

Phonemic Accumulations and the Analysis of Poetry

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I shall present my latest work on the theory of phonemic accumulations and its application to the study of poetry. Computerized stylistics tends to concentrate on words: word frequencies, word co-occurrences, word collocations, and word distributions. My computer-assisted study of stylistics concentrates on the phonemic content of the texts. Computerized phonemic analysis is beginning to yield interesting insights into written texts, especially those, such as poetry, for which sound patterning constitutes a significant element. In *A Companion to Digital Humanities* (2004), Ian Lancashire mentions sound as a future source of inquiry in textual stylistics: “As the implications of cognitive research become understood, text-analysis systems may change, and with them stylistics. Texts in languages whose spelling departs widely from its sounding will likely be routinely translated into a phonological alphabet, before processing, as researchers recognize the primacy of the auditory in mental language processing” (“Cognitive Stylistics and the Literary Imagination”). I have begun undertaking this work with a computer application that translates poems into their broad phonetic transcriptions. The program can then provide visualizations of the phonemic content of the poems, and it can perform calculations on the content.

The theory of phonemic accumulations is based on the theory of the persistence of vision: the effect of a phoneme when reading is carried through to the following phonemes. At the same time, its effect tapers off. When the same phoneme is encountered while the effect of the first phoneme has not been nullified, a cumulative effect of the two phonemes is produced. This gives rise to important sound effects in poetry and literature in general, the most obvious of which is alliteration. The cumulative effect of the /s/ phonemes in “silver silent sails” far exceeds the effect of the individual /s/ phonemes if the words occurred at a greater distance from each other. My computer program is able to quantify the impression the /s/ phonemes may have on the reader of these words.

While many different possibilities present themselves for analysis, my current work focusses on calculations of the fricative accumulations and the plosive accumulations of a poem. The fricative consonants are often regarded as soft sounds, while the plosive consonants are often regarded as harsh sounds. I have already shown that the percentage of plosives and fricatives

in poems is mostly constant across poems and authors. Consequently, the occurrence of these phonemes on their own do not produce a significant effect; it is the groupings or occurrences in proximity with each other that seem to produce effects upon the reader. Graphs of their phonemic accumulations exhibit distinct peaks and troughs, and the differences between the two accumulations reveal interesting insights.

For example, Robert Browning’s “Two in the Campagna” has a very intense climax of the difference of the fricative and plosive accumulations in its fifth, sixth, and seventh stanzas. These stanzas are those that are most expressive of true love and passion: while the whole poem is an expression of love, more negative thoughts such as the fleetingness of life and the inability to achieve true love on earth are intermingled with the attempts to seduce. The three stanzas with the fricative accumulation climax, however, are the most rhapsodic, the least tainted with doubt. Similarly, in Browning’s “Porphyria’s Lover,” a poem about the murdering of a woman whom the speaker loves too intensely, the stanza (or five-line set—the poem is not officially divided into stanzas) with the greatest climax of the difference of the fricative and plosive accumulations is the fifth, where the speaker of the poem tells how Porphyria expresses her love for him. The rest of the poem is predominantly heavier on the plosive accumulation side. The pattern that emerges is that when the difference between the fricative and plosive accumulations favours the fricatives, the sentiment of the poem is more positive, loving, and sincere. When the plosives are favoured, the sentiment of the poem is more insincere, withdrawn, and bleak. I shall present my results for these and other poems of a similar structure. These are early results, but the results are very promising.

This work is important for the study of literature. This is the first time (that I am aware of) that the phonemic content of a text, i.e. its sound on the page, is put to such advanced calculations. Literary analyses often have to rely upon impressionistic language when discussing the effect of the sounds of the words upon the reader: phrases such as, “the prevalence of s sounds in the final stanza leaves the reader with a soothing, peaceful feeling, one that has countered the chaos of the opening stanzas.” Through the analysis of phonemic content such as I am performing, I can provide critics with quantifiable data upon which to base their claims. Further, the possibility that phonemic accumulations are related to the ideas expressed in the poems suggests strongly that a computer can begin to interpret poetry: that it can distinguish passages with expressions of intense, sincere love from passages with expressions of self-doubt or insincerity. Phonemic analysis may produce significant developments in the field of artificial intelligence.