

# The Measure of Middle Dutch: Rhythm and Prosody Reconstruction for Middle Dutch Literature, a Data-Driven Approach

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It is generally agreed that medieval literature was primarily intended to be read aloud (instead of being read silently). The aural qualities of medieval texts have nevertheless remained difficult to reconstruct in scholarship and continue to be elusive. In Middle Dutch philology too, it remains a controversial issue as to what extent poets made consistent use of rhythmic and prosodic patterns to stylize their texts. The vast majority of Middle Dutch rhymed texts attests to the use of what is called the ‘accentual’ or ‘strong-stress meter’. This meter is characterized by a fixed number of stressed syllables (beats) in each verse line. The number of unstressed syllables that is inserted between them, on the other hand, is highly variable (Zonneveld 2000).

Since there is no clear relation between the position of syllables and the stress they receive, the assignment of stress in verse lines is often a matter of a researcher’s individual, potentially biased opinion. Unsurprisingly, this approach has led to numerous discussions about the rhythmic qualities of Middle Dutch literary texts. Ad hoc claims about rhythmic qualities of texts abound in secondary literature. For example, the author of *Van den vos Reynaerde* has been praised as a language virtuoso and his verses have been characterized as both ‘snappy’ and ‘fluid’ (Van Oostrom 2006). Very much unsubstantiated, however, these stand-alone claims remain difficult to assess, especially for a non-expert audience.

Assigning stress to Middle Dutch literary texts has hitherto proven to be a perilous undertaking that has kept scholars occupied for many decades. Some more recent attempts at tackling the issue confide in projecting research on metrical patterns – often borrowed from generative linguistics – onto Middle Dutch texts (e.g. Zieleman 1987; Fikkert 1998; Zonneveld 2000; Goossens 2002). However, in this theory-driven framework, scholars frequently have to make texts fit these intricate patterns in a highly artificial way, while allowing numerous emendations and exceptions. But also the degree of rigidness to which a specific linguistic formula is imposed on a poem often determines whether that poem can be called metrical or a-metrical. In other words, these top-down techniques not only serve as tailor-made straightjackets, but they also quite often distort the picture of literary texts’ rhythmic features.

In this conference paper, I present a computational, data-driven approach, which attempts to reconstruct and study the rhythm and prosody of Middle Dutch texts in a bottom-up fashion. By giving greater weight to the actual texts, this research can be argued to have a more reliable and solid starting point than intuitive, expert-based claims or constraint-governed templates.

The methodology of this research draws its inspiration from computational and corpus linguistics. The many rhyme pairs in Middle Dutch texts contain valuable information about prosodic properties of words. By definition, in the acoustically corresponding part of verse-final rhyme words, the accent is always on the first identical vowel (Geurts 1904; Kestemont 2012). This characteristic allows us to determine that the words in the following rhyme pairs display the following stress patterns:

tehant : verstant	→	x /
makede : wrakede	→	/ x x
historie : glorie	→	x / x and / x

(The notation used above takes the symbol ‘x’ to indicate an unstressed syllable. A slash ‘/’ is used to denote a syllable that receives stress.)

As a result, rhymes provide us with a privileged insight into the stress patterns of historic words. They allow us to effortlessly construct a large inventory of words for which the stress pattern can be derived automatically. Benefiting from the prosodic properties of rhymes, it is possible to build an inventory of stress-annotated rhyme words. Subsequently, these prosodic patterns of rhyme words can be projected onto their duplicates that occur outside rhyme position.

This paper mainly reports on two aspects of the research. Firstly, it discusses the preliminary investigation that has been carried out with respect to the coverage ratio of the rhyme words. This ratio is remarkably high. Through reorganizing the words that occur in rhyme position onto other positions inside verse lines, it is possible to reconstruct 61% of full verse lines of the entire corpus. This annotated data will be used as input data for Machine Learning algorithms, which can be trained to automatically infer the stress patterns in new texts that are not part of the initial training corpus. Secondly, this paper reports on the pre-processing of the data. An important aspect of this is the assignment of meta-data to the individual texts of the corpus. Information about genre, date and location of origin is necessary when – in a later stage of this research – we will look for meaningful connections between different texts and their specific rhythmic patterns.

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