## Long-last in language, short-last in verse

Lev Blumenfeld, Carleton University

Generative metrics has often focused on those properties of verse that are homologous to the properties of language. In this paper I will investigate an effect which at first blush appears to behave in the opposite way in verse and language: the relationship between ordering and weight. In language, heavy elements typically go last (1a,1b). In verse, the ordering is the opposite: shorter lines are placed last in couplets and stanzas (1c,1d). I will attempt to resolve this paradox.

- (1) a. the good, the bad, and the ugly
  - b. # the ugly, the bad, and the good
  - c. Amazing grace! How sweet the sound / that saved a wretch like me.
  - d. # Amazing grace! This sound / has saved a bitter wretch like me.

The long-last effect in language is well-established in a wide variety of domains, in both phonology and syntax. Equally well-established is the opposite effect in some forms of verse, such as folk quatrains (Hayes & MacEachern 1996; Kiparsky 2006). In these corpora, there is a near-absolute preference for couplets where the second line is either equal or shorter than the first, and for quatrains where the last line is shortest. The short-last desideratum has been dubbed SALIENCY by these authors.

It is puzzling from a generative standpoint that verse should display opposite behavior from language. In this talk I resolve the paradox by appealing to the presence of additional constituency structure in verse, compared to language. I start with presenting some novel evidence for the short-last effect in verse. In order to test whether short-last structures are judged as more well-formed when they are rhythmical, I performed a rating study using stimuli constructed along two cross-cutting parameters: short-last vs. long-last, and rhythmic vs. unrhythmic. Participants were asked to rate on a scale of 1-7 each stimulus based on how smooth or fluent it sounds. The effect of rhythm on score is significant: sequences with 'good' rhythm get better scores (F(1, 1918) = 112.3; p < 0.0001). More surprisingly, there is a short-last effect: sequences ending in shorter words get higher scores (F(1, 1918) = 60.873; p < 0.0001). The hypothesis, however, is about the *interaction* of the two factors: does short-last give greater benefit to rhythymic than to unrhythmic lines? The interaction was indeed significant (F(1, 1916) = 10.23; p < 0.0015). In other words, when a well-formed rhythmic structure induces the perception of a metrical template, subjects appear to prefer stimuli with final empty beats, and/or with final short words. This confirms the existence of the end-weight paradox.

The interpretation of the paradox starts with the observation that verse, in addition to ordinary linguistic material, possesses a second layer of constituent structure that divides text into lines, feet, etc. This metrical structure must be signaled, and my argument is that the pressure to explicitly mark stanza boundaries yields the short-last effect.

The argument runs as follows. Consider a sequence of quatrains, where the goal is to induce the perception of a boundary after every fourth line. This can be accomplished by either a long-last structure or by a short-last structure. In a short-last structure, ends of lines across a quatrain boundary are further apart than ends of lines within a quatrain. In a long-last structure, beginnings of lines are further apart across a quatrain boundary than within a quatrain. (This follows similar ideas in how proximity is used to signal grouping in music, explicitly worked out by Jackendoff & Lerdahl 1983: 44).

The key is that, in addition to signaling the boundary between constituents, metrical quatrains have another well-established desideratum, PARALLELISM: lines prefer to have identical metrical structures. Parallelism, however, can only be satisfied by a short-last structure, not a long-last structure. This is illustrated schematically below. Each shema represents a quatrain. Each dark circle is a full beat; each light circle represents an empty beat. So, a line with four full beats is shown as  $\bullet \bullet \bullet$ , a three-beat line as  $\bullet \bullet \bullet$ , and a four-beat line with a final empty beat as  $\bullet \bullet \bullet \circ$ .

As is clear from the schemas below, while different kinds of long-last structures can satisfy *either* PARALLELISM or signal the stanza boundary, only the short-last structure accomplishes both, and thus (in an OT sense, as I show in the talk) harmonically bounds the other two structures.

(2)			PARALLELISM	SIGNAL BOUNDARY
	4443	••••   ••••   ••••   ••••	$\checkmark$	$\checkmark$
	3334	•••• •••• ••••	$\checkmark$	
	3334	•••   •••   •••   ••••		$\checkmark$

Not only does this explanation resolve the paradox, it yields a prediction of the limits of the short-last effect in verse: the effect should not be observed in texts without PARAL-LELISM. I examine a number of such verse texts in both English and Russian—texts with a meter but no fixed line length, and texts with no meter. With the caveat of the weakness of arguing from absence of an effect, the prediction is confirmed: such texts do not display short-last effects.

## References

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