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## Most Frequent Sound Analysis

Given just the bi－gram＂er＂for a sample，it is not difficult to guess its meter：

（a）Books 3 \＆ 4 of Tibullus are generally acknowledged to be the work of others ${ }^{5}$ ． （b）Pentameter line ends with a two－syllable word in books $3 \& 4$ of Propertius ${ }^{6}$


In poetry，meter acts as a structuring agent，which tends to overemphasize the underlying natural language statistics that are found in all types of writing and speech．By examining the most commonly occurring elements，a sense of the statistics can be gained with a sampling that overcomes noise．

Case study：we consider the elegies of five major Latin poets and a selection of works in other meters from the Perseus digital library ${ }^{3}$ ．

Statistical analysis：（1）sound via the functional bi－gram＂＂er＂（what the listener hears the most）；（2）the interplay between meter and word choice．

## What is the Elegiac form？

－The first line is identical to dactylic hexameter
－The second，＂pentameter，＂line of the couplet is shorter by two half－feet

$$
\begin{aligned}
& \text { ーこ兀 一兀 - } \\
& \text { - }-兀 \text { - || - }-\backsim x
\end{aligned}
$$

[^0]The meter＇s role in composition
－Analysis of 100,000 hexameter and elegiac verses from thirteen Latin poets
－Elegiac hexameters have similar numbers of characters to regular
hexameter lines，but they＇re divided among more words that are shorter
－Blending of genre－dependent signal with meter signal in elegiacs
－The pentameter line tends to have shorter words due to meter； this influences word choice towards shorter words in the hexameter line．

## Software，Data \＆References

Feature Generation Code，Source Texts and Spreadsheets： http：／／github．com／tesserae

1．Guillaume，G．1984．Foundations for a Science of Language．John Benjamins． 2．Herdan，G． 1956 Language as Choice and Chance．P．Noordhoff Ltd． 3．Perseus Digital Library．Ed．Gregory R．Crane．Tufts University
4．Forstall，C．W．and W．J．Scheirer．2009．＂Features from Frequency：Authorship and Stylistic Analysis Using Repetitive Sound，＂in Proc．of DHCS 1．2．1－23
5．Conte，G．B．1999．Latin Literature：A History．Johns Hopkins．
6．Platnauer，M．1951．Latin Elegiac Verse：Study of Metrical Uses of Tibullus， Propertius and Ovid，Cambridge

## Meter＇s Influence on Word Choice



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[^0]:    ＂－＂represents a long syllable，＂$\checkmark$＂a short syllable，＂$\nearrow$＂two short syllables or on long，and＂$x$＂one long or one short．There is an obligatory word break at＂ll＂．

