

## Poetic Line Length

Posted on February 9 2017

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Absolute universal: Some types of regular poetic form – meter, rhyme, alliteration and parallelism – regulate linguistic form relative to a sequence of words which must be short enough to fit into working memory. For example, a meter is regulated over a line which can fit as a whole into working memory.

It has been claimed by various authors that a line of metrical poetry is limited in its upper length by working memory capacity. This claim requires a distinction between two aspects of metricality. Consider *Paradise Lost*, which is in iambic pentameter for all of its length. The meter is a set of constraints on a sequence of words which add up to about ten syllables (with a rhythm holding over that sequence); any constraint on line length must relate to this aspect of metricality, where the meter holds of a textual sequence of a certain length (often within a range of variations, but never limitless, and never very long). The other aspect of the meter is that the whole poem is in iambic pentameter, and in this aspect of metricality there is no upper limit on length. It is thus necessary to distinguish the aspect of metricality which holds within a section (e.g., the metrical line) and the aspect of metricality which holds over a whole text, which can be isometric or heterometric, where distinct sections are in different meters (in some cases, radically heterometric as in Greek lyric poetry). There is usually no relation between these two aspects of a meter: iambic pentameter always controls the line in the same way but can combine with other meters in all kinds of ways to form patterns across a longer text.

Once we focus on the aspect of metricality which holds within a section (usually called a line), we can specify that the sections are always fairly short. In many metrical traditions, the meter holds over a section which we might call a line. (In some traditions, there is a longer and a shorter section, each of which might be called the line, depending on what aspect of form we focus on – as in *Beowulf* for example or the Arabic *beyt*); even if the meter holds of the larger section it is still always fairly short. Various authors have argued that the metrical section can be no longer than the sequence of words which can fit into working memory capacity (Tsur, Hogan, Willett etc). They tend to assume Miller's characterization of working memory capacity as "seven plus or minus two" units (e.g., words, or sometimes syllables). This however would not offer enough capacity for lines in many metrical traditions; it is also incorrect as a characterization of working memory capacity. Working memory capacity is now considered by psychologists to contain about four 'chunks' of information (Cowan), and Baddeley suggests that in the episodic buffer of working memory a sequence of about fifteen lexical/grammatical words can fit into working memory. Some such word-based measure is a larger estimate of capacity which is likely to be enough to fit any metrically-governed sequence of words in any poetic tradition. (I illustrate this claim from a range of traditions in Fabb *What is Poetry*.) This raises the possibility that the metrical line may be subject to an upper limit on length: it must fit into working memory capacity.

Note that this limit on length is based on information (e.g., number of words) and not on duration. There is no specifically durational limit on the upper length of the line; Turner and Pöppel claim a three second upper limit, but this is disproved by Fabb's ("There is No Psychological Limit") survey of recorded poetry. Baddeley has a multi-component theory of working memory, and suggests that one part of working memory, the phonological loop is indeed limited by duration (two seconds of material); but it is not this part of working memory which is involved in this generalization (instead it is the episodic buffer which is limited by information, not time).

Adapting an existing tradition, my suggestion is that a kind of regular poetic form – meter – is constrained to operate over sequences which are no longer than can be held in working memory. In Fabb *What is Poetry* I suggest that three other kinds of regular poetic form are similarly constrained: rhyme, alliteration and parallelism. This requires a similar separation between two aspects of a form: (i) the constraints it places relative to a sequence of words, where the sequence is limited in length, and (ii) the overall pattern it forms over a text, where there is no upper limit. Consider for example rhyme. The constraint relative to a sequence can be stated for an English sonnet as 'the final word in a line must rhyme' (note that again this refers to the line as the relevant section, a section of limited length). Rhyme can then be distributed in various kinds of pattern, which can hold over couplets, quatrains, octave/sestet or the whole poem, where there are no upper limits on the size of unit over which the pattern is defined. Similar claims can be made for alliteration, where the rule requires e.g., one word in every half-line to alliterate, or one word in every line. The same alliteration pattern can then be sustained throughout a whole poem (e.g., in the Somali *gabay* genre). Parallelism is a looser structural notion, and can be found intermittently in prose (unlined text) as well as poetry; when it is found in poetry, however, each part of a parallel pair is relatively short in length (Fabb "Poetic Parallelism"). In conclusion, it appears that the four most widespread kinds of regular form found in poetry all hold of relatively short textual sequences, short enough to fit into working memory capacity.

Though Fabb *What is Poetry* shows that these claims appear to hold true for many different poetic traditions, the claims suffer from a lack of relevant psychological evidence. First, we know rather little about the capacity of working memory as regards how many words will fit into it, and how different languages with different kinds of word place different demands on working memory (Cohen-Mimran et al). Second, the measures offered, e.g., Baddeley's fifteen words, depend on the words being syntactically connected in a coherent way (enabling chunking), but this is not always true of poetry where nonsyntactic concatenation is more common (Fabb "Why is Verse" suggests that poetic lines actually have no syntax). Third, as far as I know there are no experimental results telling us how many words within a poem can fit as a sequence into working memory.

The generalization is that certain regular poetic forms must hold over a sequence of words which can fit into working memory. This rules out two possibilities. First, it means that regular poetic forms such as meter, rhyme, alliteration and parallelism cannot hold of prose. This is because the difference between prose and poetry is that only the latter has sections (e.g., lines) which

are not isomorphic with syntactic or linguistic prosodic constituents; it is these sections over which the poetic forms hold, and which are limited in upper length. Second, it means that in poetry, regular poetic forms cannot depend on long sequences; to give a specific example, there should be no poetry in which the only constraint on rhyming words is that they must fall at the end of quatrains (because they would be too long).

Note that the generalization does not apply to poetic lines as such. Whitman's lines can be longer than likely to fit into working memory. But these lines also have no regular poetic form; the poetic forms emerge temporarily in Whitman's poetry, just as they can do in prose. The generalization applies only to poetic lines which have certain kinds of regular form. However, other kinds of poetic form may not be constrained in the same way; for example, in the Hiberno-Latin poem *Altus Prosator* (attr. St Columba) the first word in each of the six-line stanzas is alphabetically constrained: A in the first stanza, B in the second, etc. Though the pattern is unconstrained (as it always is), there is nevertheless a rule, "put an alphabetically constrained word at the beginning of each stanza," which because of the size of unit referred to would be impossible for rhyme, alliteration, metre, or parallelism. It is worth noting that this type of form depends on writing (which may allow for the larger units relative to which it is defined).

If the generalization is correct, then it might suggest that working memory has a role in the processing of regular poetic forms such as meter, rhyme, alliteration and parallelism; long-term memory is also important, for the overall patterns (including the very complex patterns formed by rhyme schemes or by responsion in Greek odes). Does it have any consequence for the aesthetics of poetry: e.g., arising from the need to hold a metrical line as a whole unit in working memory. Hogan suggests that the relation to working memory has a function of fostering aesthetic experience by enabling what Abhinavagupta calls "savoring" and that such savoring is in part a matter of fuller or richer encoding of verbal properties, relative to our (usually non-aesthetic) encoding of ordinary language

#### *Future Research*

(i) It would be useful to know a lot more about working memory capacity and how it relates to linguistic form. For example, psychologists' claims about working memory capacity tend to refer to lexical/syntactic words, but it is clear that prosodic words (and prosodic constituency) are relevant in metre and other aspects of poetry.

(ii) I know of no relevant experimental work to test working memory capacity and poetry. In comparison, there is a big body of work on long term memory and poetry (particularly oral poetry). The relation between the two kinds of memory would also be interesting to explore, as regards poetic form and the line.

(Thanks to an anonymous reviewer who forced a complete rewrite and resubmission.)

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