Linguistic Inquiry*, 19: 109–118.
- Trask, R.L. (1996). *A dictionary of phonetics and phonology*. New York: Routledge.
- de Vries, Mark (2009). 'On Multidominance and Linearization'. *Biolinguistics*, 3, 4: 344–403.
- Wilbur, Ronnie (1974). *The Phonology of Reduplication*. Doctoral dissertation, University of Illinois.
- Yip, Moira (1999). 'Reduplication as alliteration and rhyme'. *GLOT International*, 4, 8: 1–7.
- Zwicky, Arnold M. (1976). 'Well, this rock and roll has got to stop. Junior's head is hard as a rock'. In: *Proceedings of the 12th Annual Meeting of the Chicago Linguistic Society*, pp. 676–697. CLS.