



Analysing the Focus of a HAN: The Importance of Enjambents When Classifying Post-Modern Poetry

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ABSTRACT:

Modern and post-modern *free verse poems* feature a large and complex variety in their poetic prosodies that falls along a continuum from a **more fluent to a more disfluent and choppy style**. We investigate the **free verse spectrum** of modern and postmodern poetry and we have previously shown that we can classify poems along this continuum.

In this poster, we investigate **whether our model uses similar traits** of a poem for classification as humans do, in particular: enjambments.

We analyse whether the **attention of the model** coincides with the **occurrence of enjambments** and we find that it does not, although we can also show that the model is able to identify enjambments. This indicates that enjamb'd lines are as informative as other lines, **unlike as hypothesized** by literary study.

The Prosody of Free-verse Poetry

At least 80 per cent of modern and **postmodern poems have no rhyme** nor metrical schemes such as iambic or trochaic meter. Does this, however, mean that they lack any rhythmical features?

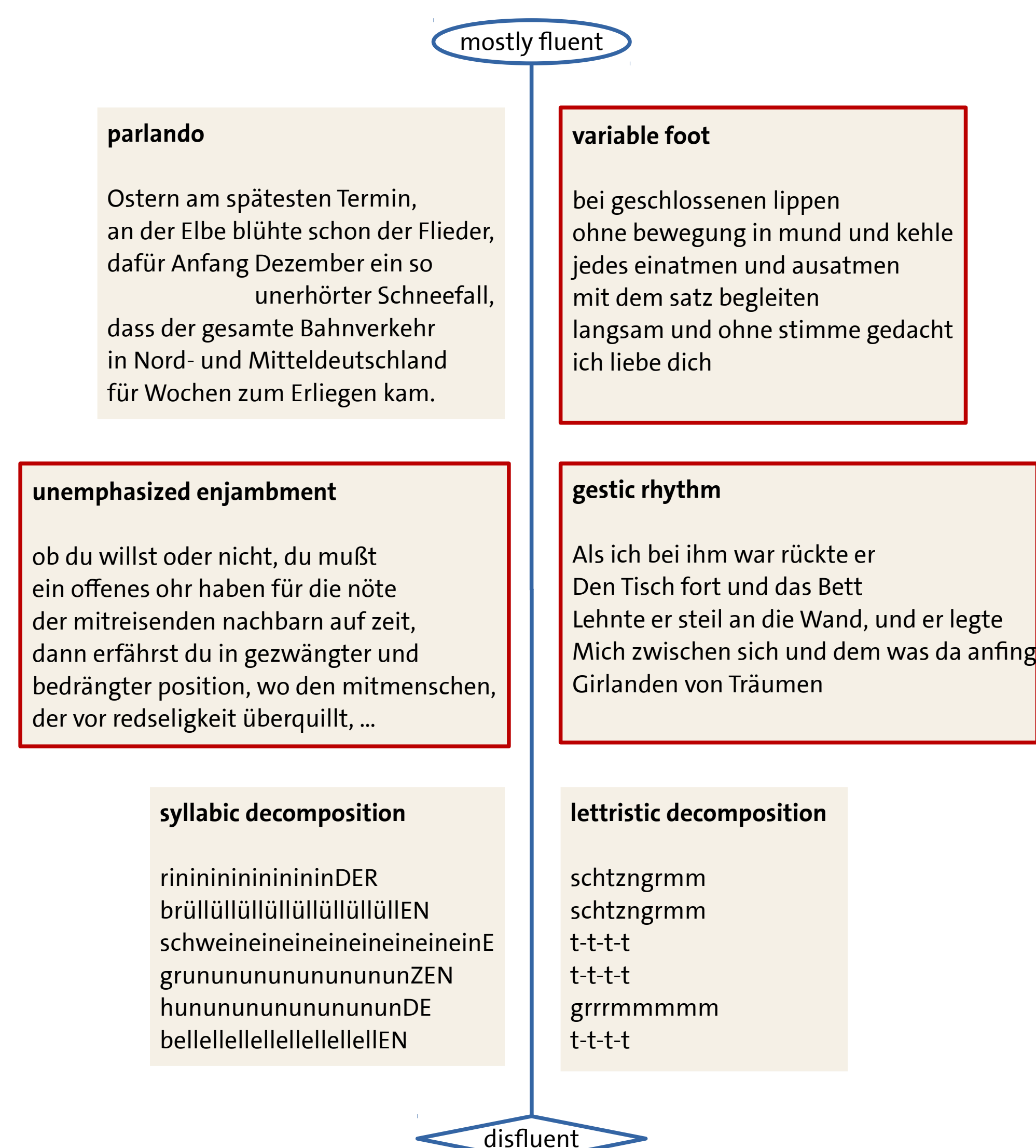
In contrast, the opposite is true: modern poets like Whitman, the Imagists, the Beat poets, and contemporary Slam poets developed a **post-metrical idea of prosody** that employs rhythmical features of everyday language, prose, and musical styles.

The **use and style of enjambments** (strong or weak) and their performance in reading (stressed or unstressed) differentiates poetic styles. W.r.t. these differences we define the following classes:

- parlando style**: mostly fluent reading of colon-based lines
- variable foot**: natural breathes between colon-based lines
- unemphasized enjambment**: enjambments but not stressed in reading
- gestic rhythm**: emphasis on 'hard' enjambements
- syllabic decomposition**: dadaistic *sound poetry* with syllables as base
- lettristic decomposition**: sound and visual decomposition of the text

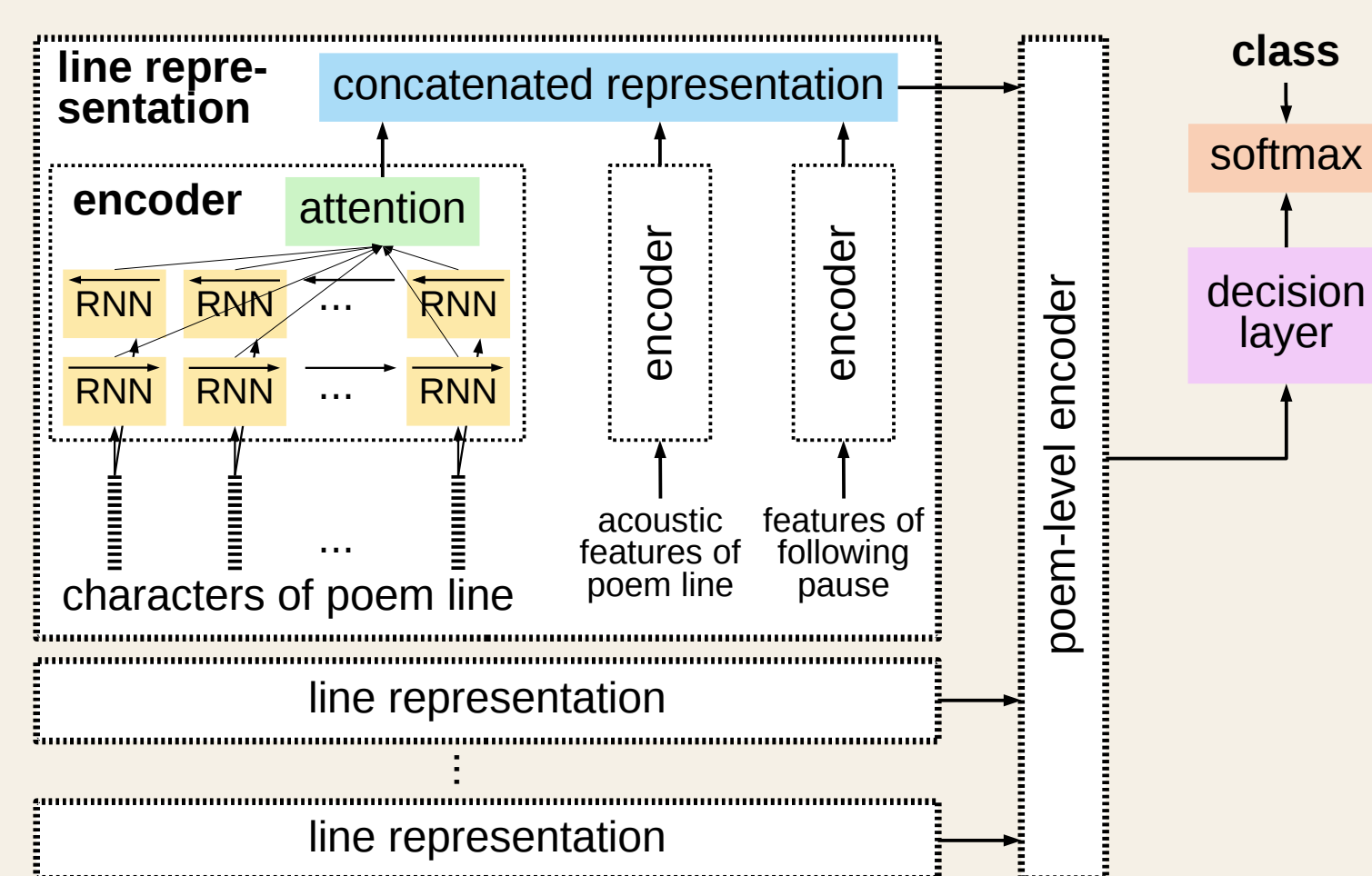
In this paper, we focus on styles that differ by their use of enjambment:

this paper



Model

We build a hierarchical neural attention network (HAN) for style classification:



- main **encoder block**: BiGRU RNN with attention
- encode line **text** based on character encodings
- encode **line acoustics** based on MFCCs & FFVs
- also encode **acoustics of pause** before next line

- concatenate into line representation

- **hierarchically encode** line-by-line representations to **poem representation**
- classification decision based on poem representation
- attention helps **understand model** classification decisions

? We analyse the model's **line-by-line attention** wrt. whether it pays (relatively) **higher attention to lines that contain enjambments**: these are the lines that (according to literary theory) differentiate the poetic types.

Data Sources/Material

We collaborate with *lyrikline.org*, a website containing hundreds of hours of author-spoken poetry; the German sub-corpus contains 52 hours.

The third author manually assigned a small subset of 175 poems to their rhythmical class as shown below.



	poems	lines	characters	audio
<i>lyrikline</i> : German subcorpus	2392	61849	2025484	52 h
parlando	34	1435	44323	67 min
variable foot	34	878	23684	39 min
unemphasized enjambment	36	1090	33178	48 min
gestic rhythm	33	897	27741	44 min
syllabic decomposition	21	540	12390	26 min
lettristic decomposition	17	684	10007	31 min
deutschestextarchiv.de	—	34291	996714	—

Implementation

text input is via **character embeddings**
forced alignment of speech+text, manual alignment where software fails
extract **MFCCs** and **FFVs**, **z-normalize** each dimension
mean/stddev aggregation every **10 frames**

We implement our neural model in dyNet.

- To increase number of training instances, we
- first train a line-by-line encoder and decision layer that classifies every line (5524 instances)
- then train a poem-level encoder and decision layer for all poems (175 instances)

We perform 25-fold cross-validation.

Investigating Enjambments

Syntactic constituents and lines
Will often coincide in poetry. ←no enjambment

Disalignment between syntax and
lines is called enjambment. **Such**
lines break within constituents. ←enjambment

Annotate 2286 lines in 103 poems wrt. whether they are enjambments.

→ 2 annotators, **high agreement**: $\kappa = 0.89$

→ 59% of lines are considered enjamb'd

Classifier to identify enjambment of a line: 91% f-measure

→ similar to human agreement

Classification Results

classification task	f-measure	relative attention on enjambments
1. classify into 6 poetic-prosodic styles	0.73	
2. identify enjambment-dominated poems	1.	
3. classify 3 styles of enjambment-dominated poems	0.69	0.98
4. classify enjambment lines including 'unclear' cases	0.69	—
5. classify enjambment lines excluding 'unclear' cases	0.91	—
6. classify 3 styles with explicit notion of enjambmt	0.70	1.

- good performance across most classes (avg. f-measure: .73)
- perfect identification of enjambment-dominated poems
- good performance differentiating enjambment-dominated styles (considering both text + audio as input)
- model **attention not focused on enjambment lines**

We can train an enjambment detector with high performance:
→ model **does not want to pay attention** to enjambment lines

Adding enjambment feature during training and test only marginally improves performance of the classifier
→ may need to **reconsider philological notion** that the styles differ primarily in the characteristics of their enjamb'd lines.

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