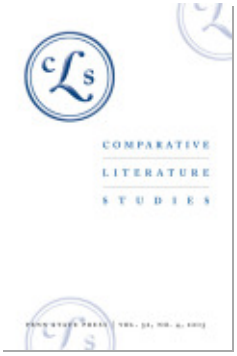
Language and Meter in Early English, Dutch, German, and Russian Iambic Verse



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Comparative Literature Studies, Volume 52, Number 4, 2015, pp. 682-703 (Article)

Published by Penn State University Press

COMPARATIVE LITERATURE STUDIES

PENN STATE PRESS | VOL. 52, NO. 4, 2015

VOL. 52, NO. 4, 2015

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REVIEW ESSAY

LANGUAGE AND METER IN EARLY ENGLISH, DUTCH, GERMAN, AND RUSSIAN IAMBIC VERSE

Evgeny Kazartsev

ABSTRACT

This article offers a comparative study of how iambic verse was realized during the early modern era. The focus is on the "rhythmic freedom" of verse as well as on the linguistic and historical determinants of that freedom. Special attention is devoted to omissions of metrical stress and the development of differences in the rhythmic profile of the English, Dutch, German, and Russian iamb. The study investigates the link between the average number of syllables in the rhythmic words of each language and the degree of strictness in the realization of metrical structure. The results we have obtained give grounds for considering that the length of words is not—as scholars have previously thought—the decisive factor in allowing verse to free itself from its metrical bounds. A comparative analysis of identical types of versification in different languages allows us to view this issue quite differently. It frequently turns out that not the linguistic but the historical conditions of creating of the new versification have the decisive influence on the nature of the interaction between meter and language.

KEYWORDS: metrics, Dutch, German, Russian

The Problem

It is generally accepted that the characteristics of a given language—including the nature of its prosody—comprise one of the most important factors in determining the forms that the poetry written in that language may take. Moreover, many scholars believe that the role of language is decisive

COMPARATIVE LITERATURE STUDIES, VOL. 52, NO. 4, 2015.

in the creation of poetic rhythm and sometimes of meter as well. Thus, for example, many consider verse rhythm to result from the interaction of meter and language, claiming that deviations from the meter, omissions of metrical stress (pyrrhics), or nonmetrical stresses (spondees or the shift of stress from a strong metrical position onto a weak one) occur as the result of a "conflict" between language and meter. Without disputing the overall significance of language in the composition of verse, in this article I will present data that casts some doubt on the "absoluteness" of the role that it plays in creating the rhythmic structure of poetic speech.

The focus here is the influence of language on verse in early examples of iambic verse, which was established first in England, then in the Netherlands, later in Germany, and still later in Russia. A key question is why the rhythmic structures of verse in these various countries differ despite its having the same meters, and to what extent this difference has been conditioned by language itself.

To explore this issue it has been necessary to analyze the various linguistic parameters that have influenced the creation of verse rhythm. The resulting data, which is too extensive to present fully in a single article, has been described elsewhere.[1] While the results have pointed to the important role that language plays in the creation of rhythm, they nonetheless also indicate that in certain cases its role was limited by other factors, some of which will be discussed below. Our particular interest here will be language's influence on the degree of rhythmic freedom in verse.

Much research has been devoted to studying deviations from meter; however, with rare exceptions, this work has been carried out on the poetry of a single national verse system. Statistical study of the topic is virtually nonexistent. This article presents an attempt at investigating the rhythmic freedom of verse, using examples of early English, Dutch, German, and Russian iambic poetry and subjecting the omissions of metrical stress to statistical analysis. It turns out that in various traditions, despite their shared metrical structure, the frequency of such omissions varies significantly. The question that arises is to what extent do the features of the language determine the degree of rhythmic freedom in a particular verse system?

The Beginnings of Syllabo-Tonic Versification

In the second half of the sixteenth century in northern Europe—first in England, then in the Netherlands—we see the development of what came

to be called syllabo-tonic verse, a method of versification based on the alternation of frequently and infrequently stressed positions, or in other words the alternation between what we know as strong (S) or weak (W) positions—for example, in iambic verse, where the even positions are strong and the odd positions weak. Syllabo-tonic versification, in which iambic verse predominated, emerged triumphant over the greater portion of the European continent already during the early modern era. The outstanding works of Shakespeare, Vondel, Goethe, and Pushkin were composed in iambs. During the seventeenth, eighteenth, and beginning of the nineteenth centuries, iambic verse was considered to be the most up-to-date type of versification. The iamb would serve as the primary metrical scheme:

Come l**í**ve with m**é** and b**é** my l**ó**ve
W S W S W S W S

And w**é** will **á**ll the pl**éa**sures pr**ó**ve[2]
W S W S W S W S

In England, writers turned first and foremost to the iambic pentameter (with 5 S-positions)—less often to the iambic tetrameter (with 4 S-positions), which appears in the example above from Christopher Marlowe. Meanwhile, in the Low Countries (first in the south, in Brabant and Flanders, later in what is now Holland proper) iambic tetrameter and hexameter (with 4 and 6 S-positions) appeared. By the beginning of the seventeenth century, the iamb gained total supremacy and for all practical purposes forced out purely syllabic and tonic verse. Later, in the 1620s and 1630s, the iamb began to appear in the poetry of other northern European nations. First, due to the influence of Dutch syllabo-tonic models, it was adopted within German versification, and by the mid-seventeenth and early eighteenth century it found its way into Scandinavian literature. Slightly later, roughly by 1740, through the example of German poetry, the iamb gains preeminence in Russian versification as well.

What is unique here is that Russian poetry adopted syllabo-tonic verse much earlier than did other Slavic traditions. It appears that this could be explained more by historical factors than by the particularities of Russian prosody: as a result of the changes brought about by Peter the Great's reforms, Russia became part of the northern European cultural sphere, in which, at the time, this form of versification dominated. The breakthrough to the Baltic, and the contacts first of all with German culture and literature, anticipated the Russian poetic reforms of the eighteenth century. The Russian language, with its flexible and expiratory stress, turned out to provide excellent material for the development of iambic versification. Before these reforms, however,

the dominant form in Russian literary verse during the seventeenth century was syllabic versification,[3] which was influenced by Polish poetry; folk songs meanwhile exhibited accentual (tonic) verse with a strong tendency toward trochaic rhythms.[4] In all likelihood, had there been no such reform, the situation might have long remained the same—after all, the language itself did not preclude either literary syllabic or folk tonic verse.

Thus the Russian iamb emerged not from the linguistic particularities of the Russian language itself, but as a result of the reform of Russian versification,[5] brought about in large part by the work of Russian scholar and poet Mikhail Lomonosov, who was influenced by German poetry in general and by Johann Christian Günther in particular. Here we will not examine in detail the reasons for the emergence of this metrical form, the iamb, in Russian verse. The factors were not essentially linguistic; the Russian iamb was born out of particular historical circumstances. Rather, we are interested in the rhythmic "freedom" of Russian verse: why does it so frequently omit metrical stress, to what degree is this phenomenon related to the language, and to what extent does the Russian iamb differ from its predecessors in other languages?

It is possible that not only the metrical, but also the rhythmic quality of Russian verse was predetermined not by the language, but by the historical conditions under which syllabo-tonic versification arose.

Main Features of the German and Russian Iamb

It is important to note that the Russian iamb quickly acquired the features that distinguish it significantly from German verse. One of the main structural differences is the increased use of the so-called *pyrrhic foot*, which occurs as the result of omitting stress on the S-position in an iambic line: "*Um von* Eug**én** Best**á**nd zu l**é**rnen," Aus M**ö**r*sern und* Carth**áu**nen kr**á**chen (German); "Blazh**é**nstva n**á**sh*ego* prich**í**na," "No kr**ó**t*kaya Eka*ter**í**na" (Russian).[6]

There are very few omitted metrical stresses in German verse, whereas in Russian they are quite frequent, usually appearing in more than 70 percent of the verse lines. As a result, iambic lines in German are generally fully stressed, whereas in Russian most are missing at least one metrical stress. The sharp contrast between the Russian and German iamb, which occurred despite the genetic link of the former to the latter, has attracted extensive attention on the part of scholars. Unfortunately, the prominence of this phenomenon has resulted in researchers paying little attention to the particular features of iambic verse in other languages. Two odic stanzas written by Günther and Lomonosov illustrate this distinction:

Günther[7]	**Lomonosov**[8]
Ha, sínckt dein Hóchmuth schón so tíef?	Tebé, o mí*losti* Istóchnik,
Du schérzest óder hást vergéßen,	O Ángel mírnykh náshikh lét!
Wie gráusam néchst dein Méineid ríef,	Vsevýsh*nii na* togó pomóshnik,
Als wóllt er úns von wéiten fréßen.	Kto gór*dostiu* svoéi derznét,
Wie stímmt dein dórt verméßnes Schréyn	Zavídia náshemu pokóiu,
Mit díeser Démuth überéin?	Protív Tebiá vosstát' voinóiu;
Ja, Nóth macht óft Gebéth aus Flüchen.	Tebiá Zizhdí*tel' sokh*ranít
Ja, já! Dein Hérz und áuch dein Mónd	Vo vsékh putiákh *bespret*knovénnu
Sind béid an éine Zéit gewóhnt,	I zhízn' tvoiú *blago*slovénnu
Und zéigen sích *nur zum* Verkríechen.[9]	S chislóm shedrót tvoíkh sravnít.

It is important to stress that the stanzas differ stylistically. Günther's verse is characterized by its expressive style, slightly less elevated than the style of verse developed by Lomonosov. However, despite its lower style the German iamb differs from the Russian in the greater purity of its metrical realization. In fact, the alternation of S- and W-positions in Günther's verse is, in the majority of cases, supported by metrical stresses, whereas in Lomonosov's verse such stresses are frequently omitted. The German poet omits metrical stresses only in the last line; thus 9 of the 10 lines are fully stressed.[10] In contrast, in Lomonosov's verse all four metrical stresses are realized only in two lines, in the second and in the last; the rest of the eight lines contain pyrrhic feet.[11] The stressing in both the German and the Russian examples is typical and characteristic of the rhythmic qualities in each. In other words, although the meter is identical in the two examples (iambic tetrameter), its prosodic realization is significantly different: the rhythm of the German tetrameter is strongly dictated by the meter, whereas in Russian the iamb is less restricted.

It has long been observed that in the Russian iambic tetrameter the number of lines containing pyrrhic feet can reach 70–75 percent, of the total and sometimes even more. In the verse of German poets, as a rule, the frequency does not exceed 40 percent. According to data provided by Taranovsky, pyrrhics occur in 25 percent of the lines in the German iamb.[12] Therefore, the distribution of so-called *pure iambs* and lines containing pyrrhic feet in Russian verse form a negative correlation with German. In Russian, 25 percent of the lines may be fully stressed and 75 percent partially stressed (i.e., containing pyrrhic feet), although the average frequency of lines containing pyrrhics in Russian verse is usually 72–73 percent.[13] However, in German verse, where the proportion is typically the reverse, such a ratio is practically impossible.

As was mentioned above, the differences between the German and Russian iamb have attracted the attention of many researchers and led to the hypothesis that this difference is determined by a linguistic factor—specifically, the contrasting average lengths of German and Russian words. In terms of the number of syllables, Russian words are longer than German, which increases the possibility of omitting metrical stresses.

In fact, according to estimates by Nikolai Chernyshevskii, the average length of a rhythmical word[14] in Russian prose is 3.2 syllables.[15] Data provided by Mikhail Gasparov indicates that the average varies between 2.6 and 3.9 syllables, depending on the era and style of the work.[16] Our calculations, which are based on Russian prose from the first half of the eighteenth century, whose rhythm is closest to that of Lomonosov's early iambs,[17] show that the average syllabic length of Russian words at the time was 2.9. For German of the same era the average word length was 2.6 syllables.[18]

Therefore, the average length of Russian phonetic words for this period is slightly greater than that of German: on average just 0.3 syllables. But could this relatively small difference be the reason for such a significant difference between Russian verse prosody and German? Does this linguistic factor, the average syllable length of the word, play a decisive role in determining the frequency of fully stressed lines?

In order to answer this question it has proved helpful to consider the systems of versification in other languages and cultures where iambic verse arose earlier than it did in German and Russian. Thus we have analyzed the development of the verse systems in English and Dutch poetry from the second half of the sixteenth and the first half of the seventeenth century. The examination was carried out in reverse chronological order: Dutch poetry was studied first, followed by an analysis of English verse. The historical circumstances determined this sequence. As was mentioned earlier, the chief topic of previous research has been the relative absence of rhythmical restrictions on Russian verse in comparison to its predecessor, German. Therefore, it was important to analyze the German iamb in comparison to its earlier predecessor, in Dutch poetry, and only afterwards to take a closer look at the English iamb.

The Dutch and German Iamb

The results of this research have shown that, although the Russian iamb that appeared under the influence of German verse soon acquired rhythmical freedom, the German iamb that was "imported" from the Dutch verse turned out to be much more conservative than its original source. Whereas

the verse of German authors is characterized by a small number of pyrrhic feet, neither Flemish nor Dutch authors allow for such an abundance of fully stressed lines as appear in German poetry. Dutch verse exhibits an almost complete parity between purely iambic lines and those containing pyrrhic feet, albeit with a very slight preponderance of fully stressed lines, which comprise 55–58 percent of the total, while partially stressed lines account for 45–42 percent.[19] Thus the Dutch iambic tetrameter, which served as the model for the German, observed alternation of W- and S-positions less strictly than its borrower. German verse, despite its genetic relation to Dutch poetry and the similarity of the German language to Dutch, turned out to be very different from its Western counterpart.

How can we explain the difference in rhythm between Dutch and German verse? We could well infer that it is determined by the difference in word length—that stresses are left out in Flemish and Dutch iambic verses much more frequently because Dutch words are longer than those in German. However, this hypothesis turns out to be quite unlikely, for Dutch words are shorter than German: the average Dutch word contains 2.5 syllables, while in German the corresponding figure is 2.6 syllables. Therefore, Dutch and German, closely related languages, are similar in this regard. Why then is the verse rhythm in these languages so different? Why does the Dutch iamb have significantly fewer restrictions than the German? Apparently the number of syllables per word does not determine the level of rhythmic freedom in poetry. In all likelihood, the reason for the difference should be ascribed to the origins of each poetic tradition and to the manner in which it creates verse.

Comparison with English Verse

Our research produces unexpected results regarding English verse, in which iambs appeared much earlier than in Dutch, German, or Russian poetry. It is generally believed that English words are short, that in the majority of cases they contain one syllable.[20] If we take into consideration not graphic words, but phonetic (or rhythmical) words, as we did for Dutch, German, and Russian verse (rhythmic words being the "bricks" from which verse is constructed), the average syllable length of the English word does not appear to be so short: 2.4 syllables. Granted, this figure is lower than in Dutch, German, and, above all, Russian. Despite this fact, the number of fully stressed iambic lines in English verse is significantly lower than in Dutch and dramatically lower than in German. In certain cases, the ratio of pure lines to lines containing pyrrhic feet in British iambic tetrameters

at the end of the sixteenth and beginning of the seventeenth centuries is nearly the same as the proportion that is observed in Russian verse, with 33 percent fully stressed iambic lines and 67 percent of the lines omitting at least one metrical stress.[21]

Comparing the frequency of lines with deviations from the meter caused by the omission of metrical stresses—that is, comparing the degree of rhythmic freedom in English, Dutch, German, and Russian verse—yields the following picture:

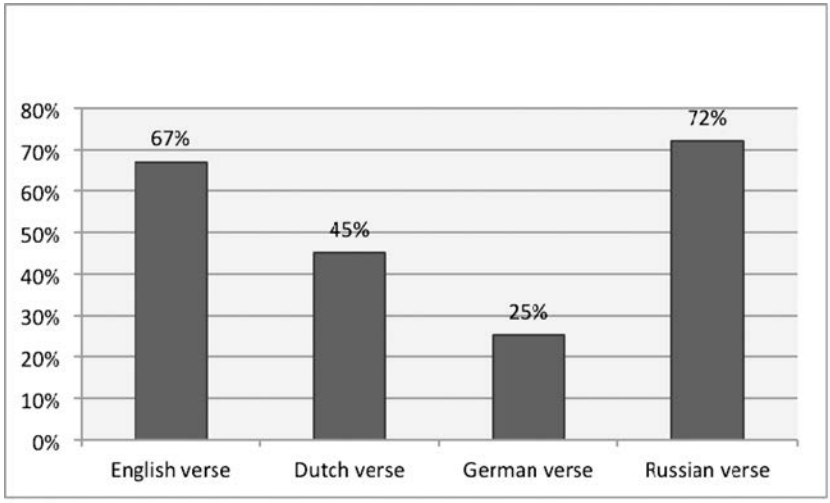

FIGURE 1: Level of rhythmical freedom.

Thus Figure 1 shows that, by the parameter we have been investigating, the most "unfree" among the verse systems we examined is German; Dutch, with its almost equal numbers of fully stressed and non–fully stressed lines, is more free, while the most free turns out to be Russian, and English follows close behind it.

To sum up, the shorter English words did not make English iambic verse more heavily stressed than German or Dutch; although English rhythmic words contain fewer syllables than Russian, this factor did not have a significant influence on the level of rhythmic freedom in English poetry: British iambic verse is as free as Russian. There are reasons to believe that in the early English iamb the percentage of fully stressed lines varied. As a result, the relationship of lines that are fully and not fully stressed does not always correspond with the data from James Bailey that is presented here.

While this issue requires further study, on the basis of the data from Bailey and Gasparov (see notes 21 and 34), it is clear that on the whole the British iamb, like the Russian, prefers lines with omitted metrical stresses. That is not the case for Dutch or German, but it is typical for Russian.[22] Why is this the case? The main reasons accounting for the percentage of fully stressed lines do not involve the characteristics of the language, that is, word length, but rather reflect other factors, particularly the origins of the verse tradition—that is, the historical conditions under which syllabo-tonicism came into being.

Historical Conditions

English syllabo-tonic versification emerged from syllabic verse with lines of eight and ten syllables, which was adopted from French poets. As a result, in the development of English iambic verse instead of meter determining rhythm, rhythm gradually led to the development of meter. In the sixteenth century, the majority of English poets who wrote iambic verse viewed tetrameter and pentameter as syllabic verse of eight and ten syllables, respectively. The gradual tendency to place stress on even syllables led to the iambic alternation of weak and strong positions, thereby creating iambic verse.

Not coincidentally, English iambic verse, on the whole, displays mainly masculine endings. A feminine clausula, with an additional syllable after the eighth or tenth syllable, also existed, but was less common in early iambic verse. This generally "masculine" structure of the poetry was due to the fact, in keeping with the syllabic foundation of English iambic verse, the number of syllables, not feet, determined the line.

Together with its connection with syllabic verse, English verse's natural alternation between more and less frequently stressed syllables gives rise to the characteristic traits of English syllabo-tonic poetry. It is important to distinguish the syllabic and tonic characteristics of this verse by their essence and the nature of their appearance. The predominance of the masculine clausula—and therefore masculine rhymes—is related to its syllabic characteristics. In contrast, its tonic characteristics include the placement of stress on W-positions, the increased use of nonmetrical stress, and, importantly for this study, the frequent absence of stress on S-positions. It is precisely these tonic characteristics that create the distinctive rhythmic freedom of English iambic verse.

These characteristics of English syllabo-tonic verse, having been formed historically, evidently appear as well in later examples of English poetry. The poetry did not attempt to move away from these characteristics, but cultivated

them as expressive tools. Apparently, at a certain stage in the development of iambic verse, these characteristics became a part of the English system of versification; they were, in some sense, "remembered" and with some modifications passed down from one generation of poets to another.

Thus the rhythmic freedom of English verse is not due to the syllabic length of English words, but to its exceptionally free development in going from rhythm to meter. There was no artificial reform of its versification, but only a gradual evolution that resulted in iambic verse.

Furthermore, the theoretical understanding of English syllabo-tonicism lagged behind poetic practice. Iambic verse was written at the end of the fourteenth century (Gower, Chaucer), and later, following a period of tonic loosening during the fifteenth century. Iambic verse reappeared and became firmly established in the sixteenth century (Wyatt, Surrey, Spenser, Marlowe, Jonson). However, the first attempts to characterize the new type of verse theoretically were made only in the seventeenth century. Nonetheless, even at the beginning of the eighteenth century in versification handbooks (for example, that of Edward Bysshe) it was still supposed that English poets wrote in syllabic verse, and that verse was based on the number of syllables, not feet.[23]

If in English verse practice essentially outpaced theory, then in Dutch verse the two advanced hand in hand. Although in the second half of the sixteenth century Dutch iambic verse, just like its English counterpart, arose independently and to a certain degree spontaneously (as well as partially on the basis of French syllabic verse), Dutch attempts at a theoretical characterization of this type of versification appeared soon thereafter, already during the period from the 1570s to the very beginning of the seventeenth century. This versification was almost immediately perceived as syllabo-tonicism.[24] It is illustrative that both Flemish and Dutch poets, practically from the very beginning, violated the constant syllable length of syllabic verse, introducing feminine rhyme alongside masculine.

The early theoretical characterizations of the new versification led to the urge to "purify" iambic verse. As a result, the many nonmetric liberties, which appeared arbitrarily in Dutch verse just as in English verse, tended to be avoided. For example, it became impermissible to shift stress from a strong to a weak position, or to omit stress frequently on the line's strong positions. For this reason, in Dutch verse the percentage of lines employing a pyrrhic foot fell from 60 to 70 percent in the earliest verse to about 45 percent. The predominance of fully stressed lines, which on average comprise 55 percent of all lines, became a marker of Dutch poetic rhythm. This may not be large majority, but this shift toward the use of "pure" iambic lines became a

measure of the "purity" of Dutch syllabo-tonic verse. This feature helped to maintain the impression of verse as iambic. The slight preference for "pure" iambic lines in Dutch tetrameter appeared around 1600 and with slight variations remained in place throughout the seventeenth century. It can still be encountered in verse composed at the beginning of the eighteenth century.

In contrast to English and Dutch verse, German syllabo-tonicism did not evolve, but came about as a revolutionary change under the influence of a foreign model, Dutch verse. Martin Opitz accomplished this reform in the 1620s and 1630s. From the start, Opitz developed his own theory for the new type of versification. Therefore, German poets followed an already established metrical model as well as a ready theory. Theory, in this case, outpaced practice. The status of iambic verse, due to its association with the classical tradition, also played an important role in this process.

Therefore, the German tetrameter already from the start had a much lower frequency of lines with pyrrhic feet, approximately 25–30 percent, than either Dutch verse or especially English. In general, this "pure" realization of iambic verse characterizes German poetry, and to the extent that it turned out to be the most strict, it is the "ideal" embodiment of iambic models. German iambic verse practically never exhibited lengthening or shortening of lines, nor the shift of stress to weak positions, nor a high frequency of pyrrhic feet. The clear preponderance of fully stressed lines, which frequently reach the level of 70–75 percent, is established in German tetrameter from the very beginning of its development, becoming its characteristic feature throughout the entire seventeenth and beginning of the eighteenth century.[25]

Russian iambic verse, like German, was revolutionized through the influence of a foreign influence: that of German. And here theory, first developed by Vasilii Trediakovskii and then by Mikhail Lomonosov, to a certain extent anticipated poetic practice. The status of the meter was again supported by its association with classical poetry, and was further strengthened by the influence of German instances with their strict metrical model and its "ideal" prosodic embodiment.

All of these factors evidently influenced the demand for "purity" of meter, which was advanced by Lomonosov in his "Letter on the Rules of Russian Versification" in 1739: "I regard as incorrect and unconstrained those verses where pyrrhic feet appear in place of iambs and trochees"—and later: "Pure iambic lines, though difficult to compose, with their slightly rising tone magnify the nobility, splendor, and elevated quality of the material."[26] For this reason, the degree of "purity" in the meter's realization during the early, experimental period of Russian iambic verse from 1739 to 1743 was reasonably high. Sometimes it corresponded to the level of German verse—most clearly

in 1743, when the proportion of fully stressed lines approached 75 percent. And sometimes, as in the middle of 1741, this figure significantly surpassed German verse, with 96 percent of the lines containing no pyrrhic feet.

Though variations in the percentage of fully stressed iambic lines continued to occur in Russian poetry for a long time, the high frequencies of such lines were not maintained: they occur only during the early period of its development. Already by 1745, the strict rhythmic realization of meter began to break down, and in its place, there began a quest for a new, more acceptable relationship between fully stressed lines and lines containing pyrrhic feet. The number of lines with pyrrhic feet grew sharply, and by the 1750s reached the level that has become customary for Russian poets, close to 70 percent.

Thus, Russian iambic verse, at least for its founder, Lomonosov, did not immediately become "free." Liberation from the restrictions of meter occurred gradually; however, about ten years from the beginning of this form's development in Russia a more or less clearly defined ratio of "pure" lines to those with pyrrhics became established, resulting in a clear preponderance of the latter.

This rhythmic freedom developed not only and not even primarily due to the length of Russian words. Indeed, as has already been discussed, a versification as "pure" as that in Germany had practically been created at the earliest stage of Russian syllabotonic verse. And the Russian language did not preclude this from happening. Furthermore, Lomonosov was not hindered from creating works of substantial artistic value despite adhering to a "pure" form of iambic verse. For example, Lomonosov wrote the ode ". . . On the Name Day . . . of Peter Fedorovich," in which 75.7 percent of the lines were fully stressed, much like the proportion in Günther's ode on Prince Eugene. Similarly, the first Russian spiritual ode, "An Evening's Reflection on God's Greatness," is a masterpiece, and in it 83 percent of the lines are fully stressed lines, a typical percentage for the German spiritual odes of Günther, which likely served as models for Lomonosov.

Considering these features of English, Dutch, and German verse, it seems reasonable to conclude that the frequent deviations from meter in Russian iambic verse arose not due to linguistic difficulties, but due to the historical conditions surrounding the formation of syllabo-tonic verse.

The most significant of these conditions was likely that the poet Alexander Sumarokov originated a freer realization of iambic verse, which arose in parallel to Lomonosov's strict line. Sumarokov maintained that, at the beginning of his career, he did not know any versification theory, but acquired an understanding of it over the course of long practice. Rather, already at

the start he wrote verse in an "easy-flowing manner,"[27] which permitted the frequent omission of stress on strong positions. Sumarokov from the very beginning allowed pyrrhic feet to predominate over pure iambic verse: in 1740, a substantial portion of his lines, 66.7 percent, contained pyrrhic feet, later rising to 71–73 percent in certain works.[28] This manner of composing verse, an alternative to Lomonosov's, moved from practice to theory, so that it was neither restrained by meter nor based on German verse; thus to a great extent it determined the fate of Russian iambic poetry. Still, the "liberation" of Lomonosov's verse occurred not so much under the influence of Sumarokov, as is commonly believed,[29] but as a result of Lomonosov's own experiments with verse, as well as in connection with changes in the conditions of versification.[30]

Conditions of Versification

In the study of Slavic verse, verse rhythm is frequently studied in comparison with prose; the rhythm of prose acts as linguistic foil to the observed rhythm of verse. Prose excerpts provide the basis for creating rhythmic dictionaries, which show the distribution of types of rhythmic words. These statistics are then used to construct probability models for a particular meter, such as iambic verse. Each of these *language* models is structured in accordance with a certain set of conditions for forming verse. These conditions are defined by the particular approach to creating the verse line. The models show the distribution of rhythmic structures that would occur if these conditions were met.[31] Then, the "theoretical iambs" (the models) are compared with actual verse; the results of these comparisons can then be analyzed. There are three main language models of meter, which differ depending on the "level of freedom" found in the technique used for creating verse.

1. The first-level model (Model-1) is called the "model of independence," which corresponds to the simplest technique and freest way of building the first line. In this model, rhythmic word choice is carried out independently and sequentially from the beginning of the line to its end.
2. The second-level model (Model-2) is the "model of dependence." It corresponds to a more restrained and technically complex way to create the line. Here, word choice depends on the word's position in the line and the rhythm of surrounding words, and can be done either sequentially, from beginning to end, or can deviate from this order.

3. The third-level model (Model-3) is the strictest type of "model of dependence" and is also technically the most complex, where word choice not only depends on the word's position and the rhythmic context, but is never conducted sequentially, instead starting at the beginning or end of the line and then continuing in the middle of the line.

Comparing these models with actual verse shows that examples of English tetrameter from the period we have been studying best correspond to Model-1, while Model-2 fits Dutch verse, and German verse is best represented by Model-3.[32] Evidently, the rhythm of English iambic verse is formed in the freest framework, while verse formation in Dutch occurs within a stricter framework and German in the strictest of the three (see Table 1A–C).

TABLE 1: The Rhythm of Northern European Verse and Its Models[33]

S-Position	I	II	III	IV	Fully Stressed Lines
A					
English iamb	0.680	0.814	0.689	0.945	0.329
Model-1	0.844	0.726	0.696	0.945	0.346
B					
Dutch iamb	0.928	0.796	0.855	0.980	0.579
Model-2	0.923	0.818	0.839	0.983	0.586
C					
German iamb	0.906	0.913	0.888	0.978	0.700
Model-3	0.921	0.913	0.880	0.973	0.708

The data of Table 1A show that the parameters of the verse and Model-1 somewhat differ at the beginning of the line[34] due to the alternating tendency typical of English iambs, which results in an increased stressing of the second ictus in comparison not only with the third, but also with the initial ictus. In the verse, as compared to the model, there is a kind of partial redistribution of the stressing on the first and second strong positions. Nevertheless, the rhythm for the second half of the line, as well as the percentage of fully stressed lines, are quite well predicted by Model-1. Table 1B and C show that in Dutch and German verse the distribution of metrical stresses and the frequency of fully stressed lines are quite well predicted by Models-2 and 3, respectively.

As for the Russian iamb, Lomonosov evidently switched from the strictest to the freest type of versification over the first decade of his poetic career. His iambic verse at the beginning of the 1740s resembles Model-3 (the same type of model that best describes German verse). In the second half of the 1740s his verse transitions to a different, freer technique, which evidently persists during Lomonosov's mature period, from 1750 on. As a whole, the rhythm of the mature period is best predicted by Model-1.[35] This model (the same type of model that corresponds to English iambic poetry) also describes Sumarokov's verse throughout his entire creative life (see Table 2D–F).

TABLE 2: The Rhythm of Russian Verse and Its Models[36]

S-Position	I	II	III	IV	Fully Stressed Lines
D					
Early Lomonosov iamb	0.979	0.900	0.871	1.000	0.757
Model-3	0.894	0.797	0.721	1.000	0.430
Model-3 (recalculation)	0.955	0.914	0.881	1.000	–
E					
Mature Lomonosov iamb	0.931	0.745	0.546	1.000	0.274
Model-1	0.782	0.613	0.451	1.000	0.113
Model-1 (recalculation)	0.942	0.738	0.543	1.000	–
F					
Early Sumarokov iamb	0.939	0.783	0.589	1.000	0.333
Model-1	0.782	0.613	0.451	1.000	0.113
Model-1 (recalculation)	0.979	0.767	0.565	1.000	–

The data of Table 2D–F indicate that, strictly speaking, the percentage of fully stressed lines in the Russian iamb is not predicted by language models of meter. During the early period, the level of stressing most likely reflects

that of German poetry (as we recall, fully stressed lines account for 75 percent in German verse and 75.7 percent in Lomonosov's poetry).[37] That is why Russian verse was "too iambic" in the beginning. However, in spite of the fact that the early iambs differ from the model due to their higher overall percentage of stressing, in the relative distribution of metrical stresses the verse and Model-3 are similar: it is as though the verse copies the model, but with higher stressing (see Table 2D).

But if one recalculates the model taking into account the stressing of actual iambic verse, the data for the model and the verse practically coincide. This gives reason to suggest that at the early stage the conditions for creating verse were rather strict, close to those that correspond to the model of the third type. However, the level of full stressing was most likely externally determined, by German verse.

A brief explanation is due on the method of recalculation employed. The model was recalculated using the average lack of stress in the verse, that is, the average quantity of omitted metrical stresses. This method, as a rule, is applied in analyzing models of dependence and verse. In general, there are two methods for determining the interrelationship of the data in a model and in verse: (a) recalculating the model using the average stressing in the verse; and (b) recalculating the model using the average lack of stress. A recalculation using the average stressing in the verse is carried out as follows. The average frequency of stresses on the ictuses (except for the last ictus) in the verse is divided by the analogous figure in the model, then the probability of each nonfinal ictus in the model is multiplied by the coefficient that is obtained. The recalculation for the average lack of stress is carried out in the same way as that for the average stressing, except that in each case the figure used is not that for the frequency of stresses but for the frequency of their omission. By subtracting the frequency of stresses on an ictus from one, we obtain the frequency of their omission (for further details, see Marina Krasnoperova, *Modeli* . . . 55, 69–70).

Beginning in 1745, a search for an acceptable proportion of pure and pyrrhic lines takes place in Lomonosov's verse, and a new level of full stressing is established (27.4 percent on the average). The corresponding level of full stressing already appeared in the odes of 1745–1750. It is clear that an acceptable proportion of pure and pyrrhic lines was found experimentally: Lomonosov first lowered, then raised the level of full stressing until he had found an optimal proportion. It is also possible that this level could have been established due to the change in versification technique: the iambs of this time correspond, to a certain extent, to a model of the second type constructed from the vocabulary of Lomonosov's prose. This model predicts

the corresponding frequency of fully stressed lines in verse (model—0.276, verse of this period—0.270). Model-2 (whose stressing profile is 0.859, 0.657, and 0.654), on the whole, competes with Model-1; however, the data of the recalculated Model-1 are closer to the rhythm of the verse than to the initial parameters of Model-2.

On the whole, the model of the first type, adjusted for the higher stressing of poetic texts, best fits the mature period of Lomonosov's iambs. A recalculation of the model using the texts' average stressing gives data very close to that of the actual verse (Table 2E).[38] The rhythm of Sumarokov's early iambs is obviously similar to that of the mature Lomonosov's verse and is described by the same model (compare the data in Table 2E and F).

In all likelihood, the prosodic framework, as reflected in these models, had a significant impact on how freely iambic verse could be realized in various languages. However, each framework, in turn, was likely determined by historical factors surrounding the establishment of syllabo-tonic verse.

Conclusion

The results of this study lead to a somewhat paradoxical conclusion: evidently, not only verse meter but also its rhythm is determined not so much by linguistic but by historical factors, and it is historical, rather than linguistic, differences that influence the rhythm's characteristics. In any case, the data do not support the hypothesis that the degree of freedom in the prosodic realization of meter is conditioned by language. Apparently, the syllabic length of phonetic words is not a decisive factor in determining the percentage of fully stressed lines.

Indeed, the average number of syllables in English, Dutch, and German rhythmic words differs only slightly; however, English, Dutch, and German iambs diverge significantly in terms of their rhythm: English iambs are the least restricted and German the most restricted, while Dutch iambs occupy a mid-position between English and German. The development of syllabo-tonic versification in England, The Netherlands, and Germany has different histories. English and Dutch tetrameters largely developed independently and spontaneously; in their evolution they advanced gradually from an iambic rhythm to meter. On the other hand, in Germany they were borrowed as an "already made" product and evolved in the opposite direction, from meter to rhythm. Apparently,

these differences influenced the "choice" of technique for creating the verse line. Thus, there are reasons to suggest that historical conditions and versification technique determined the differences in the ways in which the iambic metrical model was realized in different languages.

The Russian iamb apparently experienced the basic phases of northern European syllabo-tonic versification during its brief initial period of development. Notably, the Russian iamb passed through these phases in the reverse order: from the strictest "German phase" to the least restricted "English phase." This circumstance most likely predetermined the resultant similarity between the realizations of the Russian and English iambic tetrameter. Therefore, even though Russian words are longer than those in English, Russian and English iambs turned out to be similar in regards to the frequency of omitted metrical stresses. This circumstance also supports the suggestion that the decisive factor here lies not with word length but with the historical conditions under which syllabo-tonic versification and versification technique have been formed.

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Notes

The author thanks Barry Scherr for his help in preparing this publication. The work on this article was partially supported by RGNF, project No 15-04-00331; the considerable part of this research is carried out within the scientific project "Mikhail Lomonosov and the Rise of the New Literary Forms in Russia," supported by National Research University Higher School of Economics—St. Petersburg.

1. Evgeny Kazartsev, "Zum Problem der Entstehung des Syllabotonischen Versmaßsystems im Europäischen Vers" ["To the problem of the Genesis of Syllabotocism in the European Verse"], *Glottometrics* 13 (2006), 1–22. See also Evgeny Kazartsev, "Frühe deutsche Jamben und ihre niederländiesche Vorbilder" ["Early German Jamb and its Dutch Background"], *Neerlandica Wartislaviensia* 18 (2009), 23–40; Evgeny Kazartsev, "Nederlandse en Duitse versritme in de vroegmoderne tijd" ["Dutch and German Prosody in the Early Modern Time"], *Neerlandistiek.nl* (2010), 1–20; Evgeny Kazartsev, "Niederländische Quellen von Martin Opitz' Versrhythmik" ["The Dutch Sources of the Martin Opitz's Verse Prosody"], *Zeitschrift für Germanistik* 3 (2013), 118–28.

2. Christopher Marlowe, "The Passionate Shepherd to His Love," *The Collected Poems of Christopher Marlowe*, eds. Patrick Cheney and Brian J. Striar (New York: Oxford University Press, 2006), 157.

3. Some Russian poets, for example, Antiochus Kantemir, continued to write syllabic poetry even after the verse reform.

4. See James Bailey, *Three Russian Lyric Folk Song Meters* (Columbus, OH: Slavica Publishers, 1993), 260.

5. This opinion has been expressed by many researchers; see Mikhail Gasparov, "Russkii sillabicheskii trinadcatislozhnik"["Russian 13-Syllabic Verse"], in *Izbrannye stat'i* [*Chosen Articles of Mikhail Gasparov*] (Moscow: Novoe literaturnoe obozrenie, 1995), 27, 30.

6. Stresses are given in bold and are represented by stressed letters, while pyrrhics are marked by italics.

7. Johann-Christian Günther, *Johann Christian Günthers sämtliche Werke*, Band 4. Hrsg. Von Wilhelm Krämer [*Collected Works of Johann-Christian Günther*], ed. Wilhelm Krämer (Leipzig: Hiersemann, 1935), 131–32.

8. Mikhail Lomonosov, "Oda na den′ Vosshestviia na Vserossiiskii prestol Eia Velichestva Gosudaryni Elizavety Petrovny 1747 goda" ["The Ode on the Intronization Day of Her Majesty Elizabeth Petrovna (1747)"], in *Polnoie sobranie sochinenii Mikhaila V. Lomonosova*, 8 [*Complete works of Mikhail Lomonosov, Vol. 8*] (Moscow–Leningrad: "Nauka," 1959), 207.

9. In this text, we have indicated only the metrical stresses, it is evident that words like *Ha, Ja, macht* that occupy weak positions are also considered to be stressed due to their emphatic functions or lexical independence. For the problem of accentuation in English verse we employed the rules elaborated by Bailey; see James Bailey, *Toward a Statistical Analysis of English Verse: The Iambic Tetrameter of Ten Poets* (Lisse: De Ridder, 1975). To take into account accentual units in Russian verse, we used the traditional rules that have been adopted by Russian verse theorists. See Marina Krasnoperova and Evgeny Kazartsev, "Ritmicheskaia interpretatsiia teksta vo vzaimodeistvii tradicii" ["The Rhythmical Interpretation of Text in its Interaction with Tradition"] (in Russian), *A Collection of Scholarly Works in honour of the 110th anniversary of Victor Zhirmunskii* (St. Petersburg: Nauka, 2001), 310–16. To study German and Dutch verse, we used the special rules; see Evgeny Kazartsev, "Die Anwendung linguistischer Statistik bei der Analyse des deutschen Verses" ["The Using of Linguistic Statistics by the Analysis of the German Verse"], in German, *Meter, Rhythm and Performance: Proceedings of the International Conference. Vol.6* (Peter Lang, 2002), 413–24; Evgeny Kazartsev, "Versritme. . .".

10. The interpretation of the 6th line could be controversial: *Sind béid an éine Zéit gewóhnt*. The first syllable of the word *eine* falls on a strong metrical position and should be considered stressed, as in this context it is not an article but a numeral; consequently, the whole line is considered to be fully stressed. Articles are unstressed and regarded as dependent words; numerals acquire stress in strong metrical positions.

11. A different kind of debatable case is illustrated in the 6th line: *Protív Tebiá vosstát' voinóiu*, which should be considered fully stressed, since the word *protiv* in Lomonosov's time was stressed on the second syllable. See Kirill Taranovsky, *Russkiie dvuslozhnyie razmery. Stat'i o stikhe* [*Russian Disyllabic Meters. Articles about the Verse*] (Moscow: Iazyki slavianskoi kul′tury, 2010), 31.

12. The average data for German verse are taken from Taranovsky. See Kirill Taranovsky, "Rannie russkie iamby i ikh nemetskie obraztsy" ["Early Russian Iabs and its German Sources"], *XVIII vek*, 10 [*18th Century, Vol. 10*] (Leningrad: Nauka, 1975), 32.

13. Our calculations for the average frequencies of fully and not fully stressed iambic lines are based on Taranovsky's data for the mature verse of Lomonosov and Sumarokov. See Kirill Taranovsky, *Russkiie dvuslozhnyie razmery* [*Russian Disyllabic Meters. . .*], Table 2.

14. A phonetic or rhythmic word is a syllable complex united by one main stress: *with pl**éa**sure (eng.), het k**í**nd (dut.), mein Fr**éu**nd (germ.), мн к**á**жется (rus.).*

15. Nikolai Chernyshevskii, *Polnoe sobranie sochinenii N. G. Chernyshevskogo, 2: Stat'i i retsenzii 1853–55 gg* [*Collected Works of Nikolai G. Chernyshevskii, Vol. 2: Articles and Revues 1853–55*] (Moscow: Goslitizdat, 1949), 469–71.

16. Mikhail Gasparov, *Sovremennyi russkii stikh. Metrika i ritmika* [*Modern Russian Verse. Meter and Prosody*] (Moscow: Nauka, 1974), 85–86.

17. These calculations are based on Vasilii Trediakovskii's prose, see Vasilii Trediakovskii, *Ezda v ostrov Liubvi* [*The Trip to the Love Island*] (St. Petersburg, 1730).

18. The calculation of the average length of German phonetic words was carried out using examples of German prose from the first half of the eighteenth century: Johann-Christian Günther, "An Frau Dauling"; "An Herrn Christian Klugen Jun"; "An den jüngsten Herrn von Beuchelt"; "An Melchior Michael"; "An Gottlieb Rasper"; "Schreiben an Herrn M(ichael) in Landeshutt"; "An Herrn Hanns Gottfried von Beuchelt," *Johann Christian Günthers Sämtliche Werke. Historisch-kritische Gesamtausgabe*. Herausgegeben von Wilchelm Krämer, 3 [*Johann Christian Günthers Collected Works. Historical-critical Edition*], ed. Wilchelm Krämer,

Vol. 3 (Leipzig: Hiersemann, 1934), 143–50; 155–56; Johann-Christoph Gottsched, "Lob- und Gedächtnissrede auf den Vater der deutschen Dichtkunst, Martin Opitzen von Boberfeld, Nachdem selbiger vor hundert Jahren in Danzig Todes verblichen, zur Erneurung seines Andenkens im 1739sten Jahre den 20 August auf der philosophischen Catheder zu Leipzig gehalten" ["Commemorative speech on the father of the German poetry, Martin Opitzen of Boberfeld, After selbiger faded hundred years ago in Gdansk of death, to his memory in August 1739 on the philosophical Catheder to Leipzig held"], *Herrn Johann Christoph Gottscheds gesamelte Reden in dreyen Abtheilungen nochmals von ihm selbst übersehen und verbessert* [*Johann Christoph Gottsched's speeches in three chapters again from himself overlooked and improved*] (Leipzig: Breitkopf, 1749), 156–65.

19. The statistical analysis is based on Dutch verse of 1580–1630. See Philiphs Marnix van Sint Aldegonde, "De neghende Psalm," *Het boeck der psalmen Davids* [*The Book of David's Psalms*] (t'Antwerpen: Gert-Jan Buitink, 1580), fol.B–fol.B3; Jan van der Noot, "De Vrueghtijdt. Bij de schoone ende deughdelijke Olympia gheleken," by Jon van der Noot. *De Poeticsche Werken*, 2 [*Poems, Vol. 2*](Gent: Vlaamse Academie van Taal en Letterkunde, 1975), 347–48; Gerbrand Adriaenszoon Bredero, "Tot den Leser," *G.A. Bredero's Spaanschen Brabander, met fragmenten uit Lazarus van Tormes; ingeleid en toegelicht door C.F.P. Stutterheim* [*Spaansche Brabander of G. A. Bredero*], ed. Stutterheim. (Culemborg: Tjeenk Willink, 1974), 138–41; Jacob Cats, "Vryt, daerje zyt"; "Twee gelieven even kout dienen niet te zijn getrout"; "Doodelijk omhelzen," *Jacob Cats. Alle de wercken, Zoo oude als nieuwe: vermeerderd* [*Jacob Cats All of Works: old and new, increased*] (Amsterdam: J. J. Schipper, 1665), 59–61; Pieter Corneliszoon Hooft, "Psalm VII"; "Psalm CXIII," in *Gedichten. Eerste volledige uitgave. Gedeeltelijk naar des dichters eigen handschrift*, [*Poems of P.C. Hooft. The First Full Edition*], 1 (Amsterdam: P.N. van Kampen, 1871), 279–81; Joost van den Vondel, *Het Pascha ofte de verlossinge Israels uit Egijpten Tragecomedischer wijse een yeder tot leeringh opt tonneel gestelt* [*Paskha of Joost van den Vondel*] (Tot Schiedam: Adriaen Cornelison,1612); Joost van den Vondel, "Howlyck-sang, tusschen God en de geloovige Ziele"; "Tot Lof vande kuische en God-vruchtighe Martelaresse St. Agnes Ghesang," *J. van den Vondel. De werken. Tweede deel (1620–7)* [*Vondel's Works, Vol 2(1620-7)*] (Amsterdam: De Maatschappij voor goede en goedkoope lectuur, 1929), 69–72; 420–25; Joost van den Vondel, "De Rynstroom, aen Johan Wolfard, Heer te Brederode, Vryheer te Vianen," in *De werken. Derde deel (1627–40)*, [*Vondel's Works, Vol 3(1627-40)*] (Amsterdam: De Maatschappij voor goede en goedkoope lectuur, 1929), 289–93.

20. For more details see Barry Scherr, "Russian and English Versification: Similarities, Differences, Analysis," *Style* 14, no. 4 (1980), 358–59.

21. This chart is derived from data provided by James Bailey in his analysis of Ben Jonson's poetry: James Bailey *Toward,* 33.

22. About comparative analysis of the structure of English and Russian verse, see Marina Tarlinskaja, *English Verse: Theory and History* (The Hague: Mouton, 1976); Marina Tarlinskaja, *Strict Stress-Meter in English Poetry Compared with German and Russian* (Calgary: University of Calgary Press, 1993); Barry Scherr, *Russian Poetry: Meter, Rhythm, and Rhyme* (Berkeley: University of California Press, 1986); Barry Scherr, *Russian and English*; and James Bailey, *Toward.*

23. Mikhail Gasparov, *A History of European Versification* (Oxford: Clarendon Press, 1996), 185.

24. The theoretical characterization of syllabo-tonic verse was developed in the work of Jan van Hout, Petrus Scriverius. The poetry of one of the first Dutch poets, Philip van Marnix, was from the very beginning strictly iambic, without stress on weak positions and other liberties that were allowed in English verse.

25. In rare cases, the frequency of fully stressed lines in German tetrameter can be as low as 60%–65%, but these variations largely depended on the genre of the work. In elevated genres (odes and laudatory songs, especially spiritual odes), this level as a rule is very high, sometimes reaching 83%–85%.

26. Mikhail Lomonosov, "Piśmo o pravilakh rossiskogo stikhotvorstva," in *Polnoe sobranie sochinenii tom 7* [*Mikhail Lomonosov's Collected Works*], Full Edition, Vol. 7 (Moscow-Leningrad: Nauka, 1952), 14–15.

27. Aleksandr Sumarokov, *Polnoe sobranie sochinenii v stikhakh i proze, pokoinogo deistvitel'nogo Statskogo sovetnika, Ordena Sviatoi Anny kavalera i Leipzigskogo sobraniia chlena, Aleksandra Petrovicha Sumarokova* [*Full Collection of Works of Alexander Sumarokov*] (Mosowa: N. Novikov, 1782), 56.

28. In the 1770s, more than thirty years after the first Russian iambic verse, Sumarokov justified pyrrhic feet as necessary given the length of Russian words. *Id.* 60. The length of Russian words, however, constituted only a belated theoretical explanation for poetic practice, which had long since become established.

29. This hypothesis was set forth by Taranovsky, see Kirill Taranovsky, "Rannie russkie iamby," 36.

30. See also Evgeny Kazartsev, "On the History of the Appearance of Pyrrhic Feet in Russian Iambic Verse," *Russian Literature* 73 (2013): 379–409.

31. These models comprise the framework for the reconstructive modeling of verse, developed by Marina Krasnoperova. The first-level model was initially worked out by the mathematician Andrei N. Kolmogorov.

32. The comparisons were based on the profiles of stressing—that is, the frequencies of stressing on the strong positions—in the models and the actual verse.

33. Table 1A uses Bailey's data on Jonson (James Bailey, *Towards*. 28) and our calculation for Model-1, which is based on the vocabulary of Sydney's prose (Philip Sydney, "The Defence of Poesie," in *Knight*, ed. *Sir Philip Sydney* (London: William Ponsonby, 1595), B–C_3). This model also resembles other poetry of the same period (see Evgeny Kazartsev, "Probability Models of Language in the Comparative Study of Verse," *Style* 48, no. 2 (2014): 119–39). Table 1B contains our data on early Flemish iambic verse of Jonker Jan Van der Noot (for sources see note 19) and our calculation of Model-2, using the prose of P. C. Hooft (see Pieter Corneliszoon Hooft, "Het Leids beleg en ontzet, 1574" ["The Siege and Release of Leiden, 1574"], in *Negende boek der nederlandsche historien (1642)*, [*9th Book of Dutch History of P. C. Hooft*] (Amsterdam: H. Wetstein en P. Scepérus; etc. 1709), 372–76)—these data are generally similar to those for the Dutch iambic tetrameter at the end of the sixteenth—beginning of the seventeenth century (see Evgeny Kazartsev, "Versritme." 12); Table 1C contains our data for the verse of Andreas Gryphius (see Andreas Gryphius, "Andreae Gryphii Gedancken über den Kirchhof und Ruhestädte der Verstorbenen (1657)" ["Andreae Gryphii Thoughts about the Churchyard and Rest Towns of the Deads (1657)"], *Andreae Griphii Trauer-Spiele auch Oden und Sonnette* [*Andreae Griphii Funereal Plays also Odes and Sonnette*] (Leipzig: Johann Erich Hahn, 1663), 482–96) and for Model-3, derived from German prose (see Historian und Geschicht Doctor Johannis Fausti. Handschrift aus der Herzog-August-Bibliothek Wolfenbüttel (1580) HAB 92 Extravagantes (Cod. Guelf) [History of Doctor Johannis Fausti. Manuscript from the Herzog's August library of Wolfenbüttel (1580)] see also *Das Faustbuch, nach der Wolfenbüttler Handschrift. Philologische Studien und Quellen* [*The Faust-book, after the Wolfenbüttler manuscript. Philological studies and sources*] (Berlin: Schmidt, 1963), 31–36). The model is generally very similar to German verse of this period (see Evgeny Kazartsev, "Zum Problem" 15–16).

34. This was also noted by Gasparov, who compared English verse of a later period (the nineteenth century) with the parameters of an analogous model, see Mikhail Gasparov, "A Probability Model of Verse (English, Latin, French, Italian, Spanish, Portuguese)," *Style* 21, no. 3 (1987), 327–28; 348.

35. This was first noted by Taranovsky, then was studied in detail by Krasnoperova.

36. Table 2D contains our data for Mikhail Lomonosov, "Oda na den' tezoimenitstva Ego Imperatorskogo Vysochestva Gosudaria Velikogo Kniazia Petra Fedorovicha 1743 goda" ["The ode on the Name Day of the Grand Prince Pyotr Fedorovich of 1743"], *Polnoe sobranie sochinenii Mikhaila V. Lomonosova*. 8 [*The Full Collection of Works of Mikhail Lomonosov*] (Moscow–Leningrad: Nauka, 1959), 103–10. The Model-3 is based on the vocabulary in Vasilii Trediakovskii, *Ezda v ostrov Liubvi* [*The Trip to the Love Island*] (St. Petersburg, 1730). For Table 2E and F, the verse data are taken from Taranovsky's Table 2 (see note 12), while the data for the model are from Aleksandr Prokhorov's model, which was used in Krasnoperova's

studies of Lomonosov poetry; see Marina Krasnoperova, *Modeli lingvisticheskoi poetiki: ritmika*. [*Models of Linguistic Poetics. Rhythmics*.] (Leningrad: Leningrad State University Press, 1989), 79.

37. For more detail, see Evgeny Kazartsev: "On the history" 393.

38. An analogous recalculation was made by Krasnoperova, who had shown that not only the stressing profile, but also other parameters of rhythm in Lomonosov's odes of 1745–1764 can be obtained, after certain transformations, from the model of the first type including the frequency of fully stressed lines (theoretical calculation: 0.296, real verse: 0.274). See Marina Krasnoperova, *Modeli*. 55–56; 80 and Marina Krasnoperova, *Osnovy rekonsruktivnogo modelirovania stikhoslozhenia (na materiale ritmiki russkogo stikha)* [*Theory of Reconstructive Simulation of Versification (for Russian Verse Rhythmics)*] (St. Petersburg: St. Petersburg University Press, 2000), 142.

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