Stress shift in Dutch hexameters

Anneke Neijt

0. Introduction

The majority of recent publications in generative phonology is based on the hypothesis that there is one abstract representation for stress, accent and rhythm, or on the hypothesis of representations that are derived from each other.[1] These hypotheses receive support form the existence of connections and dependencies between the phenomena described. The present paper follows a different line of research: it assumes a modular organization of prosodic structure, with autonomous levels that are related to, but not transformationally derived from each other. The feasibility and naturalness of this approach is illustrated with the help of an account of word distribution in De Roy van Zuydewijn's *Odyssee* (1992), a modern Dutch translation of Homer's Odyssey in fairly strict hexameters. Data will be presented to show that the hexameters are conditioned by stress, not by accent, and that the relation between stress and poetic meter can be established on the basis of metrical deep structures in terms of the Disyllabic Word Constraint, a reformulation of the Monosyllabic Word Constraint that has been developed for English iambic verse.

As the approach followed here is a modular one, autonomous levels represent stress, accent and meter. Although stress is the most central of these levels, it is assumed that one level of description for stress is sufficient, even for stress shift phenomena. Rhythmic Adjustment in nominal compounds, cf. *tímmerman-(scheeps)timmermán* '(ship)carpenter' follows as a consequence of the Disyllabic Word Constraint. The distribution of words with Stress Retraction such as *boogvórmig-bóógvormig* 'bow-like' follows likewise if such words are considered prosodic phrases in stead of compounds.

1. Stress and accent

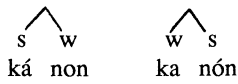
In Dutch, stress identifies words. In rare cases it is the only difference between segmentally homophonous words, cf. *kánon-kanón* 'cannon-canon'. The difference

[1] Discussions with Kees Fens and Karijn Helsloot were the onset of this study. The nucleus was the willingness of De Roy van Zuydewijn to send me his manuscript in machine-readable form. The coda was formed by the comments of Karijn Helsloot, Anneke Nunn, Carlos Gussenhoven and De Roy van Zuydewijn. I gratefully acknowledge their contributions.

AVT 10 (1993), 93–104. 10.1075/avt.10.11nei
ISSN 0929–7332 / E-ISSN 1569–9919

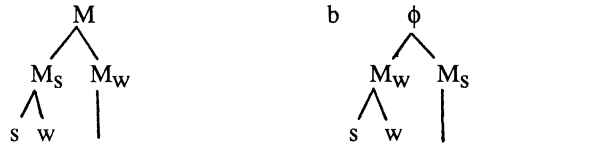
is expressed by means of the representations in (1) (setting aside irrelevant details), with small *s* and *w* for strong and weak stress:

(1)



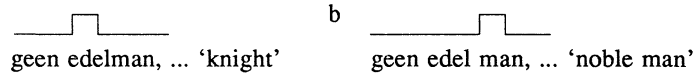
The syllable with primary stress is the syllable dominated by strong nodes only. It is called the 'designated terminal element' (DTE). Stress also reflects morphological and syntactic constituent structure: *édelman* 'knight' is a compound that receives compound stress (the left node is strong), whereas *edel mán* 'good, noble man' is a phrase with a stronger right node, e.g. (2) (*M* and ϕ abbreviate *mot* and *phrase*):

(2) a b



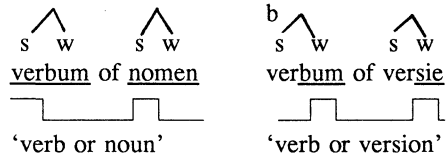
The position of primary stress can be perceived easily if the word or phrase is in focus, since then the DTE bears accent. In (2a) this is the first syllable, in (2b) it is the final syllable, as can be seen in contexts such as *geen édelman, maar een boer* 'not a knight, but a farmer' and *geen edel mán, maar een groot vorst* 'not a noble man, but a great king'. Accent is realized as a tonal movement (cf. Pierrehumbert 1980, Gussenhoven 1984, Baart 1987): usually, the tone aligned with the utterance shifts to a higher level, cf.:

(3) a b

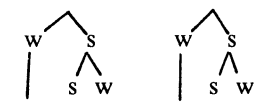


In these examples stress and accent coincide, but this is only so under wide scope, i.e. when full constituents are in focus, cf. (4a) and (5a). In the case of narrow scope (i.e. when parts of constituents are in focus), stress and accent no longer coincide, cf. (4b) and (5b) (underlining indicates the scope of focus):

(4) a b



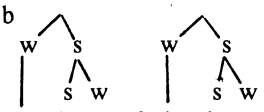
(5) a



drie dagen of vier jaren

'three days or four years'

b



drie dagen of vier dagen

'three days or four days'

In sum, the difference between stress and accent is that stress reflects morphological and syntactic structure, whereas accent expresses the distinction between old and new information.[2]

2. *Poetic meter*

In classical poetry, lines of verse are organized into feet with a regular distribution of macron and breve (strong and weak positions), represented by capital *S* and *W* in order to distinguish these from the small *s* and *w* that represent stress.

Meter, the choice of poetic constituency and recurrence of beat patterns, is established beforehand in classical verse. It is largely independent of the content. Consider the way telephone numbers get their prosodic structure: *615316* can be represented as *61-53-16, 6-15-3-16, 615-316*, etc. The most acceptable beat pattern is the iambic pattern, but other patterns are possible:

(6) a ˘6 ¯1 - ˘5 ¯3 - ˘1 ¯6 (iambs)
b ¯6 ˘1 - ¯5 ˘3 - ¯1 ˘6 (trochees)
c ˘6 ˘1 ¯5 - ˘3 ˘1 ¯6
d ¯6 ˘1 ˘5- ¯3 ˘1 ˘6 (dactyls)

Ordinary language is less flexible, but still allows several scansions. For instance: a phrase such as *sprak een stem tot Piet* 'spoke a voice to Piet' figures adequately in trochaic and iambic lines (Loots 1979), cf. (7):

---

[2] It has been proposed (e.g. in grid versions of metrical phonology, cf. Selkirk 1984, Gussenhoven 1991 and others) that accents should be represented in metrical or prosodic structure, thereby distinguishing metrical surface and deep structure. Below, it will be shown that accent positions are irrelevant to the aspects of poetic meter in the *Odyssee* discussed here, and that metrical deep structure provides sufficient information for the description of the distribution of words with a so-called vacillating stress pattern.

(7) a Sprāk ěen / stēm tŏt / Pīet.
b Er sprāk / ěen stēm / tŏt Pīet.

These examples illustrate the difference between meter on the one hand and stress and accent on the other: meter is assigned by free choice and conscious reflection, whereas stress and accent are dictated by the language and assigned automatically. Language users assign different beat patterns to an utterance, especially when the linguistic structure is short and unarticulated, as in telephone numbers. The fact that different possibilities are allowed, presumably causes the assignment of beat patterns to take some time; only after several attempts will one find the best pattern for an utterance.

The *Odyssee* consists of hexameters, i.e. each line has six feet. The first four feet are dactyls or trochees, the fifth is a dactyl and the final one a trochee, cf.:

(8) Zēlf mět mĭjn ēigěn schīp ěn ēigěn vārěnsgězēllěn (ix,173)
drūivěntrōssěn năast drūivěntrōssěn, vījgěn năast vījgěn. (vii,121)
ōngělŭkshēld dič zŏ lāng, văn dě zījněn věrwījděrd, gěkwēld wŏrdt (i,49)

These hexameters share a number of constraints with English and Dutch iambic verse (Halle and Keyser 1971, Kiparsky 1975, 1977, Zonneveld 1992): as in iambic verse, a single syllable occupies a position in the hexameters, but if two vowels are adjacent or separated by a sonorant, two syllables may occupy a single position (a ligature indicates this; the dots indicate incomplete parts of lines):

(9) a de^ōvěrstěek hādděn vŏlbrācht, ... (iii,179)
b 'Mōeděrtjě, dōe me^ěen plězīer ... (ii,349)
c ... brōod ěn fōnke^lěndě wījn ěn zě Īiet me^ěen (vii,295)

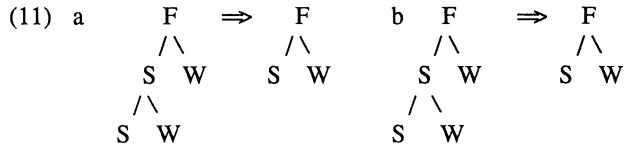
In such cases, at least one of the vowels is schwa.

The disyllabic foot of the *Odyssee* consists of macron and breve, SW rather than SS, since syllables with schwa occur in the second position of this foot (cf. *eigen, druiven, trossen* in (8)). The choice of SW over SS allows (10) as a general constraint for the *Odyssee*:

(10) No syllables with schwa are in S position.

A similar remark concerns dactyls. They must be represented as SWW, since otherwise words such as *mannetjeszwijnen* (xiv,16), *verschriklijke* (v,109) and *verschrikkelijk* (ix,190) with two consecutive schwa's, indicated by small letters, would violate constraint (10).

Although SWW seems the obvious choice for dactyls, Prince (1989:58) presents two arguments in favor of another structure, SSW, for Ancient Greek hexameters. Prince's first argument is, that the derivation of a disyllabic foot is stated more easily. The left branching dactyl in (11a) does not represent the intuition that dactyls divide into two metrical positions, with a further split of the second position:



However, one might likewise argue against (11b), since this structure misses the generalization usually present in prosodic structure, that that W is non branching.

Prince's second argument relates to the distribution of the caesura. In classical hexameters, a word boundary may not fall at the center of the line (between the third and fourth foot), but must be one or two syllables before the middle of the line, or one syllable thereafter. This constraint can be stated elegantly only for (11b): the caesura must fall no more than one metrical constituent from the center, which is one or two syllables to the left and one syllable to the right of the center in a right branching structure.

This empirical argument does not hold in the *Odyssee*, in which the caesura (indicated by slashes) occurs also at the center of the line or two syllables thereafter:

(12) *Caesura at the center of the line*
dēzĕ ŏmhōog, ĕn Peĭsīstrătŏs, / lēidĕr văn 't vōlk, ... (iii,454)
wērkte ăan eĕn grōot, ŏnvĕrgānkĕlĭjk / wēefsĕl, ... (x,222)

(13) *Ceasura two syllables after the center of the line*
Ārgŏs, dĕ hōnd văn dĕ ōnvĕrschrōkkĕn / Odȳssĕus, ... (xvii,392)
wāar ĭn dĕ hūizĕn eĕn ōnvŏorstēlbăar / bĕzīt ĭs vĕrzāmĕld. (iv,127)

On these data no arguments for Prince's SSW structure of the dactyls in the *Odyssee* can be based. The general constraint (10) is a strong argument in favor of SWW, and as a second argument for SWW, the possibility of a secondary beat on the third syllable can be added, cf. (14) where grave accents indicate such beats:

(14) dwāas ăls zìj wārĕn òm Zōnnĕgòd Hēlĭòs' rūnd^erĕn tè ētĕn (i,8)

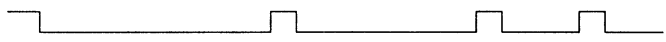
This distribution of beats is accommodated by SWW as structured in (11a), in which the final W is stronger than the first one.

3. The relation between accent, stress and meter

As accent and stress are different aspects of prosody, the question of the relation between either of these and poetic meter must be addressed separately. Observe that accents occur in S positions:

(15)

Mūzĕ, vĕrhāal văn dĕ mān văn vēlĕrlĕi wēgĕn, dĭe hēel lăng

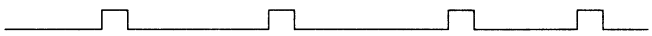


rōndzwĭerf, nădāt hĭj dĕ hēilĭgĕ būrcht văn Trōjĕ vĕrwōest hăd.(i,2)

The number of accents per line is variable, and sometimes other readings are available. On the basis of (15), we might conclude that accents are constitutive elements of the hexameter, as they never occur in W positions. This is not generally the case, however, as shown in (16):

(16)

a



ĭn ĕen ĭmpūls ĕn ōp ĕen *nĭet* pāssĕnd mŏmēnt, tŏen dĕ āvŏnd (iii,138)

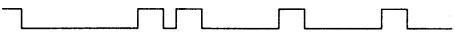
b

Hĭj, āls hĭj wīl, zăl mĭj kūnnĕn gĕnēzĕn, zŏāls *nĭemănd* ānděrs, (ix,520)

c

Dāar dăn lāg hĭj, zĭjn hōofd năar *ĕén* zījdĕ gĕkēerd, ... (ix,372)

d



én văn ŭw schīp *én* ŭw mānnĕn. En ōok ... (xi,113)

In (16c-d), the author has marked the relevant accents with diacritics, providing further evidence for the conclusion that accents may occur on W positions. The fact that accents usually are on S positions can be explained by the fact that accents relate to stress and that stress has a strict correspondence with poetic

meter. As accent and stress need not coincide, it follows that accent and meter do not either.

In above mentioned English studies, different accounts have been presented of the relation between stress and iambs. Halle and Keyser (1971) use the Stress Maximum Principle: 'A stress maximum may only occupy even positions within a verse, but not every even position need be so occupied.' A stress maximum is formed by any syllable receiving greater stress than the two syllables adjacent to it in the same line of verse. The principle is formulated in the phonological tradition of the sixties, which explains the use of even and odd positions in the line instead of syllables, higher prosodic constituents such as poetic feet, and S or W positions therein. Kiparsky (1975, 1977) replaces the Stress Maximum Principle with the empirically preferable Monosyllabic Word Constraint, cast in the modern prosodic framework. The constraint requires major stresses in W positions to be monosyllabic words. Kiparsky's formulation of the rule is as follows (1977, 195):

(17) *Monosyllabic Word Constraint*
There is no correspondence of the form <s,W>, where s is a lexical stress.

This constraint is based on the assumption that lexical stress is present for words of more than one syllable, not for monosyllabic words. The constraint prohibits main stress (the DTE) of polysyllabic words to be aligned with the W position of the iamb.

Dactyls display two weak positions, which suggests that for these feet, the Monosyllabic Word Constraint must be replaced by the Disyllabic Word Constraint: lexical stresses of disyllabic words, but not of words with more than two syllables, are predicted to be found in the weak positions of a dactyl. This prediction is borne out in the *Odyssee*:

(18) *Disyllabic words in WW position*

... hĕt lā̆nd *ŏnzĕr* vā̆d^erĕn (x,420)	'our'
Vī̆er *dăgĕn* dēed hī̆j ĕrō̆vĕr ... (v,262)	'days'
'Hō̆or, Eŭmā̆iŏs, dăar kō̆mt *ĭemănd* ā̆an, ... (xvi,8)	'somebody'
... bĕzō̆cht ĭk ĕen grō̆ot *ăantăl* lā̆ndĕn. (iv,268)	'number'
wā̆nt *wănnĕer* ù dĭe vĕrkwī̆sttĕ ... (ii,75)	'when'
... wănt hī̆j *vĕrmăg* ā̆llĕs. (iv,237)	'can do'

The following reformulation of (17) accounts for this distribution:

(19) *Disyllabic Word Constraint*

a There is no correspondence of the form <s,W>, where s is the DTE of words of more than two syllables.

b There is no correspondence of the form <s,W>, where s is the DTE of words of two syllables, unless the weak sister node of this s is in W position as well.

This rule incorporates the Monosyllabic Word Constraint; it allows both mono- and disyllabic words to be in W positions. The constraint holds for nominal compounds as well (which in Dutch are written as words, i.e. not separated by spaces): the DTE of compounds of more than two syllables is always in S position, disyllabic words embedded in compounds may be in WW position:

(20) *Disyllabic words within nominal compounds*

a	dīe vŏor hĕt hōgĕ *vōorpŏrtăal* stōndĕn ... (iii,408)	'front porch'
b	... tŏt *ēchtgĕnŏot* wēnstĕ. (i,15)	'husband'
c	... *strījdwăgĕnmān* uĭt Gĕrēniă, ... (iii,68)	'chariot man'
d	... *gāstvrĭendschăp* slōtĕn, (xvii,69)	'guest friendship'

Observe that Rightward Rhythmic Adjustment in nominal compounds (Gussenhoven 1983, Gilbers 1987, Kager and Visch 1988, Visch 1989) follows from the Disyllabic Word Constraint: in such cases a mono- or disyllabic part of a nominal compound is in W position. Examples are *áanvoerders - légeraanvòerder* (iv,156; 'leader - army leader', *áppelbomen - granáatappelbòmen* (vii,115; 'apple trees - pomegranate trees', *tímmerman - schéepstimmermàn* 'carpenter - ship carpenter'. This is possible even for DTE's of compounds embedded, as long as the DTE of the compound in toto is in S position, cf.:

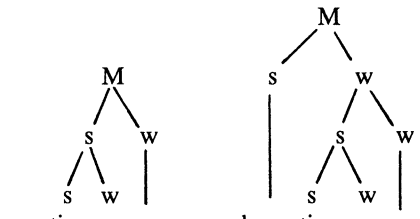
(21) a ..., ăls ĕen *schēepstĭmmĕrmān* dĭe ĕen gāt ... (ix,384)

b ... dĭe ĕen *tīmmĕrmăn* dēstĭjds (xvii,340)

c ..., ĕen *tīmmĕrmān* ŏf ĕen dōktĕr, (xvii,384)

The word *timmerman* is aligned with WWS in *scheepstimmerman* (21a) although this alignment is not found elsewhere, and seems impossible outside this context. The only contexts for *timmerman* not embedded in a compound are SWS and SWW, cf. (21b) and (21c). These findings are represented schematically in (22):

(22)



a	*W W S	S W W S
b	S W S	*W S W S
c	S W W	*W S W W

This distribution thus follows from the Disyllabic Word Constraint if the DTE of words is taken to be also the DTE of the top node of compounds, not the DTE of the compounds embedded in compounds. WWS for *timmerman* in (22a) is then not allowed, since the DTE of this word *tim-* is not aligned with S. It is allowed in *scheepstimmerman*, however, with *scheeps-* as DTE, and (22b,c) show that *scheeps-*, being the DTE, always must be aligned with S.

4. Stress Retraction

As shown above, the variable scansions within nominal compounds are allowed by the Disyllabic Word Constraint, but this constraint does not allow the freedom of scansion present in other types of compounds, e.g. the adjectival ones, such as *fijndradig* 'fine-thread-ed', *gastvrij* 'hospitable', *toekomstig* 'future-al', and *boogvormig* 'bow-like'. In many instances ambiguous scansions are available for these words, cf. (23), but (24) and (25) contain examples which are either scanned as WS or SW.

(23) *Ambiguous scansions*

gr$\bar{o}$ot ĕn *fijndradĭg* kl$\bar{e}$ed ĕn spr$\bar{a}$k ... (ii,95)
die mĭj *gastvrij* ŏnth$\bar{a}$ald ĕn ... (xiii,206)
$\bar{o}$m zĕ ŏp d$\bar{e}$zĕ m$\bar{a}$n$\bar{i}$er vŏor *toekomstĭg* kw$\bar{a}$ad tĕ bĕh$\bar{o}$eděn. (ii,179)

(24) *WS scansions*

n$\bar{a}$ast hăar, gĕv$\bar{u}$ld mĕt *fijndr$\bar{a}$dĭgĕ* g$\bar{a}$rĕns, ... (iv,134)
D$\bar{e}$zĕ ŏntv$\bar{i}$ng mĕ *găstvrij* ĭn zĭjn h$\bar{o}$oggĕz$\bar{o}$ldĕrd păl$\bar{e}$is ĕn (xvii,110)
$\bar{i}$n hăar *bŏogv$\bar{o}$rmĭgĕ* gr$\bar{o}$t, dăar z$\bar{i}$j hĕm tŏt $\bar{e}$chtgĕnŏot w$\bar{e}$nstĕ. (i,15)

(25) *SW scansions*
wērděn zĭj *gāstvrĭj* ŏntvāngĕn ĕn ... (iii,490)
'Wīe zăl zēggĕn ōf hĭj nĭet zēlf ŏp zĭjn *bōogvŏrmĭg* vāartŭig, (ii,332)
zēttĕ zĭjn mōeděr zĭch nēer ĕn wōnd hĕt *fĭjndrădĭg* gārĕn (xvii,97)

These examples, instances of Stress Retraction (cf. Gussenhoven 1983, Kager and Visch 1988, Visch 1989, Neijt 1990) appear to be counterexamples to the Disyllabic Word Constraint, which allows ws constituents to align with WS or WW, but not with *SW. However, these compounds are distinct from ordinary compounds in their phrasal stress, which suggests that adjectival compounds are phrases instead of compounds. Illustrative in this respect is the fact that *gastvrij* in *gastvrijheid* 'hospitality', a noun derived from the adjectival compound, only occurs at the WS position.

(26) vōrst văn hĕt vōlk děr Sĭdōnĭërs dīe mĕ *găstvrījhĕid* vĕrlēendĕ, (iv,618)

The above data therefore contribute to the discussion concerning the status of such kinds of compounds, cf. Trommelen and Zonneveld (1976), who argue that they are phrases, and Backhuys (1989), who argues against this. If these adjectives are phrases, their behaviour follows without further ado from the Disyllabic Word Constraint.

5. Conclusions, consequences and directions of future research

The above description of the relation between poetic meter, the predefined beat pattern of lines of verse, and linguistic aspects of prosody such as accent and stress shows that poetic meter in the *Odyssee* is based on stress, not on accent, and that the relation between stress and meter can be defined in terms of the Disyllabic Word Constraint. This constraint allows different scansions of words within compounds, and thereby renders Rhythmic Adjustment superfluous. The constraint holds for nominal compounds, not for adjectival ones. Adjectival compounds show the freedom of scansion attained in phrases. If indeed these compounds are phrases (for which conclusion independent evidence has been provided in the literature), the relation between poetic meter and stress can be defined on the basis of metrical deep structure.

In a modular approach to stress and meter, Rhythmic Adjunction and Stress Retraction are no longer rules of an ad hoc nature, but are predicted to occur by the rule defining the relation between stress and meter. Stress can be represented by a structure that is similar to syntactic and morphological structure for a large

part; presumably the only difference being that stress structures are less deeply embedded.

Observe that the Disyllabic Word Constraint formulates the relation between stress and meter for words and nominal compounds, not for higher prosodic constituents. The relation between accent, stress and meter for these higher constituents needs further study, as shown by (27), some of the very few examples of lines with five feet in the *Odyssee*:

(27) 't schip en stuur op die klip aan, maar zorg te vermijden (xii,220)
Maar op zijn minst zal ik heer van mijn huis zijn en meester (i,397)

Both could be considered hexameters on the basis of the Disyllabic Word Constraint, since these lines consist of monosyllabic words. The scansions obtained then, however, are counterintuitive. For this, other constraints than the Disyllabic Word Constraint must provide an explanation.

In the final stage of preparation, I received Beltman, Holtman and Zonneveld (to appear), a study of *Odysseia*, also a recent metrical translation of Homer's work. Both the theoretical point of departure of this study and the prosodic characteristics of the *Odysseia* are different, which is why a comparison of both approaches and poems is left for future research.

References

Baart, J.L.G. (1987) *Focus, Syntax and Accent Placement*, Unpublished PhD dissertation, University of Leiden.

Backhuys, K. (1989) 'Adjectival Compounds in Dutch', in H. Bennis and A. van Kemenade eds., *Linguistics in the Netherlands 1989*, Foris, Dordrecht, 1-10.

Beltman, J., A. Holtman and W. Zonneveld (to appear) 'De Nederlandse *Odysseia* als Dactylisch Gedicht', *TNTL*.

Gilbers, D. (1987) 'Ritmische Structuur', *GLOT* 10, 271-292.

Gussenhoven, C. (1983) 'Stress Shift and the Nucleus', *Linguistics* 21, 303-339.

Gussenhoven, C. (1984) *On the Grammar and Semantics of Sentence Accents*, Foris, Dordrecht.

Gussenhoven, C. (1991) 'The English Rhythm Rule as an Accent Deletion Rule', *Phonology* 8, 1-35.

Halle, M. and S.J. Keyser (1971) *English Stress: Its Form, its Growth and its Role in Verse*, Harper and Row, New York.

Kager, R. and E. Visch (1988) 'Metrical Constituency and Rhythmic Adjustment', *Phonology* 5, 21-71.

Kiparsky, P. (1975) 'Stress, Syntax and Meter', *Language* 51, 576-616.

Kiparsky, P. (1977) 'The Rhythmic Structure of English Verse', *Linguistic Inquiry* 8, 189-247.

Loots, M.E. (1979) *Metrical myths. An Experimental-phonetic Investigation into the Production and Perception of Metrical Speech*, PhD dissertation, Utrecht.

Neijt, A. (1990) 'Prosodic Structures and Phonetic Findings - the Case of Equally Stressed Adjectives', in P. Coopman and R. Bok, eds., *Linguistics in the Netherlands 1990*, Foris, Dordrecht, 113-122.

Pierrehumbert, J.B. (1980) *The Phonology and Phonetics of English Intonation*, PhD dissertation, MIT.

Prince, A. (1989) 'Metrical Forms', in P. Kiparsky and G. Youmans, eds., *Rhythm and meter*, Academic Press, Orlando, 45-80.

Roy van Zuydewijn, H.J. de (1992) *Homerus* Odyssee, De Arbeiderspers, Amsterdam.

Selkirk, E.O. (1984) *Phonology and Syntax: the Relation between Sound and Structure*, MIT Press, Cambridge, Massachusetts.

Trommelen, M. and W. Zonneveld (1986) 'Dutch Morphology: Evidence for the Righthand Head Rule', *Linguistic Inquiry* 17, 191-200.

Visch, E.A.M. (1989) *A Metrical Theory of Rhythmic Stress Phenomena*, PhD dissertation, Utrecht University.

Zonneveld, W. (1992) 'Van Afflighem en Chaucer: *Het leven van Sinte Lutgart* als Jambisch Gedicht', ms., University of Utrecht.