

The head in poetic metrics

Marc van Oostendorp

Abstract

Terms such as ‘foot’, ‘iamb’ and ‘trochee’ have been adapted from poetic metrics to phonological analysis and further extended. Within formal (generative) analyses of poetry it is usually assumed that this means that there is some matching between poetic feet and phonological feet, but that these two have the same formal structure. This paper argues that this assumption is mistaken. Poetic feet are constituents, and they can be aligned to stress positions, but they have no heads. It is claimed that the reason for this is that poetic feet from a phonological point of view behave more like morphosyntactic constituents, such as words, than as phonological feet.

Phonological metrical analysis is to some extent derived from the tradition of the study of poetic metrics: almost all of our terminology – iamb, trochee, foot, extrametricality, catalexis, etc – reminds us of ancient Greek and Latin poetry. At the same time, phonological theory has built on these notions in a variety of ways: they have received new definitions, and they have been embedded and interpreted in a wider linguistic theory in such a way that, e.g. an extrametrical syllable is a syllable that is not attached to some higher-order structure (Hayes 1981), or that feet are interpreted as tree structures (Lieberman and Prince 1977, Hayes 1980), or as bracketed grids (Halle and Vergnaud 1987).

What remains of the similarities between the two types of analysis of sound structure after all of these developments? The definitions of terms such as the ones just mentioned has inevitably shifted within linguistic theory. Does this mean that the same terms still apply to both domains in the same way? The question is of more than mere terminological relevance, as it has been suggested (most explicitly, in the influential work of Fabb 2010) that poetic traditions only use formal devices that are already available in the linguistic toolbox or non-literary language. Fabb calls this the Development Hypothesis:

- (1) *The Development Hypothesis*: Literary language is governed only by rules and constraints which are available to ordinary language, and which refer only to representations which are present (at some stage in a derivation) in ordinary language.

Pursuing Fabb’s programme makes sense: it gives a fairly restrictive frame for our poetic analysis and also provides a way to test linguistic proposals with different kinds of empirical material; furthermore, we have at least some empirical evidence to bear on it (see, for example Fabb 2015 and references cited there). But if we want to follow it, we would expect notions such as the ‘foot’ to indeed be coherent between poetry and ‘normal’ phonology.

The present contribution aims to investigate this issue, in particular where it concerns the notion *headedness*. The question is how, and to what extent, we can say that poetic feet have heads in the way in which the linguistic feet of ordinary language do.

My proposal is that they do not: what is specific about poetry is alignment of existing material to boundaries of special poetic constituents, but those constituents have no heads. Their only relevant properties are boundaries, which have to be aligned with the phonological material in the line. In this sense, they are not like linguistic feet; but I will argue that they are still in line with the Development Hypothesis, because they have a different parallel: they are like morphosyntactic constituents in the way in which they influence the phonological structure: feet are like words, just like the poetic line is the poetic equivalent of the sentence or XP. I argue that in none of these cases heads are visible.

This claim may be easiest to illustrate with respect the line, presumably the one constituent which all poetic traditions have in common (if we disregard prose poems). In free verse, this is the only constituent we have (Andrews 2017):

(2) *I have eaten
the plums
that were in
the icebox*

*and which
you were probably
saving
for breakfast*

The lines in a poem such as this ('This is just to say', by William Carlos Williams) mostly do not correspond to any real syntactic constituent (with the exception of 'the icebox', 'saving' and 'for breakfast'). In some cases ('I have eaten') they may correspond at least to natural phonological phrases, but that is also not always the case ('that were in', 'and which').

In other words, the line here imposes an organisation to the string of words which is different than that of the syntactic structure or the prosody that would normally accompany it. It makes sense to say that the line is therefore a constituent of the poetic discourse, alongside the syntactic and prosodic constituents: what distinguishes poetry is this extra level of organisation. However, there is no reason whatsoever to assume that the line is 'headed'; there is as far as I can tell no non-arbitrary way to decide what would be the head of a line such as 'and which'.

This makes the line different from phonological phrases, and also from syntactic constituents. However, it does not make it different from the way in which syntactic constituents are visible in phonology. In a large survey on the literature of the phonology-syntax interface, Scheer (2011) has shown that there is quite some convergence on exactly this point, and he proposes that boundaries are the only representational aspects of syntactic constituents that are visible.

The proposal is that (i) poetic constituents are like syntactic constituents in the interface: only boundaries are visible; and (ii) this is true for other levels of poetic organisation beyond the line: the line contains subconstituents, like feet. Those have the structure of a constituent, but they have no heads (or their heads are irrelevant) of their own, although they can be aligned to existing heads.

In order to make my point, I will first summarize what we know about the heads of linguistic feet in section 1; then I will discuss the structure of feet in Ancient Greek poetry (section 2) as well as in English iambic pentameter (section 3) and French syllable-counting verse (section 4). In the last discussion I will go more deeply into the similarity between poetic constituents like feet and syntactic constituents.

1. The head of a linguistic foot

The notion of head in metrical phonology is inextricably linked to the idea that a linguistic foot is a *constituent*, i.e. an ordered set of smaller constituents (almost always, syllables), and furthermore that such constituents are asymmetric: there is a difference between the head and dependents of the foot.

Headedness is also assumed at other levels of phonological analysis such as the syllable, higher-order prosodic structure and the segment, as other papers in this volume attest, but the kinds of properties that are attributed to heads depend to some extent on the level of structure. Three characteristics are attributed to heads in metrical phonology in the literature:

- (3) A. Every constituent has exactly one head. Dependents are (in some cases) optional.
- B. The head is phonetically the most prominent; it carries stress.
- C. Heads are more complex than non-heads.

Criterion A is almost definitional of the head and the constituent and their relationship (Van Oostendorp 2013): a metrical constituent cannot exist without a head. We can define the head of an iamb, for instance, as its rightmost syllable. Since there can only be one such syllable, there is only one head. Dependents are the other syllables; this can be zero (a monosyllabic foot), one (a binary iamb) or more than one (an unbounded right-headed foot). In one relatively popular framework of metrical phonology, however, bracketed grid theory (Halle and Idsardi 1995), headedness and constituency have become virtually delinked from each other. A 'head' in this framework is a syllable that projects to a higher tier in the grid, and although phonological rules may tend to project syllables in certain positions in phonological constituents, the relation is not absolute. There is nothing universally 'unwellformed' about constituents without a projecting syllable (so headless constituents), or with more than one projecting syllable (so with more than one head).

Criterion B gives the most direct empirical evidence for headedness at the level of feet. Many scholars would argue that there is no foot head within a given language if there is no (secondary) stress on that particular syllable. Problematic for this assumption would be for instance those Arabic dialects like Cairene, in which it has

been claimed that there is no secondary stress, but still feet are needed to calculate the position of primary stress (which is at an odd number of mora's away from the beginning of the word). The lack of secondary stress in Cairene is not uncontroversial, however, to say the least (see Watson 2002 for an overview). Criterion C (heads are more complex than non-heads) has been worked out in some detail in an important paper by Drescher and Van der Hulst (1998), who argue that there is always an asymmetry between heads and non-heads in phonology which can be measured in representational terms. For instance, a head can branch, but a dependent cannot.

It should be noted that the notion of 'head' interacts with that of 'alignment' in a number of non-trivial ways in the case of metrical structure. For instance, although all authors agree that English is a trochaic language, there are individual words which display an iambic pattern, like *compress*, or *record*. As a matter of fact, it has been claimed that such patterns are typical of English verbs (notice that the corresponding nouns have a trochaic template instead). The assumption in these cases, however, is *not* that English verbs have iambs to trochees, but for instance that there is some alignment of the verbal template to stress on the last syllable:

(4) Align (R, V, 'σ): The right edge of a verb should correspond to a stressed syllable.

Admitting (4) into our constraint set does not make *compress* or *record* into iambic feet. Instead, it is usually assumed that we still build a trochee on the last syllable, so that these words have a structure such as the following, where square brackets denote morphosyntax and round brackets foot structure:

(5) [re (cord)]

We thus have an apparent iamb which is actually really built on top of a trochaic structure. That will be an important building block for our analysis later on.

2. The inventory of feet in Ancient Greek poetry

As mentioned above, the metrical terminology in phonology derives from the study of metrics in poetry, in particular in Ancient Greek (and Latin, which is itself mostly modeled on the former).

The history of the term has been, roughly, that first Renaissance poetry took classical terminology and applied it to their own languages and their own poetic systems in a way which can only be seen as metaphorical (Kossmann 1922). One clear problem that immediately arises is that classical poetic feet were not defined in terms of stress but in terms of heavy and light syllables. Thus, for instance an iamb does not consist of an unstressed followed by a stressed syllable, but by a light followed by a heavy syllable (LH). Ancient Greek did have stress (and a pitch accent), but this seemed to have been irrelevant for the calculation of meter. For instance, the L in the iambic pattern could easily be stressed (heavy syllables were

on the other hand always stressed); on other words there is nothing against iambs in Greek with two stressed syllables in a row.

The Ancient Greek iamb in other words did not correspond to anything like a linguistic foot – not like an Ancient Greek foot, because that was a moraic trochee, and not like an iamb in any other phonology, because those can never have a stressed syllable in the first position. The similarity between the Greek poetic iamb and the linguistic iamb therefore can only be seen as metaphorical. Criterion B above does not apply, as phonetic prominence is not exclusive to the head, although criteria A and C do (every foot has a heavy syllable, and those are obviously more complex than light syllables), although the former is basically true by definition. However, the issue does not stop here. In a classic paper, Golston and Riad (1999) point out that terms such as *iamb*, *trochee*, *dactyl* and *anapest* cannot be applied in their modern sense to Ancient Greek metrical structure at all. Poetry that is written in an anapestic meter can for instance contain a rather wide variety of feet in the modern linguistic sense, even if we accept to assume that L are ‘dependents’ and H ‘heads’:

- (6) Permissible feet in anapestic meter
LLH (anapest), *HLL* (dactyl), *HH* (spondee), *LLLL* (proceleusmatic)

For instance, three of these four of these occur in an anapestic line of Euripides’ *Medea* (the proceleusmatic is rather rare):

- (7) (H H) (L L H)(H L L)(H H)
pol.lóon ta.mí.as dzeùs e O.lúm.po:
many dispenser Zeus in Olympus

This poses several puzzles for any kind of analysis which would state that poetic feet are headed constituents, and that the head should be the heavy syllable, as apparently there can be feet without a heavy syllable (the proceleusmatic), or with two of them (the spondee), and furthermore, heads can appear both on the left and on the right-hand side and still count as part of the same rhythmic type.

Golston and Riad (1999) argue, quite plausibly in my view, that the ‘feet’ in this case are not really feet at all, but so-called *metra*, constituents of two ordinary linguistic moraic trochees each. That indeed gives us exactly the possibilities we have (with predominant *LLH* the only one which has neither a clash nor a lapse, so the most unmarked one in that sense).

Other types of metrical feet are also characterized by Golston and Riad (1999) only in terms of the moraic trochee. For instance a dactylic meter is characterized by requiring a syllable-level clash in every metron. This excludes *LLH* and *LLLL*, so that *HH* and *HLL* are the only two possible combinations, and this is indeed what we find as possible realizations of dactylic meter.

Iambs and trochees at first sight seem smaller (and more the size of a linguistic foot), but Golston and Riad show that they actually tend to come in *pairs* of always two iambs or two trochees, so that also here the unit is more like two moraic

trochees, with some extra requirements. Also in this case, then, the poetic unit is the metron; and it is not clear that it is headed.

If we accept Golston and Riad's analysis – which was extended to the more complicated meters of lyrical poetry in Golston and Riad (2005) –, it means there are no feet in the analysis of Ancient Greek meter beyond the one (the moraic trochee) that is required for the analysis of Ancient Greek stress. What we do have, instead is a unit which is larger than the foot (the metron), and which contains approximately two of these feet.

Crucially, however, there is no real indication that these larger constituents are 'headed' in any way. None of the four asymmetries mentioned as criteria A-C above apply in this case. In Golston and Riad's analysis, the internal structure of the metron is organized by stress and clash avoidance, notions which do refer to stress, but being the leftmost or the rightmost of the two substructures itself does not lead to any higher level of prominence, or to a more complex structure in one of the two subconstituents. Given this analysis, then, there is no reason at all to believe that headedness played a role in Ancient Greek poetic structure.

3. The head in English iambic pentameter

In hindsight, it may not be all that surprising that headedness is less relevant in systems in which stress plays no role. The question now is to what extent things may be different for other systems, such as those found in modern Germanic languages in which stress does play a role. The iamb in English iambic pentameter, for instance, looks a lot more like a phonological iamb (all my examples will be from Shakespeare's sonnets, which are usually considered exemplary for English iambic pentameter, see for instance Tarlinskaja 1976, 1987):

(8) (w s)(w s)(w s)(w s)(w s)
When I do count the clock that tells the time
(Sonnet 12)

In this case, one can argue that every foot constituent has a head; this head is definitely more prominent phonetically and potentially has more structure than the unstressed syllable. These feet thus very much look like linguistic feet.

There is one difference with the ordinary structure of English prosodic structure, which is that the foot boundaries cross word boundaries in poetry. This is something which English metrics has in common with Greek (and presumably other) traditions. In Greek metrics, a word-final syllable can head a closed syllable if the following word starts with a consonant cluster (Gentili and Lomiento 2003). In many traditions, word-final vowels and immediately following word-initial vowels are counted as one (synalepha).

Although it thus looks as if we can detect in this case a constituent that looks more like a linguistic foot, there are also problems if we take the . In the first place, it is not clear at all that the iambs thus formed always conform exactly to such a template. Take another famous line in Shakespeare's sonnets:

- (9) (s w)(w s) (w s)(w w)(s s)
When in disgrace with fortune and men's eyes
 (Sonnet 29)

This line shows that we can actually have *(s w)*, *(s s)* and *(w w)* feet in (Shakespeare's) iambic pentameter as well. This is typically analysed by assuming that poetic lines have two independent levels of metrification, one linguistic and one poetic, and that their prominent positions need to be aligned. We thus do not have these feet, but at the poetic level we only have *(s w)*, and at the phonological level something else (e.g. a trochee on top of *fortune*); and further we have a mismatch between poetic 'heads' and 'dependents' and linguistic heads and dependents (e.g. Hanson and Kiparsky 1996).

However, the constraints which are needed to take care of this head alignment often take a rather unexpected shape. One of the most well-studied and empirically confirmed constraints (and indeed arguably the first constraint proposed in generative metrics, Halle and Keyser 1971), the 'stress maximum constraint', has the following form: (see also e.g. Hayes, Wilson and Shisko 2012):

- (10) *Stress maximum constraint* (SMC, to be revised below)
 'A stress maximum needs to occupy even positions in a line, but not every even position needs to be so occupied'.

A stress maximum is a syllable with some level of stress with syllables immediately preceding and following it that have a lower level of stress. The SMC explains, among other things, why 'iambic reversal' (using *sw* rather than *ws*) is ordinarily restricted to the beginning of lines. The first syllable of a line can never be a stress maximum (since it is not preceded by a syllable with less stress), and therefore it can occur in a 'weak' metrical position without any penalty (and the second syllable of a foot can be unstressed anyway, as there are no requirements on strong positions).

The SMC has a number of interesting implications. First note that from the point of view of poetic feet, it imposes a condition on *dependents* (that they cannot be filled by a stress maximum), but there is apparently no restriction at all on heads (which can be filled by anything). Secondly, the requirement is not so much on being a 'head' of a metrical constituent, but on being relatively stressed with regard to syllables preceding and following in the linear string.

In other words, theories of metrical structure that assume that there is some 'matching' of heads at different levels seem to be on the wrong track. Given the fact that we want to refer to odd and even syllables in the line, it makes sense to refer to binary constituents; but there is no particular reason to designate one of these two as the head. The SMC can then be reformulated as follows:

- (11) *Stress maximum constraint* (SMC, 2nd version, to be revised below)
 'A stress maximum should be aligned with the right-edge in a foot (but not necessarily vice versa)'.

Notice that this reformulation is not too different from the templatic constraint in (4), regulating stress in English verbs; basically, we can say that an English poetic iamb is like a verb. Given that Germanic languages have trochees, and stress maxima prefer iambs, an implication of the SMC actually is that in the optimal case, poetic feet and stress feet are completely unaligned. In order to show this, I will mark the former with [...] and the latter with (...) in a part of the line in Sonnet 29:

(12) [w](s)[w]
with fortune

The matching brackets (...) are here interrupted by //, and similarly, the matching brackets [...] are interrupted by): the two types of constituents are (obviously) not in a hierarchical relationship. Seen this way, we can reformulate the SMC for the last time:

(13) *Stress maximum constraint* (SMC, final version)
 'Linguistic foot edges should not be aligned to the edges of poetic feet'.

Seen this way, the SMC is an anti-alignment constraint (Buckley 1994, Downing 1994). This is interesting in light of the proposals by Golston and Riad (1999, 2005) who argued as well that metrical structures are characterized by violations of some kind of markedness constraint. But now also really all references to headedness have disappeared from our definition of the SMC. Anti-alignment is the only relevant constraint; it gives us iambs by virtue of the fact that the linguistic feet in English are (uneven) trochees. The fact that Germanic languages prefer iambs as a meter is because they have trochees for word stress, and iambs give them maximal tension (i.e. maximal application of the SMC).

We can even understand some of the special cases of the SMC in this way. First, the fact that initial feet can be more easily trochaic could be a result of the fact that in those cases, a first *weak* syllable of a line would never be in the weak position of a foot anyway, as it can by definition not be preceded by a stress syllable. Assuming that such syllables are therefore 'stray', there cannot be a full misalignment anyway:

(14) [(s w] [w] (s)] [(s w] [w] (s)[w](s)]
Richer than wealth, prouder than garment's cost
 (Sonnet 91)
 [(w s][w](s
Much richer, wealthier....
 (Alternative)

If we assume that stray weak syllables are normally attached to the preceding foot, unless there is no such foot and they are attached to the following foot, the footing of the first two feet gives the same profile in the 'real' poem as in the rewritten version I put below. The poet is thus free to choose one of the two; they are equally metrical. However, a trochee in an internal foot (such as *prouder* in (14)) will

actually lead to less tension and is therefore dispreferred (even though it does occur, as the example illustrates).

Another well-known observation about (Shakespeare's and other poets') metrics also becomes relevant: that reversals are considered less 'metrical' (and are less frequent in the corpus) if occur within a word. Kiparsky (1975) gives the following example:

- (15) *Pluck the keen teeth from the fierce tiger's jaws*
(Sonnet 19)
Pluck immense teeth from enraged tiger's jaws
(Alternative)

Notice that in the alternative version the poetic foot boundaries are not just wrongly aligned with the metrical foot boundaries, but also with those of the word (the word is split up into two feet). This gives more tension than the SMC requires, and makes the lines just a little bit too marked. The fact that this is the case, shows us that we need these kind of alignment constraints anyway.

4. Syllable-counting verse

The proposal can also make sense of a kind of metrics that we find in poetic traditions that are strictly syllable counting, such as French, and which defy the notion of headed feet in yet another way. French classical poems contain a strict number of syllables: typically 10 or 12, and typically with a caesura after the 4th or 6th syllable. All of these even numbers strongly suggest an organisation into binary units. But these units have no relation to stress, for one thing because French does not have word-stress (Vaissière 1991).

Many theoretical approaches built on headed feet have to assume that there are still iambs or trochees at work in French poems, however, which then do not have to map in any real way to the phonological structure. They are only used as counting devices, in the way in which invisible secondarily stressed feet in Cairene Arabic function to calculate primary stress in some accounts. The choice for where we posit the head of such feet seems completely arbitrary: there is no *a priori* reason to assume that such constituents are indeed trochaic or iambic, and there is no 'contrast' in French metrics between trochaic and iambic poems. The proposal here solves this: there are simply only binary units. French furthermore cannot have the SMC, because it has no phonological feet, and it has to get its metrical tension from elsewhere.

One important aspect of this is the caesura. The 12-syllable line in French is called *alexandrin*, and in the classical tradition it has a caesura after the sixth line (marked by a | sign):

- (16) *Il est ce que tu dis, | s'il embrasse leur foi*
Mais il est mon époux, | et tu parles à moi

He is what you say he is if he chooses their religion
But he is my husband, and you are talking to me.
(Pierre Corneille, *Polyeucte* 3.II)

There are thus exactly six syllables preceding the caesura and six following it; the caesura itself corresponds to at least a word boundary and often, as in these cases, to the boundary of some higher order constituent (even if the reader does not speak French, he may see that there is a comma placed at the position of the caesura, orthographically marking a phrase boundary).

What this means is that there has to be an alignment between whatever the constituent is that contains three poetic feet, and some syntactic boundary. Again, there is no indication that any headedness is involved in either the feet themselves, in these higher-order constituents of three syllables each (the colon), or in the line structure of two of such cola. It is true that French has phrasal stress on the final syllable of the phrase, and this means that there is typically some accent on the last syllable before the caesura and at the end of the line. This does not mean, however, that we even need to refer to this stress in our formulation of French syllabic constituency, any more than we do in our constraints on the alignment of prosodic categories to syntactic categories in ordinary spoken French: the stress falls on those ends automatically.

5. Why are poetic feet headless?

The question now is how it is possible that metrical feet are headless to begin with. Are heads not inherent to all linguistic constituents after all? Do we have to abandon the *Development Hypothesis* in (1) and assume that poetic structures are different from ordinary linguistic structures?

As I stated already in the introduction to this paper, I think the key here lies in the fact that metrical feet are always part of an *interface*. A conclusion that is reached by a large body of literature on the phonology-syntax interface is that syntactic structure is only partly visible in phonology, and we can quite clearly delineate where this is (Scheer 2011): the only references are to *edges* of (certain) syntactic constituents. All other information (about features, or about government, agreement and other relations) seem lost to the phonology. The content of syntactic structures – whether we are dealing with a nominal or an adjectival domain – seems less relevant, just like the content of phonology is not relevant to syntax. Syntactic structures, like those of phonology, are clearly headed, but this headedness is again not very relevant to phonology (Van Oostendorp *et al.* 2016). It is only constituent structures that matter in the interface.

Poetic structures, such as ‘feet’, are mostly purely formal, and furthermore parasitic: they only exist in the interface. One cannot say, for instance, that we first build a phonological structure and then submit it to the template, or that we take a template and fill it with phonology in the way in which we can say in the familiar inverted-Y model that we first generate a syntactic structure which is then interpreted phonologically – in a poem the phonological structure and the poetic structure seem

to exist at the same time. The only thing which thus matters to the phonology is the poetic constituency and its edges. Since poetic constituents only exist in their interface with phonology (they have no separate ontology like syntax), they thus behave as if they indeed have no heads.

It is interesting, on the other hand, that the poetic structure can be aligned to various aspects of the phonology: in this paper we have had a look at the classic cases of syllable weight and stress, but in typologies of poetic systems such as Fabb and Halle (2008), we see that it also can also see e.g. tone and alliteration.

There is even a suggestion as to what these poetic constituents can be. An intriguing puzzle of metrical analysis is that prosodification generally seems to care very little about word boundaries; much less so than 'ordinary' phonology. For instance, in all of the traditions we mentioned a word final vowel followed by a word-initial vowel can sometimes count as one syllable, resolving hiatus even though in the languages in question that is not ordinarily done across word boundaries. We can thus tentatively surmise that poetic 'feet' really are not counterparts to prosodic feet, but to morphosyntactic words. Note that in classical languages they were typically the size of two moraic trochees, whereas in English or French they have the size of two syllables – these seem quite typical sizes for words.

It is known that syntactic well-formedness, although of course not completely absent in poetic texts, is much less important in such texts. We may now see why: prosodic structure has taken its position.

References

- Andrews, Richard. 2017. *A prosody of free verse*. New York and London: Routledge.
- Buckley, Eugene. 1994. Persistent and cumulative extrametricality in Kashaya. *Natural Language and Linguistic Theory* 12:423-464.
- Downing, Laura. 1994. SiSwati verbal reduplication and the theory of Generalized Alignment. *Proceedings of NELS* 2. 1:, 81-95.
- Dresher, B. Elan, and Harry van der Hulst. 1998. Head-dependent asymmetries in phonology: Complexity and visibility. *Phonology* 15:327-351.
- Fabb, Nigel. 2010. Is literary language a development of ordinary language? *Lingua* 120.14: 1219-1232.
- Fabb, Nigel. 2015. *What is poetry? Language and memory in the poems of the world*. Cambridge: Cambridge University Press.
- Fabb, Nigel, and Morris Halle. 2008. *Meter in poetry. A new theory*. Cambridge: Cambridge University Press.
- Gentili, Bruno and Liana Lomiento. 2003. *Metrica e ritmica. Storia delle forme poetiche nella Grecia antica*. Milano: Mondadori.
- Golston, Chris, and Tomas Riad. 1999. The phonology of Classical Greek meter. *Linguistics* 38.1:99-167.
- Golston, Chris, and Tomas Riad. 2005. The phonology of the Greek lyric meter. *Journal of Linguistics* 41:77-115.

- Halle, Morris and William J. Idsardi. 1995. General Properties of Stress and Metrical Structure. In John Goldsmith (ed.) *A Handbook of Phonological Theory*. Oxford: Blackwells, 403 - 443.
- Halle, Morris, and Samuel Jay Keyser. 1971. *English stress. Its form, its growth, and its role in verse*. New York: Harper and Row.
- Halle, Morris, and Jean-Roger Vergnaud. 1987. *An essay on stress*. Cambridge, Mass.: MIT Press.
- Hanson, Kristin, and Paul Kiparsky. 1996. A parametric theory of poetic meter. *Language* 72: 287-335.
- Hayes, Bruce. 1980. A Metrical Theory of Stress Rules. PhD Dissertation, MIT.
- Hayes, Bruce. 1981. Extrametricality and English Stress. *Linguistic Inquiry*, 13.2: 234-235.
- Hayes, Bruce, Colin Wilson and Anne Shisko. 2012. Maxent grammars for the metrics of Shakespeare and Milton. *Language* 88.4: 691-731.
- Kossmann, Friedrich K. H. 1922. *Nederlandsch versrythme. De versbouwtheorieën in Nederland en de rythmische grondslag van het Nederlandsche vers*. Den Haag: Martinus Nijhoff.
- Liberman, Mark, and Alan Prince. 1977. On stress and linguistic rhythm. *Linguistic Inquiry* 8: 249-336.
- Oostendorp, Marc van. 2013. σ strikes back: A defense of headedness and constituency in phonology. *The Linguistic Review* 30.2: 347-371.
- Oostendorp, Marc van, Michael T. Putnam and Laura Catherine Smith. 2016. Intersecting constraints. Why certain constraint types overlap whereas others don't. In: Géraldine Legendre, Michael T. Putnam, Henriëtte de Swart, and Erin Zaroukian (eds.) *Optimality-Theoretic Syntax, Semantics and Pragmatics*. Oxford: OUP.
- Scheer, Tobias. 2011. *A Guide to Morphosyntax-Phonology Interface Theories. How Extra-Phonological Information is Treated in Phonology since Trubetzkoy's Grenzsignale*. Berlin: Mouton De Gruyter.
- Tarlinskaja, Marina. 1976. *English verse. Theory and history*. The Hague: Mouton.
- Tarlinskaja, Marina. 1987. *Shakespeare's verse. Iambic pentameter and the poet's idiosyncracies*. New York: Peter Lang.
- Vaissière, J. (1991) Rhythm, accentuation and final lengthening in French. In: J. Sundberg, L. Nord, & R. Carlson (eds.), *Music, language, speech and brain*, pp. 108-120.
- Watson, Janet. 2002. *The phonology and morphology of Arabic*. Oxford: Oxford University Press.