

Variety and Repetition in Vergil's Hexameters

GEORGE E. DUCKWORTH

PRINCETON UNIVERSITY

This article, the first of a series of projected studies on Latin hexameter poetry, is devoted to Vergil, whose metrical procedures establish in a sense a norm, with which the practices of Horace, Ovid, and others (including the hexameter poets of the *Appendix Vergiliana*) will be compared in subsequent investigations. I work not merely with the frequencies of the sixteen metrical *schemata* (or "patterns," the term I prefer to use) but also with the frequencies of repeated, opposite, and reverse patterns in adjacent lines. The relative frequencies of the patterns are often of less significance than the various combinations in which they appear.

It has been necessary, therefore, to scan in their entirety the works of the authors to be studied. This has an added advantage: much of the pioneer work on the frequencies of the metrical patterns, published seventy-five to one hundred years ago, is now antiquated, being based on texts no longer in common use; it appears in foreign journals not readily accessible to many teachers, and furthermore is unfortunately not free from mistakes. Occasional inaccuracies and typographical errors are almost inevitable in a work of this nature, but I have checked and rechecked all statistical material as carefully as possible, and I trust that the mistakes which remain will in no way affect the validity of my major conclusions, e.g. the Catullan nature of *Eclogue* iv, and the surprising manner in which *Aeneid* x-xii differ metrically from the remainder of the poem.

The present work results in part from my efforts in recent years to arouse greater interest among my students in the perfection of the Vergilian hexameter, in part from my conviction that new and important criteria might be developed to define more exactly the metrical procedures not only of Vergil but of other hexameter poets as well. I trust that my findings will be of value to teachers and students of Vergil on all academic levels. Since

Aeneid iv is one of the best known and best loved books of Vergil's great epic, I shall, whenever possible, draw my illustrations from this source.

I. THE HEXAMETER PATTERNS

The dactylic hexameter, the meter of Greek and Latin epic poetry,¹ is a six-foot line with either a dactyl (— ∪ ∪) or a spondee (— —) in each of the first four feet; the fifth foot is regularly a dactyl, and the sixth foot is a spondee, or a trochee (— ∪) with the final syllable treated as long by the rule of *syllaba anceps*. A spondee may occur in the fifth foot, in which case the verse is called spondaic; such spondaic lines are much less frequent in Latin poetry than in Greek.²

It has been said that "infinite variety is possible in the grouping of the dactyls and the spondees which go to make up the verse."³ This statement is possibly true if we consider the distribution of caesuras and diaereses (inner metric) and the variety in sound effects; it is not true in respect to the actual grouping of the dactyls and the spondees, the outer metric of the verse.⁴ There is here no "infinite variety." If we exclude the spondaic lines and consider the last two feet of the verse as composed of a dactyl and a spondee (*ds*), we have for the first four feet only sixteen possibilities; if we include the spondaic verses, the number of possible patterns increases to thirty-two.

The sixteen possible variations for the first four feet (in the non-spondaic verses) were arranged by Drobisch in four groups of four patterns each.⁵ If we denote a dactylic foot by *d*, a spondaic

¹ The hexameter is predominantly the meter of epic poetry, but it is used also for pastoral (e.g. Theocritus, Vergil, Calpurnius Siculus), scientific poetry (e.g. Cicero's *Aratea*, the *Aetna*), hymns (e.g. the Homeric hymns), panegyrics, short epics, or *epyllia* (e.g. Catullus lxxiv, the *Ciris*), and it provides the longer line of the Greek and Roman elegiac couplet.

² Homer's *Iliad* and *Odyssey* contain 1378 spondaic lines (4.96 per cent of the total verses), but Vergil's *Aeneid* has only twenty-four (0.24 per cent). All statistics concerning Vergil in this article are based on the Oxford Classical Text of F. A. Hirtzel.

³ C. Knapp, *The Aeneid of Vergil* (Chicago 1923) 75.

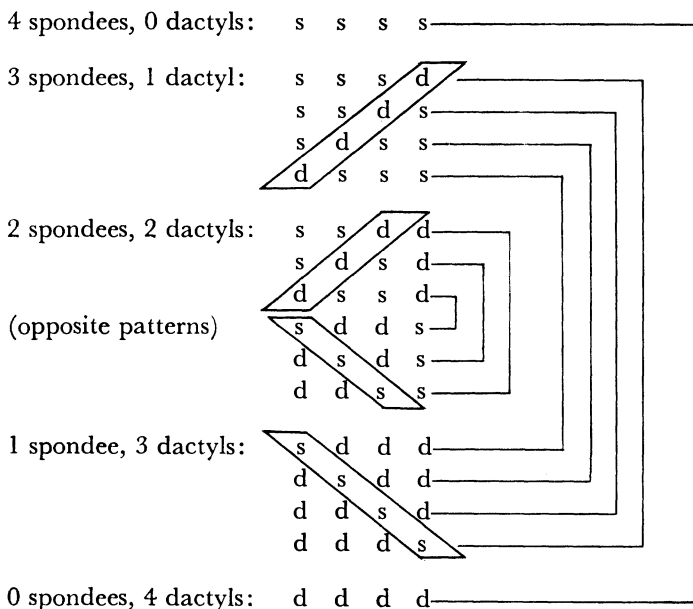
⁴ For definitions of "inner metric" and "outer metric," see E. G. O'Neill, Jr., "Word-Accents and Final Syllables in Latin Verse," *TAPA* 71 (1940) 336, note 3; cf. R. J. Getty, "Classical Latin Metre and Prosody 1935-1962," *Lustrum* 8 (1963) 120.

⁵ M. W. Drobisch, "Weitere Untersuchungen über die Formen des Hexameter des Vergil, Horaz und Homer," *Berichte säch. Gesellsch. Leipzig* 20 (1868) 18 f.; cf. S. E. Winbolt, *Latin Hexameter Verse* (London 1903) 113-15.

foot by *s*, these four groups begin with *ds*, *dd*, *sd*, and *ss*, each of these combinations being followed by *ss*, *ds*, *sd*, and *dd*; the list of the sixteen possibilities is thus:

ds	ss	ds	ss
ds	ss	ds	ss
ds	ss	ds	ss
ds	ss	ds	ss
ds	ss	ds	ss
ds	ss	ds	ss
ds	ss	ds	ss
ds	ss	ds	ss
ds	ss	ds	ss
ds	ss	ds	ss
ds	ss	ds	ss
ds	ss	ds	ss
ds	ss	ds	ss
ds	ss	ds	ss
ds	ss	ds	ss
ds	ss	ds	ss

Such an arrangement, however, seems less easy to remember than the following: a progression from all spondees or dactyls through the various combinations to the opposite pattern. Since Latin poetry favors the spondee, I shall begin with all spondees in the first four feet; this arrangement gives us five groups instead of four, but will, I believe, have mnemonic merit, especially as the second eight are the opposites of the first eight,⁶ in reverse order.



⁶ For example, *dddd* is the "opposite" of *ssss*, *ddds* of *sssd*, *ddsd* of *ssds*, etc. C. C. Bushnell, "The First Four Feet of the Hexameter of Horace's *Satires*," *TAPA* 33 (1902) lvii, uses the term "reverse" to define "the result obtained by substituting for every dactyl a spondee, and *vice versa*," but "opposite" seems more accurate. I apply the term "reverse" to the patterns which present the sequence of dactyls and spondees in truly reverse order, e.g. *sssd* and *dsds*, *sddd* and *ddds*; *sssd* is thus both the "opposite" of *ddds* and the "reverse" of *dsds*; see below, Section vi.

The diagonal lines inserted above to indicate the shifting of dactyls and spondees should also help the reader to keep in mind the sixteen possible combinations of the hexameter patterns.⁷

A preponderance of spondees makes for a verse that is slow, stately, and solemn. Among the most effective of the type *ssss* are perhaps *Aen.* 8.452:

illi inter sese multa vi brachia tollunt,

where one can hear the Cyclopes working at their anvils, and *Aen.* 3.658, the description of Polyphemus:

monstrum horrendum, informe, ingens, cui lumen ademptum,

where the strange and horrible are emphasized.⁸

I shall illustrate the sixteen patterns listed above by verses from the beginning of *Aeneid* iv:

- | | | |
|-------------|-------|--|
| <i>ssss</i> | (14): | iactatus fatis! quae bella exhausta canebat! |
| <i>sssd</i> | (16): | ne cui me vinclo vellem sociare iugali |
| <i>ssds</i> | (7): | umentemque Aurora polo dimoverat umbram |
| <i>sdss</i> | (1): | at regina gravi iamdudum saucia cura |
| <i>dsss</i> | (2): | vulnus alit venis et caeco carpitur igni |
| <i>ssdd</i> | (40): | hinc Gaetulae urbes, genus insuperabile bello |
| <i>sdsd</i> | (37): | ductoresque alii, quos Africa terra triumphis |
| <i>dssd</i> | (22): | solus hic inflexit sensus animumque labantem |
| <i>sdds</i> | (30): | sic effata sinum lacrimis implevit obortis |
| <i>dsds</i> | (3): | multa viri virtus animo multusque recursat |
| <i>ddss</i> | (5): | verbaque, nec placidam membris dat cura quietem |
| <i>sddd</i> | (8): | cum sic unanimam adloquitur male sana sororem |
| <i>dsdd</i> | (12): | credo equidem, nec vana fides, genus esse deorum |
| <i>ddsd</i> | (58): | legiferae Cereri Phoeboque patrique Lyaeo |
| <i>ddds</i> | (20): | Anna, fatebor enim, miseri post fata Sychaei |
| <i>dddd</i> | (13): | degeneres animos timor arguit. heu, quibus ille |

⁷ M. W. Drobisch, "Ein statistischer Versuch über die Formen des lateinischen Hexameters," *Berichte säch. Gesellsch. Leipzig* 18 (1866) 76, had earlier favored a similar arrangement in five groups, beginning with *ssss*, but his listing of the patterns did not permit the diagonal lines given above.

⁸ Cf. also *Aen.* 4.181: *monstrum horrendum, ingens, cui quot sunt corpore plumae*, and 7.78: *id vero horrendum ac visu mirabile ferri*. Fear and anxiety are stressed in such *ssss* verses as 1.92: *extemplo Aeneae solvuntur frigore membra*; 2.559: *at me tum primum saevus circumstetit horror*; and 4.279: *at vero Aeneas aspectu obmutuit amens*. For a thorough analysis of the effectiveness of lines composed of *ssss* and *dddd*, see R. Maxa, "Lautmalerei und Rhythmus in Vergils Aeneis," *WS* 19 (1897) 78–116; cf. also Winbolt (above, note 5) 118–25; E. Norden, *P. Vergilius Maro Aeneis Buch vi*⁸ (Leipzig 1926) 419–25; C. G. Cooper, *An Introduction to the Latin Hexameter* (Melbourne 1952) 28–31.

Dactylic verses are light, graceful, and rapid. The *ddddds* verse in *Aen.* 4.13 is of course less famous than that in 8.596:

quadripedante putrem sonitu quatit ungula campum,

where the horses gallop across the plain,⁹ or that in 9.503:

at tuba terribilem sonitum procul aere canoro,

where the meter echoes the sound of the trumpet.

II. A NOTE ON HOMER AND ENNIUS

The order of the patterns as listed above bears no relation to the frequency of their appearance. If the sixteen patterns were each used to the same extent, the frequency of each would be 6.25 per cent, but this happens neither in Greek nor in Latin poetry. Before we turn (in Section III) to Vergil's use of the hexameter patterns, it will be instructive to examine briefly how they appear in Homer, at the beginning of Greek poetry (as we have it), and in Ennius, at the origin of the Latin hexameter. For Homer, I use the earlier work of Drobisch (on *Iliad* I-IV and *Odyssey* I-IV) and La Roche (on the entire *Iliad* and *Odyssey*).¹⁰ Ennius is of course almost too fragmentary to yield adequate results, but I give statistics for 404 verses;¹¹ and however unsatisfactory scattered fragments may be, they still prove conclusively that the Latin hexameter from its beginning was the very opposite of the Greek.

Homer's favorite pattern is *dddd*, which occurs in almost one-fifth of the total verses.¹² The four most frequent (*dddd*, *dsdd*,

⁹ Cf. *Aen.* 11.875: *quadripedumque putrem cursu quatit ungula campum* (*dsdd*). L. P. Wilkinson, *Golden Latin Artistry* (Cambridge 1963) 132, says: "the French Alexandrine . . . has not the variety of the Virgilian hexameter; it cannot gallop."

¹⁰ Drobisch (above, note 5) 42-54; J. La Roche, "Zahlenverhältnisse im homerischen Vers," *WS* 20 (1898) 1-69.

¹¹ My figures are based on the text of Ennius in E. H. Warmington, *Remains of Old Latin*, Vol. 1. *Ennius and Caecilius* (Cambridge [Mass.] 1935). Both Drobisch (above, note 7) 92-94; (above, note 5) 40, and A. Cordier, *Les débuts de l'Hexamètre latin: Ennius* (Paris 1947) 66, give totals slightly different from mine; they use Vahlen's edition of Ennius and include several verses listed by Warmington as spurious. The percentages based on their totals, however, are close to those which I give below; e.g. for the first eight patterns my percentage is 65.35; that of Drobisch 66.18; that of Cordier 64.99.

¹² La Roche (above, note 10) 10 (cf. 33 f.) lists *ddddss* as the most frequent among the 1378 spondaic verses (285 occurrences); we thus have here a percentage of 20.68, very close to the 19.93 for *ddddds*.

sddd, and *ddds*) appear over 57 per cent of the time,¹³ and the percentage for the next four is over 26; the eight patterns appearing most frequently thus total over 84 per cent, and the other eight patterns make up less than 16 per cent of the verses. The pattern used the least is *ssss* (0.36 per cent).

This may be expressed as follows (patterns and percentages):

		DROBISCH <i>Il.</i> I-IV and <i>Od.</i> I-IV	LA ROCHE <i>Iliad</i> and <i>Odyssey</i> entire
Most frequent:	<i>dddd</i>	18.56	19.93
	<i>dsdd</i>		
	<i>sddd</i>		
First four:	<i>ddds</i>	57.56	57.99
	<i>ssdd</i>		
	<i>dsds</i>		
	<i>sdds</i>		
Second four:	<i>ddsd</i>	26.94	26.34
First eight:		84.49	84.34
Least frequent:	<i>ssss</i>	0.32	0.36

Homer is thus predominantly dactylic: the four patterns appearing most frequently in the first four feet total thirteen dactyls, three spondees; the second four have nine dactyls, seven spondees; thus for the eight patterns which appear in almost 85 per cent of the verses, we have twenty-two dactyls and ten spondees ($8 \times 4 = 32$).

The situation with Ennius is very different. The lack of articles and particles in Latin made the hexameter at the outset far more spondaic. The pattern most frequent in the fragments of Ennius is *ssss* (15.35 per cent), the very pattern used least by Homer, and the first four patterns (*ssss*, *dsds*, *sdss*, *ssds*) total 41.34 per cent. In these four patterns we find thirteen spondees, three dactyls—the exact opposite of Homer's preference (13 dactyls, 3 spondees). The second four patterns in Ennius (*sssd*, *ddss*, *dssd*, *dsds*) total 24.01 per cent. Thus the first eight patterns comprise 65.35 per cent, quite different from the 84.34 per cent of Homer's eight favorite patterns. From the very beginning of Latin hexameter poetry greater variety was possible

¹³ The percentages are mine, based on the totals given by Drobisch and La Roche for each pattern and the total number of lines. All spondaic verses are excluded.

than had been the case in Homer. The pattern appearing least frequently in Ennius is *ssdd* (2.72 per cent; in Homer the same pattern is fifth and has a percentage of 8.54).

The contrast between Homer and Ennius may be presented as follows (patterns and percentages):

	HOMER		ENNIUS	
Most frequent:	dddd	19.93	ssss	15.25
	dsdd		dsdd	
	sddd		sdss	
First four:	ddds	57.99	ssds	41.34
	ssdd		sssd	
	dsds		ddss	
	sdds		dsdd	
Second four:	ddsd	26.34	dsds	24.01
First eight:		84.34		65.35
Least frequent:	ssss	0.36	ssdd	2.72

Among the first eight patterns, only *dsds* appears on both lists. The eight most frequent patterns in Ennius contain twenty-two spondees, ten dactyls, while Homer has the exact opposite, twenty-two dactyls, ten spondees. Also, Ennius favors a spondee in the fourth foot (6 *s* to 2 *d*), whereas in Homer the dactylic fourth foot is more frequent (5 *d* to 3 *s*).

We shall now examine in detail the metrical patterns as they appear in the *Eclogues*, *Georgics*, and *Aeneid* of Vergil.

III. THE PATTERNS IN VERGIL

In the analyses which follow I shall limit myself primarily to the eight patterns which appear most frequently, for it is upon these that the development in Vergil's metrical procedure from the *Eclogues* through the *Georgics* to the *Aeneid* largely depends. Full information concerning the totals of all sixteen patterns may be found below in Table 1.

A. The *Eclogues*

The *Eclogues* comprise 829 verses (exclusive of 8.28a); from these I deduct three spondaic lines (4.49; 5.38; 7.53) and also 8.76,

which I believe should be bracketed,¹⁴ thus leaving a total of 825 lines for the sixteen patterns under consideration. Drobisch excluded from his calculations the two refrains (*ddsd* and *dddd*) in viii,¹⁵ but wrongly so, since the refrains (in Vergil as in Theocritus) are an essential and effective part of the poetry. My results for the *Eclogues* are therefore necessarily more dactylic than those of Drobisch.

The most frequent pattern for the *Eclogues* as a whole is *ddss* (108 times; 13.09 per cent) but in the individual poems there is wide variation; e.g. *sdss* in i (13.25 per cent), *dssd* in iii (15.32 per cent), *dsds* in v (14.61 per cent), *ddsd* in viii (17.59 per cent, one result of the refrains mentioned above), and *dsss* in x (14.29 per cent). In two poems, two patterns are tied for first place (*dsss* and *ddss* in vi, 15.12 per cent each; *dsss* and *sdss* in vii, 11.59 per cent each), and three patterns are first in ix (*ddss*, *ddds*, *dssd*; 10.45 per cent each). The only poems in which *ddss* occupies undisputed first place are ii (20.55 per cent) and iv (an unusually high 24.19 per cent).

The emergence of *dsss* to a position of prominence in vi, vii, and especially x (by general agreement the latest of the *Eclogues*) is particularly interesting in view of the fact that, as we shall see below, *dsss* is the most frequent pattern in the *Georgics* as a whole (also in each of the four books) and in the *Aeneid* as a whole (also in ten books, all but v and vii where *ddss* appears slightly more often).

The order of frequency for the first eight patterns (with their totals) is in the *Eclogues* as follows: *ddss* (108), *dsss* (88), *dsds* (79), *dssd* and *ddsd* tied for fourth place (67), *sdss* (63), *ddds* (54), *sdds* (44). The percentages are:

First four patterns:	41.45
Second four:	27.64
First eight:	69.09

Vergil in his bucolic poems thus favors a dactyl in the first foot (6 dactyls to 2 spondees) and a spondee in the fourth foot (6 spondees to 2 dactyls).

¹⁴ I follow Forbiger, Jahn, and Perret in rejecting 8.76; see Duckworth (rev. of J. Perret, *Virgile. Les Bucoliques*), *AJP* 83 (1962) 446 f. and note 11. The bracketing of 76 automatically removes the reason for adding 28a.

¹⁵ Drobisch (above, note 5) 28. He was also incorrect in listing 8.44 as a fourth spondaic verse.

The dactyls and spondees in these eight patterns, however, are equally divided, 16 and 16; we saw above that the distribution in Homer was 22 dactyls and 10 spondees, in Ennius 22 spondees and 12 dactyls. *Eclogue* II, considered by all the earliest of the pastorals, is far more Greek than Roman in this respect, since the first eight patterns contain 20 dactyls and 12 spondees; *Eclogue* VIII is similar; *sdss* and *sdds* are tied for the eighth position; depending upon which is included, the dactyls in the first eight patterns total 19 or 20, the spondees 13 or 12; this is, of course, partly the result of the two dactylic (and Theocritean) refrains, *ddsd* and *dddd*. But the fact that II and VIII are the most dactylic of the pastorals may also be connected with Vergil's arrangement of the corresponding poems (I and IX, II and VIII, III and VII, IV and VI) around V as the center poem.¹⁶ II and VIII go together in their distribution of spondees and dactyls as in many other respects.¹⁷ III and VII, considered by Otis the two other "fully Theocritean poems,"¹⁸ have a more normal Vergilian distribution, 18 spondees, 14 dactyls and 17 spondees, 15 dactyls respectively.

B. The Problem of *Eclogue* IV

In spite of the variation in the patterns which appear most frequently, the percentages for the first eight patterns in the *Eclogues* remain fairly constant, with a spread for the first four from 40.30 (IX) to 52.77 (VIII), the second four from 23.29 (II) to 31.88 (VII), the first eight from 70.27 (III) to 80.52 (X). These percentages do *not* include *Eclogue* IV, where the situation is very different. I mentioned above that *ddss*, the most frequent pattern in IV, occurs 24.19 per cent; this is higher than for any of the other *Eclogues* and almost twice as high as the percentage for the most frequent pattern in the collection as a whole (13.09). But the

¹⁶ See P. Maury, "Le secret de Virgile et l'architecture des Bucoliques," *Lettres d'Humanité* 3 (1944) 71-147, esp. 99 ff.; G. E. Duckworth, "The Architecture of the *Aeneid*," *AJP* 75 (1954) 3 f.; *Structural Patterns and Proportions in Vergil's Aeneid* (Ann Arbor 1962) 3 f.; B. Otis, *Virgil: A Study in Civilized Poetry* (Oxford 1963 [1964]) 128-43.

¹⁷ Otis points out also that Vergil's "subjective style" first appears in both VIII and II in a rudimentary form; see Otis (above, note 16) 105-24 for his analyses of the two poems.

¹⁸ Otis (above, note 16) 128.

first four patterns in iv (*ddss*, *dsss*, *dsds*, *sdds*) total 72.58 per cent, as against 41.45 per cent for all ten *Eclogues*; and the first eight patterns add to an amazing 91.93 per cent, leaving only about eight per cent for the other eight patterns. The metrical situation in iv thus differs much from that in the other *Eclogues*.

If we analyze the other nine pastorals apart from *Eclogue* iv, the differences are even more striking; see the percentages in the following tabulation:

PATTERNS	<i>Ecl.</i> I-X	<i>Ecl.</i> IV	<i>Ecl.</i> I-III, V-X
Most frequent:	13.09	24.19	12.09
First four:	41.45	72.58	39.71
Second four:	27.64	19.35	28.57
First eight:	69.09	91.93	68.28

Why should the frequency of the first eight patterns in *Eclogue* iv be almost 92 per cent, when the average frequency for the first eight patterns in the other *Eclogues* is 68.28, a total less than the percentage in iv of the *first four* patterns (72.58)? Why should the most frequent pattern in iv occur 24.19 per cent, when the average of the patterns appearing most often in the other nine poems is only 12.09, almost exactly half? This shows the extent to which iv is unique among the *Eclogues* and poses a problem to which I shall return, after a brief comparison of the meters in the *Eclogues* and in the *Idylls* of Theocritus.

In Theocritus, as in Homer, the frequencies of the first eight patterns are high. I have examined the first thirteen *Idylls*, the more bucolic of Theocritus' poems. These thirteen poems total 1168 verses, but I exclude eighteen spondaic lines,¹⁹ four interpolations (2.61; 6.41; 8.77; 13.61), and 8.33-60, a song in elegiac couplets; this leaves a total of 1118 verses.

Theocritus' favorite pattern is *sddd* (not *dddd*, as in Homer), and its percentage is 18.43. But here, as in the *Eclogues*, there is wide variation among the individual poems: *sddd* is first in five *Idylls* (III, VIII, XI-XIII), with a range from 18.75 (VIII) to 30.56 (XII); *dsdd* is first in I, V, and VII (range from 20.78 to 22.30); *dddd* in II (23.78) and VI (28.89); *ssdd* in IV (22.22) and X (an unusually low 14.04), and IX is unique in that four patterns

¹⁹ 1.38, 71, 75, 136; 2.35; 5.113; 7.23, 48, 133; 10.58; 11.24, 58, 69; 12.2; 13.20, 42, 43, 44.

(*dsdd*, *ssdd*, *dsds*, and *ssds*) are tied for first place (11.11 per cent each).

The comparison of the first eight patterns in Vergil and Theocritus is as follows:

	<i>Eclogues</i> I-X		<i>Idylls</i> I-XIII	
	PATTERNS	PERCENTAGES	PATTERNS	PERCENTAGES ²⁰
Most frequent:	ddss	13.09	sddd	18.43
	dsss		dsdd	
	dsds		dddd	
First four:	{ dssd	41.45	ssdd	63.51
	{ ddsd		ddsd	
	sdss		dsdd	
	ddds		sdsd	
Second four:	sdds	27.64	ssds	20.84
First eight:		69.09		84.35
Spondees and dactyls:	16 s—16 d		20 d—12 s	
First foot:	2 s—6 d		4 d—4 s	
Fourth foot:	6 s—2 d		7 d—1 s	

The differences are striking: the first pattern in Theocritus is almost as frequent as the second four (18.43; 20.84) and more frequent than the remaining eight (18.43; 15.65), whereas in Vergil the first pattern occurs less than half as often as either the

²⁰ *Idylls* VIII-XI seem out of line in their percentages for both the first four and the first eight patterns. If we exclude these four poems, the percentage range for the remaining nine poems under consideration (I-VII, XII-XIII) is as follows:

First four patterns: 63.49 (IV) to 77.78 (XII)
First eight: 88.41 (II) to 96.30 (III)

This differs considerably from the figures for the other four poems:

	VIII	IX	X	XI
First four patterns:	56.25	44.44	50.88	56.41
First eight:	82.81	77.77	82.46	83.33

The percentages of *Idyll* IX are decidedly the lowest of these four poems, and it is worth noting that IX has been considered non-Theocritean by several scholars; see, e.g., A. S. F. Gow, *Theocritus*² (Cambridge 1952) 185: "It seems plain therefore that the whole poem is spurious"; IX was earlier rejected by Weise, Brücker, and Legrand; cf. R. J. Cholmeley, *The Idylls of Theocritus*⁴ (London 1911) 255. Critics have also looked upon VIII as spurious, either wholly or in part; see Gow, *op. cit.* 170 f.; Gow himself believes that VIII is the work of an imitator, but one of more talent than the writer of IX. The frequency percentages of X and XI are also low, and these are accepted as genuine; they differ, however, from the ordinary bucolics of Theocritus in that X is agricultural and XI presents a grotesque treatment of Polyphemus.

second four (13.09; 27.64) or the last eight patterns (13.09; 30.91). However much Vergil imitates Theocritus' rhythms in other respects, his frequencies are very different (cf. the first eight patterns: Vergil, 69.09; Theocritus, 84.35), as is his choice of patterns with a decided preference for a spondee in the fourth foot; Vergil's first eight patterns, with a percentage of 69.09, occur in Theocritus a total of only 24.33 per cent.

The *Eclogues*, as we shall see, are still much more dactylic than the *Georgics* or the *Aeneid*. The two refrains in *Eclogue* VIII (*ddsd* and *dddd*), based on the refrains in *Idylls* I and II (*ddsd*, I; *sddd* and *dddd*, II) give the poem, and the collection as a whole, a dactylic tone that is lacking in the two later works. Yet the basic emphasis on spondees is unmistakable, as is the greater variety made possible by the lower percentage frequencies.

I commented earlier on the Greek nature of both *Eclogues* II and VIII, each with an unusually high number of dactyls in the first four feet; IV, on the contrary, is the most spondaic of the collection (19 *s*, 13 *d*). Bolaños points out that the high dactylic count of II and VIII is to be explained by their being close imitations of Theocritus and says that IV is the most independent and the most Vergilian of the *Eclogues*.²¹ Bolaños is misleading here; IV is Vergilian in its use of spondees but in the frequency of its patterns it is the least Vergilian of the ten poems. This brings me back to the problem of IV, briefly outlined above.

The abnormally high frequency percentages of *Eclogue* IV exceed those of *Idylls* I–XIII:

	<i>Eclogue</i> IV	<i>Idylls</i> I–XIII
Most frequent:	24.19	18.43
First four:	72.58	63.51
Second four:	19.35	20.84
First eight:	91.93	84.35

These totals for the *Idylls* are deceptively low because of (1) the variation of the patterns in first position, and (2) the unusually low percentages in *Idylls* VIII–XI, mentioned above. Actually, ten of the first thirteen *Idylls* have a percentage range for the most frequent pattern from 20.78 to 30.56, and that of *Eclogue* IV (24.19) falls in this area. The percentages for the first four

²¹ J. M. Bolaños, S.I., "Virgilio, Rey del Hexámetro (Estudio de Métrica)," *Estudios Virgilianos* (Quito 1931) 94 f.

patterns in several *Idylls* (II, 70.12; VI, 73.33; VII, 70.78; XII, 77.78) resemble the 72.58 per cent of *Eclogue* IV, and nine *Idylls* (I-VII, XII-XIII) have a percentage range for the first eight patterns from 88.41 (II) to 96.30 (III); the corresponding percentage in *Eclogue* IV is 91.93, almost exactly in the middle of this range. This shows the extent to which the Theocritus totals, as given above, are misleading in relation to the *Eclogue*. If we eliminate *Idylls* VIII and IX, often considered spurious, the average percentages for the other eleven *Idylls* are slightly closer to those of *Eclogue* IV, but still considerably lower:

	<i>Eclogue</i> IV	<i>Idylls</i> I-VII, X-XIII
Most frequent:	24.19	18.96
First four:	72.58	65.03
Second four:	19.35	20.33
First eight:	91.93	85.36

Eclogue IV, totaling 63 lines, is composed of heptads: 3 + 7 + 7 + 28 + 7 + 7 + 4;²² Préaux, in a recent discussion of the structure of the poem, explains the choice of 63 verses as appropriate for a birthday poem, 63 being considered a critical age.²³ But perhaps Vergil in this respect *was* influenced by Theocritus; the fourth *Idyll* also contains 63 verses and the numbers 7 and 14 are found in the metrical patterns: the most frequent pattern (*ssdd*) occurs fourteen times, and three other patterns (*dsdd*, *dddd*, and *sssd*) each appear seven times. Also, the percentage for the most frequent pattern in *Eclogue* IV is 24.19, in *Idyll* IV 22.22; that for the first eight patterns in *Eclogue* IV is 91.93, in *Idyll* IV 90.48; these are not very dissimilar.

I do not believe, however, that *Eclogue* IV, so Roman and metrically so spondaic, is to be explained primarily by Vergil's imitation of *Idyll* IV. There is no similarity in the subject matter of the two poems, and the source of the metrical peculiarities of the *Eclogue* must be sought elsewhere.

²² Cf. Duckworth, *Structural Patterns* (above, note 16) 21 f.

²³ J.-G. Préaux, "Constatations sur la composition de la 4^e bucolique de Virgile," *RBP* 41 (1963) 63-79. On the importance of the number 63 in *Eclogue* IV and elsewhere in Vergil, see J. J. H. Savage, "The Cyclops, the Sibyl and the Poet," *TAPA* 93 (1962) 410-42, esp. 427-34. Savage, "The Art of the Seventh *Eclogue* of Vergil," *TAPA* 94 (1963) 258, note 15, points out Aeschylus' use of 63 in oracular passages in both the *Agamemnon* and the *Eumenides*.

We turn now to Catullus LXIV, the Peleus and Thetis–Ariadne poem. The influence of this work upon *Eclogue* IV is recognized by all. As Wilkinson says, “Virgil was certainly impressed by the *Peleus and Thetis*: he echoes it a number of times, and his *Pollio* is largely a response to it.”²⁴ The frequency percentages for the two poems are as follows:

	<i>Eclogue</i> IV		Catullus LXIV	
	PATTERNS	PERCENTAGES	PATTERNS	PERCENTAGES
Most frequent:	ddss	24.19	ds ss	27.59
	ds ss		sd ss	
	ds ds		dd ss	
First four:	sdds	72.58	ds ds	67.90
	sd ss		ss ss	
	ds dd		ds sd	
	ss dd		ss ds	
Second four:	ss ss	19.35	dd ds	23.08
First eight:		91.93		90.98
Spondees and				
dactyls:	19 s——13 d		20 s——12 d	
First foot:	4 s——4 d		3 s——5 d	
Fourth foot:	6 s——2 d		7 s——1 d	

The similarity of the patterns is noteworthy, five of the first eight being identical. The unusually high percentage in *Eclogue* IV both of the first pattern and the first eight patterns resembles closely the procedure of Catullus, as does the distribution of spondees and dactyls in the first four feet, and the high proportion of spondees in the fourth foot.

Metrically, then, as in other respects, Vergil seems deliberately to imitate Catullus LXIV in this *Eclogue*, which is so different from his other bucolic poems. This fact gives added support to the statement of Jackson Knight:²⁵

The Fourth *Eclogue*, perhaps the most Catullan of Vergil's certain poems, recalls the hexameters of Catullus in phrases, in the unity of single lines, in schematization of balanced word order, and in the quality of the verse groups.

²⁴ Wilkinson (above, note 9) 194; see E. K. Rand, *The Magical Art of Virgil* (Cambridge [Mass.] 1931) 110 f.; also R. E. H. Westendorp Boerma, “Vergil's Debt to Catullus,” *Acta Classica* 1 (1958) 55, and bibliography there cited.

²⁵ W. F. Jackson Knight, *Roman Vergil* 2 (London 1944) 271 f.

C. The *Georgics*

The *Georgics* contain 2,188 lines, from which I deduct five spondaic verses (1.221; 2.5; 3.276; 4.270, 463)²⁶ and 4.338, bracketed by editors as an interpolation.

In the *Georgics*, a more mature and polished work, Vergil develops a metrical uniformity lacking in the *Eclogues* and establishes norms which, with minor changes, will determine his metrical procedure also in the *Aeneid*. His favorite pattern is now *ds**ss*, not only in the poem as a whole, but in each of the four books; the percentage of frequency ranges from 14.16 (iii) to 17.38 (ii), and for all four books is 15.81 (345 occurrences). In second place in the *Georgics* is *ds**ds*, also in Books i, ii, and iv; *dd**ss* has second place in iii, but third in ii and iv, and third for the entire poem; *sd**ss* is fourth for the poem and also in ii and iv. The percentage frequency for these four patterns ranges from 45.66 (iii) to 53.79 (ii) and for the poem as a whole is 48.99.

The second four patterns in order of frequency are *ds**sd*, *ddd**s*, *ss**ss*, and *ss**ds*, with a percentage range from 22.55 (ii) to 27.96 (iii) and for the entire poem 24.43. The picture for the *Georgics* is thus as follows:

	PATTERN	PERCENTAGE
Most frequent:	<i>ds</i> <i>ss</i>	15.81
	<i>ds</i> <i>ds</i>	
	<i>dd</i> <i>ss</i>	
First four:	<i>sd</i> <i>ss</i>	48.99
	<i>ds</i> <i>sd</i>	
	<i>ddd</i> <i>s</i>	
	<i>ss</i> <i>ss</i>	
Second four:	<i>ss</i> <i>ds</i>	24.43
First eight:		73.42

These eight patterns total almost three-fourths of the verses. Vergil's predilection for the spondee in the fourth foot has increased from 6-2 in the *Eclogues* to 7-1 in the *Georgics*. Also, the distribution in the first four feet has changed to 20 spondees, 12 dactyls (as compared to 16 and 16 in the *Eclogues*).²⁷

²⁶ Drobisch (above, note 5) 18 fails to include 4.463 among the spondaic verses.

²⁷ The range in the individual books of the *Georgics* is spondees, 18 to 21; dactyls, 14 to 11.

The two patterns appearing least often in the *Georgics* are *dddd* (2.25 per cent) and *sddd* (1.97 per cent); *sddd* is also the least frequent in the *Eclogues* (2.42 per cent). This is a far cry from both Homer and Theocritus, as we saw above; Homer's favorite pattern is *dddd*, with *sddd* in third place; in *Idylls* I–XIII *sddd* is most frequent and *dddd* has the third position.

D. The *Aeneid*

The twelve books of the *Aeneid*, including 1.1a–1d,²⁸ contain 9,900 verses. From these we must deduct twenty-four spondaic lines,²⁹ the incomplete verses (fifty-seven in number), and fourteen lines which are bracketed by Hirtzel as interpolations.³⁰ This leaves a total of 9,805 verses, on which the statistics in Table 1 are based.

Vergil's favorite pattern in the *Aeneid*, as in the *Georgics*, is *dsss*;³¹ it is first by far in the poem as a whole (1,411 verses, 14.39 per cent; *ddss* is second with 1,158, 11.81 per cent) and in each of the twelve books except two (v and vii) where *ddss* is slightly more

²⁸ *Aen.* 1.1a–1d are considered genuine by Hirtzel; see Duckworth, *Structural Patterns* (above, note 16) 84.

²⁹ The spondaic verses are 1.617; 2.68; 3.12, 74, 517, 549; 5.320, 761; 7.631, 634; 8.54, 167, 341, 345, 402, 679; 9.9, 196, 241, 647; 11.31, 659; 12.83, 863. With the three spondaic lines in the *Eclogues* and the five in the *Georgics* we have thus a total of thirty-two for Vergil's three works. Norden (above, note 8) 445 f. gives thirty-three as the total, but he undoubtedly includes 9.67, with Ribbeck's reading *qua vi*; Hirtzel reads *quae via*; Janell and Sabbadini *qua via*; see below, Appendix.

³⁰ These are conveniently listed in Duckworth, *Structural Patterns* (above, note 16) 81.

³¹ Vergil in this respect follows the practice of Cicero (*Aratea*), Lucretius (*De rerum natura*, also in each of the six books), and Catullus (lxiv). Horace likewise uses *dsss* more frequently than any other pattern in each of his four hexameter collections; the percentages are as follows: *Satires* I, 12.82; II, 14.03; *Epistles* I, 12.82; II, 10.82. Drobisch (above, note 7) 104–7 examines Ovid, *Metam.* 1.1–560 and finds *dssd* the most frequent pattern; actually the leading pattern in the first book is *dsss*; see A. G. Lee, *P. Ovidi Nasonis Metamorphoseon, Liber I* (Cambridge 1953) 33, where he states: "There would probably be alterations of emphasis if the count were extended to include all fifteen books of the poem, but I do not believe they would be big enough to upset the broad conclusions drawn from an examination of only one book." Lee is definitely in error here. Ovid's procedure in I does *not* give a true picture, for in the poem as a whole *dsss* occupies second place. My analysis of the metrical patterns in all fifteen books places *ddss* first with 13.08 per cent and *dsss* second with 12.57 per cent. Unlike Lucretius, Vergil, and Horace, who are amazingly consistent in their preference for *dsss*, Ovid varies to a considerable degree the position of *dsss* from book to book: first in Books I, III, V, VIII, IX; second in II, IV, XII, XIII, XIV; third in XI, and tied for third place (with *ddss*) in X; fourth in VI; and fifth in both VII and XV.

frequent; in the other ten books *ds*ss as first choice ranges from a percentage of 13.47 (iv) to 16.30 (xii); the next highest is x with 15.90.³²

The first four patterns (*ds*ss, *dd*ss, *ds*ds, *sd*ss) have a frequency percentage of 46.95; the second four (*ss*ss, *dd*ds, *ss*ds, *sdd*s) a percentage of 25.83. The first eight thus equal 72.78 per cent, almost three-fourths of the total number of verses. We have in these patterns a distribution of twenty spondees and twelve dactyls, the same as in the *Georgics*, but the fourth foot is now always a spondee.

The patterns used least often in the *Aeneid* are *dddd* (2.12 per cent) and *sddd* (1.98 per cent).³³ These are likewise in fifteenth and sixteenth place in the *Georgics*.

E. The Development of the Patterns

I shall now bring together the analyses discussed above in Sections A, C, and D. The following shows the changes in Vergil's choice of metrical patterns from the *Eclogues* through the *Georgics* to the *Aeneid* (patterns and percentages):

	<i>Eclogues</i>		<i>Georgics</i>		<i>Aeneid</i>	
First:	<i>dd</i> ss	13.09	<i>ds</i> ss	15.81	<i>ds</i> ss	14.39
	<i>ds</i> ss		<i>ds</i> ds		<i>dd</i> ss	
	<i>ds</i> ds		<i>dd</i> ss		<i>ds</i> ds	
1st four:	{ <i>ds</i> sd	41.45	<i>sd</i> ss	48.99	<i>sd</i> ss	46.95
	{ <i>dd</i> sd		<i>ds</i> sd		<i>ss</i> ss	
	<i>sd</i> ss		<i>dd</i> ds		<i>dd</i> ds	
	<i>dd</i> ds		<i>ss</i> ss		<i>ss</i> ds	
2nd four:	<i>sdd</i> s	27.64	<i>ss</i> ds	24.43	<i>sdd</i> s	25.83
1st eight:		69.09		73.42		72.78
Fifteenth:	<i>ss</i> sd	2.54	<i>dddd</i>	2.25	<i>dddd</i>	2.12
Sixteenth:	<i>sddd</i>	2.42	<i>sddd</i>	1.97	<i>sddd</i>	1.98

Vergil establishes his normal procedure in the *Georgics* and the *Aeneid*, with *ds*ss as his favorite pattern. He uses the four most

³² The frequency of *ds*ss in *Aeneid* i-ix is 14.02 per cent; in x-xii 15.34 per cent; the percentages for *ds*ds show a similar variation: i-ix, 10.76; x-xii, 12.15. I shall return to the problem of *Aeneid* x-xii; see below, Section viii.

³³ J. La Roche, "Der Hexameter bei Vergil," *WS* 23 (1901) 127-29 considered *sddd* as fifteenth (227 occurrences) and *dddd* as sixteenth (209). Unfortunately he reversed *ds*dd and *sddd* in his lists for *Aeneid* viii, ix, and x; on these and other errors in his calculations, see below, Appendix.

frequent patterns slightly less in the *Aeneid* than in the *Georgics*; they are the same four patterns, with *ddss* in the *Aeneid* in second place instead of third. The distribution of spondees and dactyls in the first eight patterns moves from 16 *s*, 16 *d* (*Eclogues*) to 20 *s*, 12 *d* (*Georgics*) and remains the same in the *Aeneid*. The change in fourth foot spondees develops steadily from the *Eclogues* (6 *s*, 2 *d*) to the *Georgics* (7 *s*, 1 *d*) to the *Aeneid* (8 *s*, 0 *d*). One interesting point is Vergil's treatment of *ssss* (Ennius' favorite pattern); in the *Eclogues* it has tenth position (40 times; 4.85 per cent), in the *Georgics* seventh place (125 times; 5.73 per cent), and in the *Aeneid* it becomes the fifth pattern (693 times; 7.07 per cent).

This section has given the most important patterns and their frequencies for Vergil's three works and has shown the development from the *Eclogues* (in part more Theocritean or Catullan) to his normal practice as established for the *Georgics* and the *Aeneid*. This material lays the foundation for the study in variety and repetition which follows.

Some years ago, O'Neill wrote as follows:³⁴

When we have determined statistically the frequencies of dactyls and spondees in each of the first five feet and the frequencies of various combinations of dactyls and spondees in these feet, we know all that there is to know about the outer metric of the hexameter.

I disagree: the frequencies in *Eclogue* iv and in Theocritus, *Idylls* viii and ix, have already thrown new light on matters of indebtedness and authenticity; and I am convinced that it will be possible to establish additional new criteria of value which will elucidate Vergil's metrical procedure.

IV. VARIETY IN SIXTEEN-LINE UNITS

The important thing in any discussion of Vergil's outer metric is not *what* patterns appear, but *how* they are used; it is not merely a question of frequency, but a matter of spacing. Do we find monotonous repetition of the same patterns in several lines in succession, or does Vergil try to avoid repeated patterns in adjacent verses?

³⁴ O'Neill (above, note 4) 336, note 3.

Variety would be much easier to achieve if the sixteen patterns were each used to the same extent (i.e. 6.25 per cent per pattern); but, as we have seen, this never happens. The most frequent pattern occurs in over one-eighth of the total verses (*Eclogues*, 13.09 per cent; *Georgics*, 15.81; *Aeneid*, 14.39) and the frequency of the first four patterns ranges from 41.45 per cent in the *Eclogues* to 48.99 in the *Georgics*, with a slight decrease in the *Aeneid* to 46.95.³⁵ Eight of the sixteen patterns appear in over two-thirds of the verses: *Eclogues*, 69.09 per cent; *Georgics*, 73.42; *Aeneid*, 72.78. Although these frequencies are much lower than those given above for Homer, Theocritus, and Catullus LXIV,³⁶ they still may be sufficiently high to preclude a satisfying variety in the different combinations of dactyls and spondees. If the same pattern appears frequently in three or four lines in succession, a dangerous monotony may result unless precautions are taken to vary the lines by other means.

Before discussing the repetition of patterns, I wish to examine the variety which Vergil introduces into his versification. One possible approach—less important than the chief one, but not without interest—is to check the beginning of each of the *Eclogues* and likewise the beginning of each book of the *Georgics* and the *Aeneid* to see how many different patterns appear before we come to a repetition. The results are as follows:

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	AVERAGE
<i>Eclogues</i> :	6	7	7	2	10	3	5	4	9	5			5.8
<i>Georgics</i> :	2	5	6	1									3.5
<i>Aeneid</i> :	4	6	4	3	2	1	4	7	2	3	7	3	3.8

The average initial variety of the *Eclogues* (5.8) is thus considerably higher than that of the *Georgics* (3.5) and the *Aeneid* (3.8), where in the individual books the range is from one to seven verses. In the *Eclogues*, ix has nine different patterns at the beginning, and v is highest with ten.³⁷ This last is of unusual interest, since v and x are corresponding poems,³⁸ and x has an

³⁵ The individual books of the *Aeneid* show a remarkable consistency: from 45.83 (ii) to 49.0 (ix and xii). In the *Georgics* the range is wider: 45.66 (iii) to 53.79 (ii), and in the *Eclogues*, even if we exclude the abnormally high Fourth (72.58), we have a range from 40.30 (ix) to 52.77 (viii).

³⁶ See above, Sections II, III B.

³⁷ These ten are as follows: *sdds*, *dsdd*, *dsss*, *sdss*, *dsds*, *sdsd*, *ssss*, *dssd*, *sssd*, *ddss*; verse 11 repeats *sdss*.

³⁸ See Maury, Duckworth, and Otis (above, note 16).

initial variety of five different patterns; this does not seem accidental. Vergil brings together the two poems by similarities of theme (both Roman; Daphnis as Caesar, Gallus as Daphnis) and by Theocritean imitation (both based on *Idyll* 1), and he likewise links them in a subtle fashion by the use of ten different patterns at the beginning of v and by five at the beginning of x.³⁹

A more meaningful approach to the variety in Vergil's use of metrical patterns is a division of each poem or book into consecutive units of sixteen verses each (disregarding spondaic lines, interpolations, and, for the *Aeneid*, all incomplete verses), and a listing of the number of the sixteen possible patterns which appear in each of these units. With one-fourth of the patterns appearing in almost half of the verses, one might expect this number to be relatively small, but this is not the case with Vergil. In the *Aeneid*, for instance, only nine such sixteen-line units have less than seven patterns,⁴⁰ whereas eleven have thirteen patterns, as for example 1.189–204 (with no repetitions until we reach 202, the fourteenth line in the unit):

- 189 (sssd): ductoresque ipsos primum capita alta ferentis
- 190 (ddss): cornibus arboreis sternit, tum vulgus et omnem
- 191 (dsds): miscet agens telis nemora inter frondea turbam;
- 192 (dsss): nec prius absistit quam septem ingentia victor
- 193 (ddds): corpora fundat humi et numerum cum navibus aequet.
- 194 (sdds): hinc portum petit et socios partitur in omnis.
- 195 (dsdd): vina bonus quae deinde cadis onerarat Acestes
- 196 (dddd): litore Trinacrio dederatque abeuntibus heros
- 197 (dssd): dividit, et dictis maerentia pectora mulcet:
- 198 (ddsd): "O socii (neque enim ignari sumus ante malorum),
- 199 (sddd): o passi graviora, dabit deus his quoque finem.
- 200 (ssdd): vos et Scyllaeam rabiensque penitusque sonantis
- 201 (sdss): accessis scopulos, vos et Cyclopia saxa
- (202–204 repeat 194, 198, 192, respectively.)⁴¹

³⁹ Lest I be accused of excessive subtlety here, I remind the reader that Vergil links *Georgics* 1 and 4 by the mention of Maecenas in line 2 of each book, 11 and 11 by the mention of Maecenas in line 41 in each of these two books; see G. E. Duckworth, "Vergil's *Georgics* and the *Laudes Galli*," *AJP* 80 (1959) 232.

⁴⁰ Five of these sixteen-line units (55.56 per cent) are in *Aeneid* x–xii; only five different patterns in 11.468–83, and six in 10.274–91; 11.274–89, 338–53; 12.305–20. See below, Section VIII.

⁴¹ The other passages in the *Aeneid* with thirteen patterns in sixteen lines are 3.391–406; 5.209–24; 6.97–112, 737–52; 8.164–80; 9.67–82, 474–89; 10.340–55; 11.290–305; 12.753–68.

In by far the majority of the sixteen-line units the number of different patterns ranges from eight to eleven; the percentage of complete units containing eight to eleven patterns remains remarkably constant throughout Vergil's three works:

<i>Eclogues</i> :	87.23	(units with ten patterns most frequent)
<i>Georgics</i> :	87.41	(units with nine patterns most frequent)
<i>Aeneid</i> :	86.89	(units with ten patterns most frequent)

There is of course variation within the separate poems and books. *Eclogue* iv has three complete sixteen-line units, but only one in the range from eight to eleven patterns, i.e. 33.33 per cent, with the other two units containing five and seven patterns only;⁴² on the other hand, *Eclogues* vii and ix have three of four units in the eight to eleven range (75 per cent), but in each poem the fourth unit has twelve patterns. In the *Georgics* the percentage range is from 85.71 (iii) to 88.57 (iv); in the *Aeneid*, somewhat less uniform, from 80.0 (ix) to 98.21 (vi).

More important than the eight to eleven pattern range, however, is the numerical average of the different patterns per sixteen-line unit for the poems of the *Eclogues* and the books of the *Georgics* and the *Aeneid*;⁴³ here we likewise find an amazingly consistent picture:

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	AVERAGE
<i>Ecl.</i> :	10.2	9.8	9.4	7.4 ⁴⁴	10.4	10.8	10.2	9.2	10.7	8.5			9.7
<i>Georg.</i> :	9.1	9.2	9.4	9.3									9.3
<i>Aen.</i> :	9.1	9.8	9.3	9.0	9.4	9.6	9.3	9.1	9.8	9.5	9.3	9.1	9.4

The average in the *Georgics* and the *Aeneid*, though slightly lower than in the *Eclogues*, still seems pleasingly high when we consider that half of the sixteen patterns appear in over two-thirds, almost three-fourths, of the total verses.

⁴² If we disregard *Eclogue* iv, abnormal in many respects (see above, Section III B), the percentage of units with eight to eleven patterns in the other nine pastorals is 90.91.

⁴³ In the percentages given above for units with eight to eleven patterns, it was necessary to disregard all final portions of poems or books with less than sixteen verses; for the numerical averages per unit I include these final portions as fractions, a procedure which makes for greater accuracy.

⁴⁴ The low average of *Eclogue* iv is definitely Catullan; that in Catullus LXIV is 7.0. For other metrical similarities between *Eclogue* iv and Catullus LXIV, see above, Section III B. The average in the *Eclogues* without iv is 9.85.

V. REPEAT CLUSTERS AND REPEATED PATTERNS

The same pattern may occur in two, three, or more lines in succession; these I term "repeats." Only twice does Vergil use the same pattern five times in adjacent verses, and these appear in his earlier poetry, *Ecl.* 10.36–40 (*sdss*) and *Georg.* 1.46–50 (*dsss*). Elsewhere he allows himself a maximum of four repeated patterns and these very rarely—four times in the *Georgics* and only seven in the *Aeneid*.⁴⁵

Often the same pattern may occur frequently but separated by one or two verses; I call these repetitions "near repeats" and when they appear, as often happens, in the vicinity of the repeats, they form what may be termed "repeat clusters." In *Aen.* 5.632–47 we have the repetition of *dsss* as follows:

- 632: o patria et rapti nequiquam ex hoste penates,
 633: nullane iam Troiae dicentur moenia? nusquam
 635: quin agite et mecum infaustas exurite puppis.
 636: nam mihi Cassandrae per somnum vatis imago
 638: hic domus est" inquit "vobis." iam tempus agi res
 641: haec memorans prima infensum vi corripit ignem
 644: Iliadum. hic una e multis, quae maxima natu,
 646: "Non Beroe vobis, non haec Rhoeteia, matres,
 647: est Dorycli coniunx; divini signa decoris

In this passage the same pattern appears nine times in sixteen lines, with three repeats and five near repeats. I have, somewhat arbitrarily, limited the "repeat clusters" to those passages in which *six or more* instances of the same pattern are found in *sixteen or fewer* lines.

The frequency and distribution of these clusters is of interest:

- Eclogues*: 3 clusters, one every 275 lines
Georgics: 15 clusters, one every 145.5 lines
Aeneid: 49 clusters, one every 200.1 lines

The allocation of the clusters in the *Aeneid* is most unusual: in 1–ix we find 26 such clusters, and the other three books have 23,

⁴⁵ *Georg.* 1.146–49; 2.178–81; 3.233–36, 315–18; *Aen.* 1.46–49; 6.375–78, 628–31; 8.674–77; 10.300–3; 12.413–16, 684–87. It is worth noting that three of the seven in the *Aeneid* appear in Books x–xii. La Roche (above, note 33) 135 adds 11.507–10, but he reads *supera* in 510 with Ribbeck, not *supra* (Hirtzel); see below, Appendix.

or 46.94 per cent of the total number. Thus, instead of the average of one cluster every 200.1 lines, we have the following:

Aeneid I-IX: one every 271 lines
Aeneid X-XII: one every 119.9 lines

The clusters are thus relatively rare in the first nine books (IV has none), but in X-XII they appear more than twice as often.

I return now to the repeats (the same pattern two or more times in adjacent lines) and the near repeats (the same pattern separated by one or two lines). For instance, in *Aen.* 9.381-89, where *dsss* occurs six times in nine lines, the distribution is as follows: 381, 382, 383, 386, 387, 389; for my calculations I consider that we have here three adjacent repeats (381-82, 382-83, 386-87) and two near repeats (383 and 386, with two lines between; 387 and 389, with one line intervening). The details concerning the individual poems and books are to be found in Table 2, but may be summarized as follows:

Eclogues: 63 repeats, averaging one every 13.1 lines
Georgics: 177 repeats, averaging one every 12.3 lines
Aeneid: 789 repeats, averaging one every 12.4 lines

When we include the near repeats (as defined above), we have these totals:

Eclogues: repeats and near repeats = 161, one every 5.1 lines
Georgics: repeats and near repeats = 482, one every 4.5 lines
Aeneid: repeats and near repeats = 2,112, one every 4.6 lines

The large number of repeat clusters in *Aeneid* X-XII would of course indicate that these books contain a higher number of repeats than we find in the other nine books:

Aeneid I-IX: 548 repeats, one every 12.9 lines
Aeneid X-XII: 241 repeats, one every 11.4 lines.⁴⁶

By far the majority of the repeats and near repeats occurs in the patterns appearing most frequently; e.g. in the *Georgics* *dsss* occurs in 15.81 per cent of the total verses, but the *dsss* repeats comprise

⁴⁶ There is no appreciable difference if we add the near repeats to the repeats: I-IX, 1,507, an average of one every 4.7 lines; X-XII, 605, an average of one every 4.6 lines.

29.38 per cent of the total number of repeats and, if we include the near repeats, the percentage rises slightly to 31.33. In the *Aeneid*, where the *ds* frequency is 14.39, we find 175 *ds* repeats, or 22.18 per cent of the total repeats and, with the near repeats added, 23.15 per cent. The pattern having the second largest number of repeats in *ds* with 148, or 18.76 of the total; with the near repeats added, the percentage falls to 15.67, still higher than the *ds* frequency of 11.15. The percentages for the first four patterns in the three works are as follows:

	<i>Eclogues</i>	<i>Georgics</i>	<i>Aeneid</i>
Frequency	41.45	48.99	46.95
Percentage of repeats	65.08 ⁴⁷	70.06	68.31
Percentage of repeats and near repeats	58.39	70.75	65.44

The higher frequencies of *ds* and *ds* in *Aeneid* x-xii⁴⁸ and the large number of repeat clusters in these same three books are reflected in the percentages showing the extent to which *ds*, *ds*, and the first four patterns appear in the total repeats and near repeats. The differences between i-ix and x-xii are as follows:

	i-xii	i-ix	x-xii
Frequency, <i>ds</i>	14.39	14.02	15.34
Percentage of repeats	22.18	20.99	24.90
Percentage of repeats and near repeats	23.15	22.36	25.12
Frequency, <i>ds</i>	11.15	10.76	12.15
Percentage of repeats	18.76	17.15	22.41
Percentage of repeats and near repeats	15.67	14.27	19.17
Frequency, first four	46.95	46.59	47.79
Percentage of repeats	68.31	66.42	72.61
Percentage of repeats and near repeats	65.44	64.76	67.11

⁴⁷ I list *ds*, with six repeats, as the fourth pattern in the *Eclogues*; if *ds* with the same frequency but only four repeats is substituted, the first four patterns constitute 61.90 per cent of the total repeats (instead of 65.08), and the percentage of repeats and near repeats changes from 58.39 to 57.14.

⁴⁸ See above, note 32.

This constant increase in the percentages in the last three books indicates a more monotonous repetition of patterns which Vergil has perhaps taken pains to avoid in *Aeneid* I-IX.

Not only do x-xii reveal a higher percentage of the total repeats in the first four patterns, and especially in *dsss* and *dsds*, but the proportion of repeats in these two patterns is also higher in relation to the total occurrences of the patterns:

	I-XII	I-IX	X-XII
<i>dsss</i> repeats—percentage of total <i>dsss</i>	12.40	11.64	14.18
<i>dsss</i> repeats and near repeats—percentage of total <i>dsss</i>	34.66	34.21	35.93
<i>dsds</i> repeats—percentage of total <i>dsds</i>	13.54	12.40	16.12
<i>dsds</i> repeats and near repeats—percentage of total <i>dsds</i>	30.28	28.40	34.63

The high frequencies of *dsss* and *dsds* in x-xii could account for these two patterns having a higher proportion of the total repeats and near repeats, but this would not affect the relation of the repeats in these two patterns to the totals of the patterns themselves. We find, however, that *dsss* and especially *dsds* are likewise higher in this respect in x-xii.

VI. OPPOSITE AND REVERSE PATTERNS

Of the sixteen metrical patterns, eight are the "opposites" of the other eight; *sddd* is the opposite of *dsss*, *sdds* is the opposite of *dsdd*, etc. In addition to the eight opposites, there are four patterns which I term "reverses," those in which the sequence of dactyls and spondees appears in reverse order, i.e. *dsss* and *sssd*, *sdss* and *ssds*, *ddds* and *sddd*, *ddsd* and *dsdd*.⁴⁹

If we list the patterns in the order of their frequency in the *Aeneid*, it is immediately apparent that, as a general rule, the opposites of the patterns used most often occur most seldom; in

⁴⁹ The patterns *ssss*, *dddd*, *sdds*, and *dsdd* have no reverse; in the case of *ssdd*, *ddss*, *sdss*, and *dsds*, the reverse is the same as the opposite.

other words, the more frequent a pattern, the less frequent its opposite:

PATTERNS		OPPOSITES
1.	dsss	sddd
2.	ddss	ssdd
3.	dsds	sdss
4.	sdss	dsdd
5.	ssss	dddd
6.	ddds	sssd
7.	ssds	ddsd
8.	sdds	dsdd
9.	dssd	sdds
10.	ddsd	ssds
11.	sdss	dsds
12.	dsdd	sdss
13.	sssd	ddds
14.	ssdd	ddss
15.	dddd	ssss
16.	sddd	dsdd

The opposite of *dsss* (most frequent) is *sddd* (16th); that of *ddss* (2nd) is *ssdd* (14th); that of *sdss* (4th) is *dsdd* (12th); the opposites of Nos. 7 and 8 are 10 and 9 respectively.

Perhaps even more interesting is this fact about Vergil's use of opposites: there is a strong tendency for two opposites to appear in adjacent lines, sometimes with a pattern framed by its opposite:

Aen. 4.8 (sddd): cum sic unanimam adloquitur male sana sororem:
 9 (dsss): "Anna soror, quae me suspensam insomnia terrent!"

13 (dddd): degeneres animos timor arguit. heu, quibus ille

14 (ssss): iactatus fatis! quae bella exhausta canebat!

51 (sdss): indulge hospitio causasque innecte morandi,

52 (dsdd): dum pelago desaevit hiems et aquosus Orion,

53 (sdss): quassataeque rates, dum non tractabile caelum."

697 (ddds): sed misera ante diem subitoque accensa furore,

698 (sssd): nondum illi flavum Proserpina vertice crinem

699 (ddds): abstulerat Stygioque caput damnaverat Orco.

In 51–53 and 697–99 the pattern framed by its opposite is the one appearing less frequently. But, surprisingly enough, in many

instances, it is the more frequent pattern which is enclosed by its opposite, e.g.:

- Aen.* 3.393 (dddd): is locus urbis erit, requies ea certa laborum.
 394 (ssss): nec tu mensarum morsus horresce futuros:
 395 (dddd): fata viam invenient aderitque vocatus Apollo.⁵⁰

Opposites appear in adjacent lines with considerable frequency:

<i>Eclogues</i> :	42 times, averaging once every 19.6 lines
<i>Georgics</i> :	106 times, averaging once every 20.9 lines
<i>Aeneid</i> :	424 times, averaging once every 23.1 lines

Vergil's average in *Aeneid* I-IX is very close to that in the *Eclogues* and the *Georgics*: 324 times, once every 21.8 lines; in X-XII he combines opposites with considerable less frequency than elsewhere in his poetry: 100 times, once every 27.6 lines.

Vergil combines certain opposites in adjacent lines more than others; e.g. in the *Aeneid*, *sddd*, the least frequent pattern (194 times; 1.98 per cent) is preceded or followed by *dsss*, its opposite, a total of 57 times, or 29.38 per cent; *dddd* (208 times; 2.12 per cent) is preceded or followed by *ssss* 29 times, or 13.94 per cent. The percentages for all eight opposites are as follows:

<i>sddd</i> :	percentage with <i>dsss</i> :	29.38 ⁵¹
<i>dddd</i> :	percentage with <i>ssss</i> :	13.94
<i>ssdd</i> :	percentage with <i>ddss</i> :	20.0
<i>sssd</i> :	percentage with <i>ddds</i> :	15.54
<i>dsdd</i> :	percentage with <i>sdss</i> :	18.41
<i>sdss</i> :	percentage with <i>dsds</i> :	18.28
<i>ddsd</i> :	percentage with <i>ssds</i> :	12.28
<i>dssd</i> :	percentage with <i>sdds</i> :	10.18

Not only do opposites seem to attract each other to a surprising degree (especially *sddd* and *dsss*), but the same is true of the four reverse patterns; these also appear frequently in successive lines, and sometimes one pattern is framed by its reverse:

⁵⁰ For *dsds* enclosed by *sdss*, see *Georg.* 4.241-43; *Aen.* 6.787-89; 10.110-12; for *sdss* enclosed by *dsdd*, see *Aen.* 1.380-82; for *ssds* enclosed by *ddsd*, see *Aen.* 4.626-28; for *ddds* enclosed by *sssd*, see *Aen.* 5.672-74; 8.227-29; for *sdds* enclosed by *dssd*, see *Aen.* 12.528-30. In *Aen.* 8.58-61, the order is interlocked (*ssds*, *ddsd*, *ssds*, *ddsd*).

⁵¹ The percentage of *sddd* with *dsss* in I-IX is 28.47, but rises to 32.0 in X-XII; that of *ssdd* with *ddss* in I-IX is 22.78, but decreases sharply to 13.89 in X-XII.

- Aen.* 4.17 (sdss): postquam primus amor deceptam morte fefellit;
 18 (ssds): si non pertaesum thalami taedaeque fuisset,
 89 (sssd): murorum ingentes aequataque machina caelo.
 90 (dsss): Quam simul ac tali persensit peste teneri
 2.385 (dsss): sternimus. aspirat primo Fortuna labori.
 386 (sssd): atque hic successu exsultans animisque Coroebus
 387 (dsss): "o socii, qua prima" inquit "fortuna salutis"⁵²

In *Aeneid* v we have *dsss* framed by *sssd*, one of the striking instances where the more frequent pattern is enclosed by the one which occurs so rarely:

- 382 (sssd): tum laeva taurum cornu tenet atque ita fatur:
 383 (dsss): "nate dea, si nemo audet se credere pugnae,
 384 (sssd): quae finis standi? quo me decet usque teneri?"

We find in *Aeneid* III two pairs of reverse patterns in chiasmic order:

- 114 (dsss): ergo agite et divum ducunt qua iussa sequamur:
 115 (sssd): placemus ventos et Gnosia regna petamus.
 116 (sssd): nec longo distant cursu: modo Iuppiter adsit,
 117 (dsss): tertia lux classem Cretaeis sistet in oris."

Reverse patterns appear in Vergil's three works as follows:

- Eclogues*: 15 times, averaging once every 55 lines
Georgics: 47 times, averaging once every 46.4 lines
Aeneid: 252 times, averaging once every 38.9 lines

Vergil thus increases the use of adjacent reverse patterns from the *Eclogues* through the *Georgics* to the *Aeneid* to a decided degree.⁵³

Just as *sddd* is so often preceded or followed by its opposite *dsss*, so *sssd* likewise appears frequently with *dsss*, its reverse; e.g. in *Aeneid* III, *sssd* appears 34 times and is adjacent to *dsss* 15 times (44.12 per cent); in *Aeneid* VII, we have 23 occurrences of *sssd*, 12 with *dsss* (52.17 per cent). For the *Aeneid* as a whole, the respective numbers are 296 occurrences, 87 with *dsss*, for a percentage of 29.56.⁵⁴

⁵² For *sssd* framed by *dsss*, see also *Georg.* 1.96-98; *Aen.* 3.709-11, 714-16; 7.647-49.

⁵³ The difference between I-IX and X-XII here seems negligible: I-IX, once every 38.3 lines; X-XII, once every 40.6 lines. But see below, note 54.

⁵⁴ The percentage of *Aeneid* I-IX is 30.36; for X-XII, 26.39; this decrease is surprising in view of the high frequency of *dsss* in X and XII. We find a greater decrease in the case of *sddd* and *ddds*: I-IX, 16.67; X-XII, 10.0; but cf. *ssds* and *sdss*: I-IX, 15.66; X-XII, 20.93.

Of the patterns which appear least frequently, *sddd* and *sssd* deserve special comment for their use in adjacent lines with both opposite and reverse patterns.

	OPPOSITE	PER CENT	REVERSE	PER CENT	TOTAL
<i>sddd</i> :	<i>ds</i> <i>ss</i>	29.38	<i>dd</i> <i>ss</i>	14.95	44.33
<i>sssd</i> :	<i>dd</i> <i>ds</i>	15.54	<i>ds</i> <i>ss</i>	29.56	45.10

In other words, of the sixteen possible patterns that could precede or follow *sddd* and *sssd*, we find either the opposite or the reverse in over 44 per cent of the occurrences. The figures for the other two patterns with both opposites and reverses are as follows:

	OPPOSITE	PER CENT	REVERSE	PER CENT	TOTAL
<i>ssds</i> :	<i>dd</i> <i>sd</i>	12.28	<i>sd</i> <i>ss</i>	17.21	29.49
<i>dsdd</i> :	<i>sd</i> <i>ss</i>	18.41	<i>dd</i> <i>sd</i>	9.92	28.33

At times a pattern may be preceded by opposite or reverse and followed by reverse or opposite; e.g.:

- Aen.* 2.794 (*dsdd*): par levibus ventis volucrique simillima somno.
 795 (*sdss*): sic demum socios consumpta nocte reviso.
 796 (*ssds*): Atque hic ingentem comitum adfluxisse novorum
 4.52 (*dsdd*): dum pelago desaevit hiems et aquosus Orion,
 53 (*sdss*): quassataeque rates, dum non tractabile caelum."
 54 (*ssds*): His dictis impenso animum flammavit amore

Here the opposite precedes and the reverse follows,⁵⁵ but often the reverse precedes and the opposite follows, e.g.:

- Aen.* 4.116 (*ds**ss*): confieri possit, paucis (adverte) docebo.
 117 (*sssd*): venatum Aeneas unaque miserrima Dido
 118 (*ddds*): in nemus ire parant, ubi primos crastinus ortus⁵⁶

The appearance of opposite and reverse patterns so often in adjacent lines is important in counteracting the monotony which could result from so many instances of repeated patterns in two or three lines in succession. Also, and more significant, the frequency and nature of the opposite and reverse patterns (and of the repeated patterns as well) may be used to determine the

⁵⁵ Cf. also *Ecl.* 1.31–33 (*ddsd*, *ssds*, *sdss*); *Georg.* 3.495–97 (*sdss*, *dsdd*, *ddsd*); 4.441–43 (*ds**ss*, *sddd*, *ddds*); *Aen.* 8.214–16 (*ddsd*, *ssds*, *sdss*), 228–30 and 9.75–77, 285–87 (*ddds*, *sssd*, *ds**ss*), etc.

⁵⁶ Cf. *ds**ss*, *sssd*, *ddds* (*Aen.* 2.129–31, 565–67; 3.337–39; 6.662–64; 11.307–9); *ddsd*, *dsdd*, *sdss* (*Georg.* 2.429–31; *Aen.* 7.24–26, 339–41; 12.665–67); *sdss*, *ssds*, *ddsd* (*Aen.* 4.648–50; 5.440–42); *ddds*, *sddd*, *ds**ss* (*Aen.* 2.352–54).

metrical likes and dislikes of a poet—his metrical “idiosyncrasies,” so to speak. I shall analyze and discuss the metrical patterns of Horace (*Satires* and *Epistles*) and Ovid (*Metamorphoses*) later,⁵⁷ but shall anticipate here and point out that they differ from Vergil in their use of certain opposites and reverses:

	OPPOSITES		REVERSES	
	<i>favors</i>	<i>but not</i>	<i>favors</i>	<i>but not</i>
Vergil (<i>Aen.</i>):	sddd-dsss	dddd-ssss	sssd-dsss	dsdd-ddsd
Horace				
(<i>Sat.</i> II):	sddd-dsss	sssd-ddds	ssds-sdss	dsdd-ddsd
(<i>Epist.</i> II):	dddd-ssss	sssd-ddds	ssds-sdss	sddd-ddds
Ovid (<i>Metam.</i>):	ssdd-ddss	dddd-ssss	dsdd-ddsd	ssds-sdss

These distinctions, especially between Vergil and Ovid, may perhaps be of value when, on a later occasion, I examine the patterns of the hexameter poems in the *Appendix Vergiliana* and attempt to discuss their authenticity on the basis of these new criteria.

I close this section with an analysis of *Aen.* 4.1-19 to illustrate Vergil's use of repeated, opposite, and reverse patterns in a short passage:

1. sdss		
2. dsss-----		
3. dsds		
4. dsss-----		
5. ddss		
6. dsss-----		
7. ssds		
8. sddd-----		
9. dsss-----		
10. dsss-----		
11. sdss-----		
12. dsdd-----		
13. dddd-----		
14. ssss-----		
15. ddss		
16. sssd		
17. sdss-----		
18. ssds-----		
19. ssds-----		

Near repeats

Opposite
Repeat

Opposite

Opposite

Reverse
Repeat

⁵⁷ These and other hexameter poets will be treated in forthcoming articles; I hope eventually to combine the material in a book: *Vergil and Other Hexameter Poets: A Study in Metrical Variety*.

We thus have in this one short passage two repeats, one of which (*dsss*) has also three near repeats,⁵⁸ three opposites, and one reverse. Also, in spite of five instances of *dsss* in the first ten lines, there are ten different patterns in the first sixteen-line unit. The frequency of repeats, opposites, reverses is here well above Vergil's normal average, as the following reveals:

	<i>Eclogues</i>	<i>Georgics</i>	<i>Aeneid</i>	<i>Aen.</i> 4.1-19
Patterns per 16-line unit:	9.7	9.3	9.4	10
Repeats: one every	13.1 vv.	12.3 vv.	12.4 vv.	9.5 vv.
Repeats and near repeats:				
one every	5.1	4.5	4.6	3.8
Opposites: one every	19.6	20.9	23.1	6.3
Reverses: one every	55.5	46.4	38.9	19.0

VII. REPEATED PATTERNS AND FOURTH-FOOT TEXTURE

I return now to the repeated patterns (discussed above in Section v), in order to examine possible aspects of variety to be found therein. Even when the identical pattern appears in two or more lines in succession, and occasionally in "clusters" (the same pattern six or more times in sixteen or fewer lines), Vergil is able to vary the effect of the repeated patterns by one or more of several devices. I propose to list the three more obvious devices briefly and to concentrate on the fourth, which, to the best of my knowledge, has not hitherto been applied to the problem of metrical variety. Unless otherwise noted, all verses cited below are taken from *Aeneid* iv.

1. The metrical pattern is the same, but there is a definite variation in the sound effects produced by the vowel and consonants, especially alliteration and assonance.

90 (*dsss*): *Quam simul ac tali persensit peste teneri*

91 (*dsss*): *cara Iovis coniunx nec famam obstare furori,*
(*s*, *t*, and *p* sounds in 90, *c*, *f*, and *o* in 91)

186 (*dsss*): *luce sedet custos aut summi culmine tecti*

187 (*dsss*): *turribus aut altis, et magnas territat urbes,*
(*s* and *c* consonants followed by *t* and *r*; *u* and *e* shifting to *u* and *a*)

⁵⁸ Five instances of *dsss* in ten lines almost form a "repeat cluster," but I have arbitrarily limited such clusters to six or more instances of the same pattern in sixteen or fewer lines; see above, Section v.

482 (dsss): *axem* umero torquet stellis *ardentibus aptum*:

483 (dsss): hinc *mihi Massylae gentis monstrata sacerdos*,

526 (dsds): *quaeque* lacus late liquidos *quaeque* aspera dumis

527 (dsds): rura *tenent*, somno positae sub nocte *silenti*.

554 (ssss): Aeneas *celsa* in *puppi* iam *certus* eundi

555 (ssss): *carpebat* somnos *rebus* iam rite *paratis*.

(intricate interweaving of *c*, *p*, and *r* sounds)

2. The metrical pattern is the same, but the variation results from the different position of the sense-pauses (primary and secondary caesuras):

62 (sdsd): aut ante ora deum // pinguis spatiatur ad aras,

63 (sdsd): instauratque diem donis, // pecudumque reclusis

155 (ddds): pulverulenta fuga glomerant // montisque
relinquunt.

156 (ddds): at puer Ascanius // mediis in vallibus acri

163 (ddds): Dardaniusque nepos Veneris // diversa per agros

164 (ddds): tecta metu petiere; // ruunt de montibus amnes.

223 (ddds): “vade age, // nate, voca Zephyros // et labere
pennis

224 (ddds): Dardaniumque ducem, // Tyria Karthagine qui
nunc

283 (dsss): heu quid agat? // quo nunc reginam ambire
furentem

284 (dsss): audeat adfatu? // quae prima exordia sumat?

381 (ddsd): i, sequere Italiam ventis, // pete regna per undas.

382 (ddsd): spero equidem mediis, // si quid pia numina
possunt,

383 (dsds): supplicia hausurum scopulis // et nomine Dido

384 (dsds): saepe vocaturum. // sequar atris ignibus absens

450 (ssss): Tum vero infelix // fatis exterrita Dido

451 (ssss): mortem orat; // taedet caeli // convexa tueri.

3. The metrical pattern is the same, but the variation results from the different types of dactyls and spondees. To clarify this point, I list the composition of dactyls and spondees in parallel columns:⁵⁹

DACTYLS	SPONDEES
1. one word alone	a. one word alone
2. two complete words, monosyllable and dissyllable	b. two complete words
3. two complete words, dissyllable and monosyllable	
4. monosyllable and part of next word	c. monosyllable and part of next word
5. elided dissyllable and part of next word	
6. dissyllable and part of next word	
7. long = part of one word; 2 shorts = one word	
8. first two syllables = part of one word; 2nd short = monosyllable	d. part of one word and monosyllable
9. long = part of one word; 2 shorts part of another	e. parts of two words
10. 1st two syllables = part of one word; 2nd short part of another	
11. from first part of a polysyllabic word	f. first two syllables of a polysyllabic word
12. from second part of a polysyllabic word	g. last two syllables of a polysyllabic word
13. two whole words and part of a third	

⁵⁹ For this analysis I am indebted to Bolaños (above, note 21) 85–97. He lists the thirteen kinds of dactyls (with illustrations from *Georg.* 2.358–408) and the seven kinds of spondees (as seen in *Aen.* 2.281, 296), and comments on their importance in producing effective variations. He does not, however, apply this material to a study of repeated metrical patterns.

I list below several repeated patterns from *Aeneid* iv, indicating the nature of each dactyl and spondee by the appropriate numbers and letters as given in the lists above:

- 9 (dsss): 6 d c e 12 a
 2 c e g l a
10 (dsss): quis novus hic nostris successit sedibus hospes,
 b f 9 e 10 g
18 (ssds): si non pertaesum thalami taedaeque fuisset,
 c e 9 e 12 a
19 (ssds): huic uni forsan potui succumbere culpa.
 11 10 9 e 10 g
155 (ddds): pulverulenta fuga glomerant montisque relinquunt.
 2 11 9 d l a
156 (ddds): at puer Ascanius mediis in vallibus acri
 11 10 9 e 8 a
163 (ddds): Dardaniusque nepos Veneris diversa per agros
 6 9 10 d l a
164 (ddds): tecta metu petiere; ruunt de montibus amnes.
 2 6 9 d l a
223 (ddds): "vade age, nate, voca Zephyros et labere pennis
 11 10 9 e 12 b
224 (ddds): Dardaniumque ducem, Tyria Karthagine qui nunc
 6 9 e e 10 g
205 (ddss): multa Iovem manibus supplex orasse supinis:
 1 11 d c 12 a
206 (ddss): "Iuppiter omnipotens cui nunc Maurusia pictis
 4 10 e g 6 g
207 (ddss): gens epulata toris Lenaeum libat honorem,

An examination of the numbers and letters placed over each foot in the passages given above reveals clearly how different is the structure of both dactyls and spondees in the repeated metrical patterns.

4. The metrical pattern is the same, but we find a variation in the fourth-foot texture; that is, the fourth foot shifts from heterodyne (clash of word accent and metrical ictus) to homodyne (coincidence of accent and ictus), or from homodyne to heterodyne.

The importance of fourth-foot texture has been stressed by Jackson Knight, who points out the different effects achieved by heterodyne (resistance, difficulty, effort, weariness, pathos) and homodyne (rapidity, smoothness, freedom from restraint and tension) and shows that Vergil, unlike most Latin hexameter poets (both earlier and later), reduced the amount of fourth-foot homodyne from 50 or 60 per cent to about 35 per cent.⁶⁰ His percentages are these: *Eclogues*, 37.27; *Georgics*, 33.45; and *Aeneid*, 35.95. I am not now concerned with the simple, compound, and complex patterns which Jackson Knight finds in fourth-foot texture, nor with the correlation between his various symmetrical patterns and the mathematical proportions which appear in the same passages.⁶¹ The important thing here is to examine the many repeated metrical patterns and to discover the extent to which fourth-foot texture provides effective variety in such repetitions. For this purpose I have had to recheck Vergil's hexameters for homodyned and heterodyned verses, and my percentages are slightly higher than those of Jackson Knight, as follows: *Eclogues*, 39.73; *Georgics*, 36.08; and *Aeneid*, 37.78.⁶²

I have followed, as closely as possible, Jackson Knight's procedure, but I have changed certain verses: e.g. Jackson Knight lists *Aen.* 4.165 (ssss) as heterodyne: *speluncam Dido dux et Troianus eandem*,⁶³ but there seems no clash here in the fourth foot, and this I list as homodyne. On the other hand, *Aen.* 7.136-37 (ddd, ssds):

implicat et geniumque loci primamque deorum
Tellurem Nymphasque et adhuc ignota precatur

two verses which Jackson Knight lists as homodyne⁶⁴ seem clearly examples of heterodyne. These two verses would be considered by Woodward to belong to a separate category: spondaic fourth

⁶⁰ W. F. Jackson Knight, *Accentual Symmetry in Vergil* (Oxford 1939) esp. 36-43; see also his *Vergil's Troy. Essays on the Second Book of the Aeneid* (Oxford 1932) 18 ff., *Roman Vergil* (above, note 25) 239 ff.

⁶¹ See Duckworth, *Structural Patterns* (above, note 16) 111-17.

⁶² The percentages of E. L. Brown, *Numeri Vergiliani. Studies in "Eclogues" and "Georgics"* (Bruxelles-Berchem 1963 [= *Collection Latomus*, Vol. 63]) 63, note 1, are also higher for the individual *Eclogues* than those of Jackson Knight. Brown does not give a total for the *Eclogues* as a whole. In my percentages for fourth-foot homodyne I ignore the interpolated lines but include the spondaic verses.

⁶³ *Accentual Symmetry* (above, note 60) 57.

⁶⁴ *Ibid.* (above, note 60) 47.

feet in which there is no accented syllable.⁶⁵ But fourth feet such as *lo/ci pri/mamque* and *ad/huc ig/nota* are certainly not homodyned, and I include them among non-homodyned feet (= heterodyned).

Also, I accent two-syllable words on the first syllable. Townend has recently argued for an oxytone accent for many two-syllable words, under certain conditions: (1) parts of *ille* and *iste* and their derivative adverbs, (2) *ergo*, (3) parts of *quantus* and *qualis* and of their demonstratives, (4) compound words such as *quamvis*, *postquam*, *quare*, (5) *inter* and a few other disyllabic prepositions, (6) *donec*, *contra*, *primum*, *verum*, (7) *quorum* and *quarum*, (8) parts of *ipse* and *idem*, (9) *eheu* and *euho*, (10) *exim* and *olim*, (11) *princeps*, *praeceps*, *felix*.⁶⁶

Getty says:⁶⁷

Townend's work has been strangely ignored, perhaps because its startling departures from the law of the penultimate may seem unaccountably heretical But, unless he is systematically refuted, particularly by orthodox upholders of the ictus-accent theory, he continues to suggest awkward questions.

I do not attempt a systematic refutation, but the fact that so many of these same dissyllables occur in the sixth foot, where the paroxytone accent is necessary, argues against Townend. Ashcroft says:⁶⁸

Vergil's rule, therefore, is not simply that "the fifth foot shall be a dactyl," but also that *in the two final feet of the line scansion and pronunciation must coincide*.

In other words, the first syllable in the sixth foot bears the accent.⁶⁹

⁶⁵ A. Woodward, "The Fourth Foot in Vergil," *Philol. Quart.* 15 (1936) 126–35; see Jackson Knight, *Accentual Symmetry* (above, note 60) 95–98. F. H. Sandbach (rev. of Jackson Knight, *Vergil's Troy*, above, note 60) *CR* 47 (1933) 74 objects to viewing *Aen.* 1.6: *inferretque deos Latio*—*genus unde Latinum* as fourth-foot heterodyne; but how can *Lati/o genus* be homodyned (ictus on last syllable of *Latio*, accent on first syllable of *genus*)?

⁶⁶ G. B. Townend, "Oxytone Accentuation in Latin Elegiacs," *AJP* 71 (1950) 22–39; "More Oxytones in Latin Dactylic Verse," *ibid.* 365–78. The list given above appears on page 363, but on page 33 Townend gives (in addition to *quamvis*, *postquam*, and *quare*) such compounds as *mecum*, *tecum*, *secum*, *quocum*, *etsi*, *tandem*, *quamquam*, *(n)umquam*, *(n)usquam*, *nondum*, *nequam*, *vixdum*, etc.

⁶⁷ Getty (above, note 4) 123 f.

⁶⁸ A. H. Ashcroft, "Vergil's Hexameter Line," *Greece and Rome* 20 (1951) 98. The italics are those of Ashcroft.

⁶⁹ Verses with a final monosyllable, e.g. *Aen.* 4.132 (*odora canum vis*) and 314 (*dextramque tuam te*) are exceptions and designed for special effects; see J. Marouzeau, *Traité de stylistique latin*² (Paris 1946) 313–16; R. G. Austin, *P. Vergili Maronis Aeneidos Liber Quartus* (Oxford 1955) on 4.132; J. Hellegouarc'h, *Le monosyllable dans l'hexamètre latin* (Paris 1964) 50–68.

I give merely a few of the words in Townend's lists which appear in the sixth foot, with the accent on the first syllable:

illuc (*Aen.* 4.285; 8.20, 229; 10.680);
ergo (*Aen.* 6.456, 670);
tandem (*Aen.* 3.205; 7.297);
numquam (*Aen.* 8.470; 12.921);
umquam (*Ecl.* 8.7; *Aen.* 8.569);
nusquam (*Aen.* 2.438; 5.633);
usquam (four times);⁷⁰
donec (*Aen.* 11.201);
contra (twelve times);⁷¹
primum (six times);⁷²
olim (eight times);⁷³
praeceps (*Aen.* 3.598).

These, I trust, will give me added support for my accenting of dissyllables as paroxytone.

Townend believes that many lines which Jackson Knight counts as homodyne should be heterodyne, and "much more often lines which he counts as heterodyne will become homodyne."⁷⁴ He says of *Aen.* 1.1:

arma virumque cano, Troiae qui primus ab oris

"the oxytone accent makes the fourth foot homodyne."⁷⁵ But I agree with Jackson Knight⁷⁶ that the fourth foot (*Tro|iae qui*) is heterodyned; Wilkinson says:⁷⁷

Virgil was at pains to make ictus and accent conflict in the fourth foot where there was a choice: thus he wrote *Tro|iae qui* / *primus* for *qui* / *Troiae* / *primus*.

Virgil's repeated patterns may have the same fourth-foot

⁷⁰ *Aen.* 2.142; 7.311; 8.568; 9.420; *usquam* occurs in the *Aeneid* eight times, and four occurrences are in the sixth foot.

⁷¹ *Aen.* 3.552; 5.27; 9.136, 377, 509, 795; 10.16, 285, 343, 359; 11.374, 873.

⁷² *Ecl.* 4.8; *Georg.* 1.61; *Aen.* 3.209; 8.408; 9.253, 603.

⁷³ *Ecl.* 2.37; *Georg.* 4.433; *Aen.* 1.653; 5.125, 264, 536; 9.360; 10.12.

⁷⁴ Townend (above, note 66) 374, note 11.

⁷⁵ Townend (above, note 66) 371; cf. 29 f.

⁷⁶ *Accentual Symmetry* (above, note 60) 49.

⁷⁷ L. P. Wilkinson, "The Augustan Rules for Dactylic Verse," *CQ* 34 (1940) 33; cf. Wilkinson (above, note 9) 232 f.

texture, either homodyne (*m*) or heterodyne (*t*),⁷⁸ as, for example, in *Aeneid* iv:

- 9 (dsss): "Anna soror, quae me suspensam insomnia terrent! (m)
 10 (dsss): quis novus hic nostris successit sedibus hospes, (m)
 18 (ssds): si non pertaesum thalami taedaeque fuisset, (t)
 19 (ssds): huic uni forsán potui succumbere culpaē. (t)

Or the texture may shift either from heterodyne to homodyne, as in:

- 68 (dsss): uritur infelix Dido totaque vagatur (t)
 69 (dsss): urbe furens, qualis coniecta cerva sagitta, (m)

or from homodyne to heterodyne, e.g.:

- 161 (ddss): incipit, insequitur commixta grandine nimbus, (m)
 162 (ddss): et Tyrii comites passim et Troiana iuventus (t)

When the same metrical pattern occurs in three verses in succession, we often find a double shift; that is, one kind of texture is enclosed by the other:

- 75 (dsds): Sidoniasque ostentat opes urbemque paratam, (t)
 76 (dsds): incipit effari mediaque in voce resistit; (m)
 77 (dsds): nunc eadem labente die convivia quaerit, (t)
 584 (sdss): Et iam prima novo spargebat lumine terras (m)
 585 (sdss): Tithoni croceum linquens Aurora cubile. (t)
 586 (sdss): regina e speculis ut primam albescere lucem (m)

The second illustration is the more unusual, in view of the fact that fourth-foot heterodyne appears in Vergil in more than 60 per cent of the verses, fourth-foot homodyne less than 40 per cent; in passages such as this, the ratio of homodyne to heterodyne is two to one.⁷⁹

The shifting of fourth-foot texture to vary the effect in passages where the same metrical pattern occurs is found also in the case

⁷⁸ In *Structural Patterns* (above, note 16) 111–17, I used "a" to denote fourth-foot heterodyne, "b" to denote fourth-foot homodyne; this was also the procedure of V. P. Naughtin, "Metrical Patterns in Lucretius' Hexameters," *CQ* 2 (1952) 152–67. I now prefer, as less confusing, the letter "t" for heterodyne, "m" for homodyne.

⁷⁹ For other examples of heterodyne framed by homodyne, see (in addition to *Aen.* 3.716–18, discussed below) *Ecl.* 6.61–63 (*ddss*); 9.16–18 (*dsdd*); *Georg.* 1.466–68 (*dsds*); *Aen.* 8.230–32 (*dsss*), 265–67 (*ddss*), 706–8 (*dsss*); 11.507–9 (*ddss*); 12.113–15 (*dsss*).

of near repeats; cf., e.g., the repeat cluster in *Aen.* 3.709–18 where *ds* occurs seven times in ten lines, at the very end of the book:

- 709 (*ds*): heu, genitorem, omnis curae casusque levamen, (t)
 711 (*ds*): deseris, heu, tantis nequiquam erepte periclis! (m)
 713 (*ds*): hos mihi praedixit luctus, non dira Celaeno (t)
 714 (*ds*): hic labor extremus, longarum haec meta viarum. (m)
 716 (*ds*): Sic pater Aeneas intentis omnibus unus (m)
 717 (*ds*): fata renarrabat divum cursusque docebat. (t)
 718 (*ds*): conticuit tandem factoque hic fine quievit. (m)

The ratio of homodyne to heterodyne is here four to three, and the change from one texture to the other occurs five times out of a possible six. This shift in fourth-foot texture helps to relieve the monotony which would otherwise result from the excessive repetition of *ds*.⁸⁰

I give below the percentages of the change in fourth-foot texture in all repeated patterns in the *Eclogues*, *Georgics*, and *Aeneid*; these percentages consistently run much higher than the percentages of absolute fourth-foot homodyne, an indication that Vergil uses change in fourth-foot texture as an additional means to provide variety and to counteract the effect of the monotony inherent in the repetition of the same metrical patterns.

	TOTAL REPEATS	NO. WITH CHANGE	% OF CHANGE ⁸¹	% 4TH-FOOT HOMODYNE	INCREASE OVER HOMO- DYNE % ⁸²
<i>Eclogues</i> :	63	31	49.21	39.73	+9.48
<i>Georgics</i> :	177	77	43.50	36.08	+7.42
<i>Aeneid</i> :	789	351	44.49	37.78	+6.71

⁸⁰ Note also that the three heterodyned lines have a hephthemimeral caesura; those homodyned have a penthemimeral caesura. On the interdependence of hephthemimeral caesura and fourth-foot heterodyne, see O. Skutsch, "Ictus and Word-Accent in Virgil" (= rev. of Jackson Knight, *Accentual Symmetry*, above, note 60) *CR* 54 (1940) 93–95, who equates the two and says (95) that the speed in *impius haec tam culta novalia miles habebit* (*Ecl.* 1.70) "is due not to the absence of heterodyne, but to the absence of caesura or pause both from the third and fourth foot." Naughtin (above, note 78) 153 comments: "I do not agree that the whole effect of the homodyned line there quoted is explained by the absence of caesura or pause; there is a positive effect of reinforcement of the ictus by coincidence with the stress accent." Furthermore, hephthemimeral caesura does not necessarily produce heterodyne; cf. *Aen.* 4.98: *sed quis erit modus, aut quo nunc certamine tanto?* (hephthemimeral caesura but homodyne).

⁸¹ If we add the near repeats to the repeats, the percentage of change is *Eclogues*, 44.10; *Georgics*, 47.10; *Aeneid*, 45.83.

⁸² The increase is of course greater if we use Jackson Knight's slightly lower percentages (above, page 43): *Eclogues*, +11.94; *Georgics*, +10.05; *Aeneid*, +8.54.

The total percentages for the *Aeneid*, however, are misleading and do not give a true picture, as the following breakdown into the separate books will reveal:

	TOTAL REPEATS	NO. WITH CHANGE	% OF CHANGE	% 4TH-FOOT HOMODYNE	INCREASE OVER HOMO- DYNE %
I	63	27	42.86	30.91	+ 11.95
II	60	28	45.67	40.23	+ 6.44
III	49	30	61.22	37.75	+ 23.47
IV	51	23	46.0	40.69	+ 5.31
V	56	25	44.29	40.58	+ 3.71
VI	67	31	46.27	36.30	+ 9.97
VII	64	34	53.13	39.88	+ 13.25
VIII	69	35	50.72	41.68	+ 9.04
IX	69	34	49.28	36.26	+ 13.02
X	79	28	35.44	34.0	+ 1.44
XI	72	24	33.33	38.55	- 5.22
XII	90	32	35.56	37.30	- 1.74

In *Aeneid* I-IX the percentage of change in repeated patterns from homodyne to heterodyne, or from heterodyne to homodyne, ranges from 42.86 (I) to 61.22 (III); in X-XII the percentage ranges from 33.33 (XI) to 35.56 (XII). The percentage increases in I-IX over the percentage of fourth-foot homodyne ranges from + 3.71 (V) to + 23.47 (III); the corresponding range in X-XII is + 1.44 (X) to - 5.22 (XI). Again we find a striking illustration of the way in which Vergil's procedure in X-XII differs from that of the other nine books, as the following summary shows:

	TOTAL REPEATS	NO. WITH CHANGE	% OF CHANGE	% 4TH-FOOT HOMODYNE	INCREASE OVER HOMO- DYNE %
I-IX	548	267	48.72	38.22	+ 10.50
X-XII	241	84	34.85 ⁸³	36.64	- 1.79

⁸³ Of the four most frequent patterns in the *Aeneid* (percentage, 46.95), which provide 68.31 per cent of the repeats, there is no appreciable change in *ds*ss (I-IX, 45.22; X-XII, 45.0), but for both *dd*ss and *ds*ds the percentages in X-XII reveal an amazing decrease, to less than half; *dd*ss: I-IX, 56.52 per cent of change; X-XII, 27.27; *ds*ds: I-IX, 39.36; X-XII, 14.81; *sd*ss, the fourth pattern in frequency, varies also, but in the opposite direction: I-IX, 44.44; X-XII, 53.57. For *dd*ss and *ds*ds percentages with the near repeats included, see Table 4.

Why should Vergil be less interested in introducing variety into repeated metrical patterns (by means of change in fourth-foot texture) in *Aeneid* x-xii than in the other books?

VIII. *Aeneid* x-xii—UNREVISED?

My examination of the metrical patterns in Vergil's *Aeneid* and especially of the variety and repetitions to be found therein has had certain surprising and unexpected results. In instance after instance my findings for *Aeneid* x-xii differ from those concerning the other nine books; in other words, Vergil in these three books seems to depart from what appears to be his normal procedure elsewhere in the *Aeneid*, and likewise in the *Georgics*. I have commented earlier on these discrepancies and differences and shall now bring the material together in a brief recapitulation:

1. Books x and xii have the highest percentage of *dsss*, 15.90 and 16.30 respectively;⁸⁴ the fact that x and xii contain so many battle scenes may account in part for the higher frequency of *dsss*, since this pattern is low in emotional and dramatic scenes and high in descriptive passages, those written in a more objective style.⁸⁵ The frequency of *dsss* in x-xii is 15.34 per cent, as against 14.02 in i-ix. There is a similar variation for *dsds*: 12.15 per cent in x-xii; 10.76 in i-ix.
2. There are only nine sixteen-line units in the *Aeneid* containing less than seven different metrical patterns. Five of these (55.56 per cent) are in Books x-xii.⁸⁶ The percentages of sixteen-line units containing eight to eleven patterns are as follows: i-ix, 88.33; x-xii, 84.80 (but xi-xii only 80.87); the percentages of units with *eight or more* patterns likewise indicate a greater variety in the first nine books: i-ix, 93.14; x-xii, 89.47 (xi-xii, 86.09).

⁸⁴ These percentages are exceeded only by that of *dsss* in *Georgics* i (16.16) and ii (17.38). But *dsss* in the *Georgics* as a whole comprises 15.81 per cent, as against 14.39 in the *Aeneid*.

⁸⁵ This will be discussed in a later article.

⁸⁶ In the *Georgics* only two sixteen-line units have less than seven different patterns: 2.178-93 (six) and 4.290-305 (six).

3. Vergil very rarely uses the same metrical pattern four times in succession—only seven times in the *Aeneid*, but three of these triple repetitions (42.86 per cent) occur in x–xii.
4. Even more significant is the evidence from “repeat clusters,” six or more occurrences of the same pattern in sixteen or fewer verses. The *Aeneid* contains 49 such clusters, an average of one every 200.1 lines. But 23 of these clusters (46.94 per cent) appear in x–xii; the average is thus one every 271 lines in i–ix; one every 119.9 lines in x–xii, more than twice as often.
5. We find in i–ix 548 repeats, an average of one every 12.9 lines; x–xii has 241, an average of one every 11.4 lines. The larger number of repeats (and near repeats) and the unusually high percentage of repeat clusters naturally go together, and the next point is likewise related.
6. The percentage of repeats in the first four patterns likewise varies: *Aeneid* as a whole, 68.31; i–ix, 66.42; x–xii, 72.61. The variation is greatest in the percentages for *ds* and *ds* repeats; *ds*: i–ix, 20.99; x–xii, 24.90; *ds*: i–ix, 17.15; x–xii, 22.41.⁸⁷
7. These same patterns, *ds* and *ds*, show in x–xii a higher percentage of repeats in relation to the total occurrences of the two patterns; *ds*: i–ix, 11.64; x–xii, 14.18; *ds*: i–ix, 12.40; x–xii, 16.12; if we include the *ds* near repeats, the percentage difference is even greater: i–ix, 28.40; x–xii, 34.63.
8. Opposite patterns appear in adjacent lines with the same approximate frequency, *until* we reach *Aeneid* x–xii: *Eclogues*, once every 19.6 lines; *Georgics*, once every 20.9 lines; *Aeneid* i–ix, once every 21.8 lines; but x–xii, once every 27.6 lines.
9. There is considerable variation in the percentages of the different opposites; *sdd* is preceded or followed by *ds* 28.47 per cent of the occurrences in i–ix, but 32.0 in x–xii; this is not surprising because the frequency of *ds* is highest in x

⁸⁷ There is a similar, if less striking, variation in the percentages if we include the near repeats; see above, page 32.

and xii. In the case of *ssdd* preceded or followed by *ddss*, the percentages change strikingly in the opposite direction: i-ix, 22.78; x-xii, 13.89. Apparently Vergil in x-xii lost interest in having *ssdd* and *ddss* in adjacent lines; this is true to a lesser degree of *sssd* and *ddds*: i-ix, 16.52; x-xii, 12.50.

10. The total statistics for reverse patterns reveal little variation; one reverse pattern every 38.3 lines in i-ix; one every 40.6 lines in x-xii. The percentages for the individual reverse patterns differ, however; *sssd* is preceded or followed by *dsss* 30.36 per cent of the time in i-ix, but only 26.39 per cent in x-xii. This change is just the opposite of what the high frequency of *dsss* in x and xii would lead us to expect. The percentages for *sddd* preceded or followed by *ddds* show a greater variation: 16.67 in i-ix; 10.0 in x-xii. But for *ssds* adjacent to *sdss* x-xii has the higher percentage, 20.93, with 15.66 in i-ix.
11. Perhaps the most significant statistical abnormality appears in the shift from fourth-foot heterodyne to homodyne (or the reverse) in repeated patterns. The percentage of repeats containing such a change in fourth-foot texture runs consistently higher in Vergil's poetry than the normal fourth-foot homodyne percentages, *until* we come to *Aeneid* x-xii: *Eclogues*, 49.21, +9.48; *Georgics*, 43.50, +7.42; *Aeneid* i-ix, 48.72, +10.50, but x-xii, 34.85, -1.79. The greatest discrepancy appears in Book xi, 33.33, -5.22. This sudden change in the treatment of fourth-foot texture in repeated passages in x-xii is most striking and can hardly be attributed to coincidence.
12. If we examine the four most frequent patterns, containing 68.31 per cent of the total repeats, we find that the percentage of change in fourth-foot texture remains the same in the case of *dsss* repeats: i-ix, 45.22; x-xii, 45.0. The two patterns where Vergil's procedure in x-xii is so very different are *ddss*: i-ix, 56.52; x-xii, 27.27, and *dsds*: i-ix, 39.36; x-xii, 14.81; the x-xii percentage in each case is less than half. Curiously enough, *sdss*, the fourth pattern in frequency, also varies, but in the opposite direction: i-ix, 44.44; x-xii, 53.57.

Many of the statistical variations listed above might individually seem inconclusive; but their cumulative effect is, in my opinion, overwhelming and indicates without question that, in his choice and treatment of metrical patterns, in the relative frequency of repeated, opposite, and reverse patterns, and especially in his handling of fourth-foot texture in repeated patterns, Vergil displays in *Aeneid* x–xii a metrical technique very unlike his normal procedure.

How are these many metrical peculiarities and abnormalities in x–xii to be explained? We cannot assume that these three books were written first and that Vergil then changed his metrical practices (the many close similarities between the *Georgics* and *Aeneid* i–ix would also argue against this possibility) nor can we believe that the three books were composed last and that the poet, after relatively uniform procedure in the four books of the *Georgics* and in nine books of the *Aeneid*, suddenly changed his treatment of metrical patterns in so many respects, either deliberately or subconsciously. The theory of either early or late composition is made most unlikely by our knowledge of Vergil's method of composition, as we have it from the Donatus–Suetonius *Life* (23):

Aeneida prosa prius oratione formatam digestamque in xii libros particulatim componere instituit, prout liberet quidque, et nihil in ordinem arripiens.

There seems no good reason to doubt this statement, for, as Otis says:⁸⁸

... it is hard, in any event, to imagine Virgil writing in any other way. He planned the poem *as a whole* and then wrote it piecemeal. Obviously this made for some inconsistencies and inequalities . . . Most of these difficulties are accounted for (it is a great excess of zeal to argue them all away as some would do) if we assume that much of 3 and 5 was written quite late (i.e. after 1, 6, 7, 8) and that the necessary retouches in the other books (to bring them into accord with the later ideas) had been left to the uncompleted revision.

Otis is of course speaking of the much discussed inconsistencies and discrepancies in plot and character, especially those between Book iii and certain other books.

⁸⁸ Otis (above, note 16) 417.

I cannot, therefore, accept as an explanation for the many metrical abnormalities in *Aeneid* x-xii either early or late composition of the three books in question. Nor am I willing to accept as a possible theory the view that these three books just happen to be different metrically from Vergil's usual procedure. There are too many factors involved, all indicating that the metrical variety (or rather, the lack of it) and the use of adjacent patterns (repeated, opposite, reverse) are in x-xii very unlike what we find elsewhere in Vergil's poetry.

Is it not best to assume that, in addition to the other revisions intended by Vergil, the elimination of excessive metrical repetition and the introduction of additional variety was on the agenda? Let us go a step farther and suppose that he had already made the changes which he desired in Books i-ix. The Donatus-Suetonius *Life* (32) states that he read ii, iv, and vi to Augustus and Octavia *multo post perfectaue demum materia*. Why was the metrical *materia* in x-xii not perfected? The most obvious and satisfactory answer seems to be this: by 19 B.C. the necessary metrical revisions had progressed through Book ix; x-xii contain so many curious and unusual features of a metrical sort simply because Vergil's death left these three books unrevised.

APPENDIX

A NOTE ON LA ROCHE'S ANALYSIS OF THE *Aeneid*

La Roche (above, note 33) 121-42 analyzes the metrical patterns in Vergil's *Aeneid* and gives complete lists of the verses for all patterns (including those with a spondaic fifth foot) with the exception of the four patterns which appear with the greatest frequency; these he discusses briefly and gives the total occurrences, which differ slightly from my totals (in parentheses):

dsds (page 132)	1,099	(1,093)
ddss (page 135)	1,171	(1,158)
dsss (page 138)	1,412	(1,411)
sdss (page 138)	941	(941)

His totals for the other twelve regular patterns also do not coincide with mine (see Table 1), and his listings of these patterns, although of value, must be used with extreme caution, for two

reasons: (1) he follows Ribbeck's text of 1895, which frequently differs from the Oxford text of Hirtzel (on which I base my statistics), and (2) the lists contain many errors. As a possible benefit to those who may wish to use La Roche's metrical material, I shall give below the revisions and corrections to be made.

1. I list first the lines where La Roche's scansions result from the readings in Ribbeck's edition.

HIRTZEL			RIBBECK AND LA ROCHE	
1.726	<i>lychni</i>	dssd	<i>lychini</i>	dsdd
2.138	<i>dulcis</i>	ssss	<i>duplicis</i>	dsss
2.422	<i>primi</i>	ssds	<i>Priami</i>	sdds
2.465	<i>ea lapsa</i>	dddd	<i>elapsa</i>	ddsd
4.227	<i>nobis genetrix</i>	ssds	<i>genetrix nobis</i>	sdss
5.274	<i>transiit</i>	dsdd	<i>transit</i>	dsds
6.520	<i>curis</i>	ssss	<i>choreis</i>	ssds
7.654	<i>Mezentius</i>	dsds	<i>Medientius</i>	dsdd
7.681	<i>legio late</i>	ddsd	<i>late legio</i>	dsdd
9.67	<i>quae via</i>	sddsds	<i>qua vi</i>	sddsss
9.676	<i>armis</i>	ssss	<i>animis</i>	dsss
10.785	<i>transiit</i>	dssd	<i>transit</i>	sssd
11.854	<i>armis</i>	ssss	<i>animis</i>	ssds
12.35	<i>Tiberina</i>	ddsd	<i>Thybrina</i>	ddss

On 9.67, where Ribbeck's reading adds one more spondaic verse to the twenty-four usually listed for the *Aeneid*, see La Roche 139, where he considers the verse faulty; only here and in 3.74 and 7.634 does Vergil have a fifth-foot spondee follow a spondee in the fourth foot. Although La Roche does not list the verses containing the four most frequent patterns, here also his totals would be affected by his use of Ribbeck's text; e.g. 10.796: *ddss* with *proripuit* (Hirtzel), but *sdss* with *prorupit* (Ribbeck); 10.857: *dsss* with *quamquam vis* (Hirtzel), but *dsds* with *quamvis dolor* (Ribbeck); 11.510: *dsss* with *supra* (Hirtzel), but *ddss* with *supera* (Ribbeck).

2. There are 121 errors in *Aeneid* viii, ix, and x, all resulting from the fact that the verses in these three books which La Roche lists as *dsdd* (128, note 1) should be *sddd*, and those given as *sddd* (129, note 1) should be *dsdd*, with the exception of 8.302 and 10.870, which are *sddd*. In addition to this unfortunate transposition, I have discovered numerous wrong scansions (some un-

doubtedly the result of typographical errors), and, as a result, 119 corrections need to be made in his lists, an average of almost ten a book. I append below these corrections, following La Roche's order of patterns and giving his totals for each pattern. My total for the same pattern is added in parentheses. Also, I include in square brackets the changes to be made as a result of Ribbeck's readings listed above.

- dddd (127, note 2): 209 (208). Add 2.[465], 553; delete 2.558.
- dsdd (128, note 1): 324 (353). Add 4.27, 422; 5.[274], 591; 6.670; delete 1.390, [726]; 4.37; [7.654, 681]. On *dsdd* in viii-x, see above.
- sddd (129, note 1): 227 (194). Add 8.275; delete 5.591; 7.605; 12.653. On *sddd* in viii-x, see above.
- ddds (129, note 2): 669 (670). Add 1.390; 5.299; 8.459; delete 4.35; 9.100.
- ddsd (130, note 1): 458 (456). Add 2.543; 6.507; 7.45, [681]; 9.100; 10.400; 12.[35], 331; delete 1.698; 2.[465], 553; 4.461; 6.670; 7.25 (La Roche gives 24 fg.), 769; 10.408, 487; 12.351, 847.
- ssdd (132, note 1): 234 (230). Add 10.351; 11.23; 12.653; delete 1.350, 472; 4.7; 5.257; 8.634; 10.68.
- sdds (133, note 1): 578 (583). Add 2.183; 3.1, 435, 629; 4.286, 549, 552; 6.494; 7.605; 9.[67], 728; 11.381; 12.510, 843; delete [2.422], 3.438; 6.314; 8.275, 278 (La Roche gives 277 fg.); 10.50 (La Roche gives 49 fg.), 11.23.
- dssd (134, note 1): 558 (560). Add [1.726]; 3.552; 5.268; 8.278; 9.391; 10.758, [785]; delete 3.152; 4.549, 552; 8.205; 9.394; 10.753.
- sdsd (134, note 2): 368 (372). Add 1.698; 2.772; 6.314; 7.769; 10.179, 487; 12.847; delete 1.91, 152; 2.773; 5.804; 6.24; 10.351.
- ssds (136, note 1): 580 (587). Add 1.350, 472; 2.[422], 764; 4.7, 33, [227]; 6.215, 324; 7.432; 12.401, 920; delete 4.38; [6.520]; 7.433; 8.666; [11.854]; 12.720.
- sssd (137, note 1): 293 (296). Add 1.355, 622, 675; 7.172; 8.205, 634, 666; delete 1.335; 5.829; [10.785].
- ssss (140, note 1): 693 (693). Add 1.432 f.; 2.[138], 223; 5.829; [6.520]; 7.190; 9.528, [676]; [11.854]; 12.559, 899; delete 1.532 f., 622, 675; 9.529.

The corrections given above bring La Roche's totals into harmony

with mine for only one of the twelve patterns (*ddd*s); for the others there is still disagreement, but possible errors in the four patterns not listed may account in part for the discrepancies; they result in part also from his inclusion of the bracketed verses which I omit from my tables (see above, Section III D, and note 30).

Tables 1-4

TABLE 1. PATTERNS AND FREQUENCIES

TABLE 2. VARIETY AND REPEATED PATTERNS

TABLE 3. OPPOSITE AND REVERSE PATTERNS

TABLE 4. REPEATED PATTERNS AND FOURTH-FOOT TEXTURE

VERGIL	DSSS	DDSS	DSDS	SDSS	SSSS	DDDS	SSDS	SDDS	DS&D	DD&D	SD&D	DSDD	SSSD	SSDD	DDDD	SDDD
<i>Eclogues</i> I	6	10	8	11	3	7	7	3	5	7	4	3	2	3	0	4
II	2	15	8	5	3	4	3	6	3	6	3	4	3	1	4	3
III	8	14	7	8	9	8	3	5	17	7	1	6	6	5	5	2
IV	13	15	11	4	2	1	1	6	1	0	1	3	1	3	0	0
V	7	7	13	11	7	6	3	5	7	6	5	6	1	1	2	2
VI	13	13	6	2	8	5	3	3	8	5	7	4	0	4	2	3
VII	8	7	2	8	1	5	4	2	7	7	6	3	2	3	3	1
VIII	15	11	10	5	2	6	4	5	2	19	1	6	4	3	12	3
IX	5	7	6	1	3	7	2	4	7	4	6	6	2	3	3	1
X	11	9	8	8	2	5	2	5	10	6	5	2	0	0	3	1
TOTAL <i>Eclogues</i>	88	108	79	63	40	54	32	44	67	67	39	43	21	26	34	20
ORDER																
FREQUENCY	2	1	3	6	10	7	13	8	4	4	11	9	15	14	12	16
<i>Georgics</i> I	83	50	62	53	31	29	17	31	40	31	18	18	18	11	12	9
II	94	67	68	62	31	32	25	25	32	27	20	12	11	15	7	13
III	80	68	62	40	32	48	40	30	46	27	20	25	12	12	16	7
IV	88	68	70	54	31	26	37	29	36	21	27	20	15	14	14	13
TOTAL <i>Georgics</i>	345	253	262	209	125	135	119	115	154	106	85	75	56	52	49	42
ORDER																
FREQUENCY	1	3	2	4	7	6	8	9	5	10	11	12	13	14	15	16
<i>Aeneid</i> I	105	97	82	74	47	53	48	49	43	29	30	34	25	19	9	12
II	115	73	86	89	47	58	46	45	38	49	28	30	28	17	23	20
III	104	86	84	61	48	54	33	30	45	27	24	28	34	15	17	16
IV	94	82	73	72	47	66	43	42	43	30	26	23	15	9	20	13
V	107	115	86	72	63	62	50	55	66	38	28	34	31	20	16	20
VI	126	117	103	77	61	53	54	52	56	35	45	39	22	23	12	23
VII	109	111	85	70	58	50	46	43	48	48	43	30	23	19	13	13
VIII	101	87	66	82	57	41	49	52	35	38	26	19	23	17	17	11
IX	127	96	93	78	61	59	46	48	37	30	24	27	23	19	20	16
X	143	95	110	86	49	60	44	43	55	57	35	30	22	26	24	21
XI	126	109	105	80	81	58	64	52	51	40	34	32	26	21	18	14
XII	154	90	120	100	74	56	64	72	43	35	29	27	24	25	19	15
TOTAL <i>Aeneid</i>	1,411	1,158	1,093	941	693	670	587	583	560	456	372	353	296	230	208	194
ORDER																
FREQUENCY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
TOTAL VERGIL	1,844	1,519	1,434	1,213	858	859	738	742	781	629	496	471	373	308	291	256
ORDER																
FREQUENCY	1	2	3	4	6	5	9	8	7	10	11	12	13	14	15	16

TABLE 1.

TOTAL	MOST FREQUENT	% FIRST PATTERN	% FIRST FOUR	% SECOND FOUR	% FIRST EIGHT	SPONDEES FIRST EIGHT	DACTYLS FIRST EIGHT	SPONDAIC VERSES	LINES BRACKETED OR INCOMPLETE	TOTAL VERSES
83	sdss	13.25	43.37	30.12	73.49	17	15			83
73	ddss	20.55	47.94	23.29	71.23	12	20			73
111	dssd	15.32	43.24	27.03	70.27	18	14			111
62	ddss	24.19	72.58	19.35	91.93	19	13	1		63
89	dsds	14.61	42.70	29.21	71.91	18	14	1		90
86	dsss } ddss }	15.12	47.67	26.74	74.42	17	15			86
69	dsss } sdss }	11.59	43.48	31.88	75.36	17	15	1		70
108	ddsd	17.59	52.77	25.0	77.77	13 or 12	19 or 20		1	109
67	ddds } dssd }	10.45	40.30	31.34	71.64	15 or 14	17 or 18			67
77	dsss	14.29	49.35	31.17	80.52	17 or 16	15 or 16			77
825	ddss	13.09	41.45	27.64	69.09	16	16	3	1	829
513	dsss	16.18	48.34	25.93	74.27	19	13	1		514
541	dsss	17.38	53.79	22.55	76.34	18	14	1		542
565	dsss	14.16	45.66	27.96	73.62	20	12	1		566
563	dsss	15.63	49.73	23.62	73.36	21	11	2	1	566
2,182	dsss	15.81	48.99	24.43	73.42	20	12	5	1	2,188
756	dsss	13.88	47.35	26.05	73.40	20	12	1	3	760
792	dsss	14.52	45.83	25.25	71.09	19	13	1	11	804
706	dsss	14.73	47.45	25.64	73.09	20	12	4	8	718
698	dsss	13.47	45.99	28.51	74.50	20	12	0	7	705
863	ddss	13.33	44.03	28.51	72.54	19	13	2	6	871
898	dsss	14.03	47.10	24.94	72.05	20	12	0	3	901
809	ddss	13.46	46.35	25.22	71.57	18	14	2	6	817
721	dsss	14.01	46.60	27.60	74.20	19	13	6	4	731
804	dsss	15.80	49.0	26.62	75.62	20	12	4	10	818
900	dsss	15.90	48.22	24.56	72.78	18	14	0	8	908
911	dsss	13.72	46.21	27.88	74.09	20	12	2	2	915
947	dsss	16.30	49.0	28.09	77.09	20	12	2	3	952
9,805	dsss	14.39	46.95	25.83	72.78	20	12	24	71	9,900
12,812	dsss	14.38	46.91	25.29	72.20	19	13	32	73	12,917

VERGIL	INITIAL VARIETY	PATTERNS PER 16-LINE UNIT	SAME PATTERN FOUR TIMES	SAME PATTERN FIVE TIMES	REPEAT CLUSTERS	ONE CLUSTER EVERY x LINES	TOTAL REPEATS	ONE EVERY x LINES	TOTAL REPEATS + NEAR REPEATS	ONE EVERY x LINES	
<i>Eclogues</i>	I	6	10.2	0	0	0	—	3	27.7	14	5.9
	II	7	9.8	0	0	0	—	7	10.4	17	4.3
	III	7	9.4	0	0	1	111	7	15.9	27	4.1
	IV	2	7.4	0	0	0	—	6	10.3	16	3.9
	V	10	10.4	0	0	0	—	2	44.5	8	11.1
	VI	3	10.8	0	0	0	—	5	17.2	16	5.4
	VII	5	10.2	0	0	0	—	5	13.8	12	5.8
	VIII	4	9.2	0	0	1	108	9	12.0	20	5.4
	IX	9	10.7	0	0	0	—	5	13.4	12	5.6
	X	5	8.5	0	1	1	77	14	5.5	19	4.1
TOTAL <i>Eclogues</i>	5.8	9.7	0	1	3	275	63	13.1	161	5.1	
<i>Georgics</i>	I	2	9.1	1	1	3	171	44	11.7	113	4.5
	II	5	9.2	1	0	3	180.3	39	13.9	117	4.6
	III	6	9.4	2	0	2	282.5	46	12.3	121	4.7
	IV	1	9.3	0	0	7	80.4	48	11.7	131	4.3
TOTAL <i>Georgics</i>	3.5	9.3	4	1	15	145.5	177	12.3	482	4.5	
<i>Aeneid</i>	I	4	9.1	1	0	1	756	63	12.0	170	4.4
	II	6	9.8	0	0	5	158.4	60	13.2	154	5.1
	III	4	9.3	0	0	1	706	49	14.4	131	5.4
	IV	3	9.0	0	0	0	—	51	13.7	151	4.6
	V	2	9.4	0	0	4	215.8	56	15.4	187	4.6
	VI	1	9.6	2	0	6	149.7	67	13.4	186	4.8
	VII	4	9.3	0	0	3	269.7	64	12.7	177	4.6
	VIII	7	9.1	1	0	5	144.2	69	10.4	175	4.1
	IX	2	9.8	0	0	1	804	69	11.8	176	4.6
	X	3	9.5	1	0	6	150	79	11.4	195	4.6
	XI	7	9.3	0	0	6	151.8	72	12.6	190	4.8
	XII	3	9.1	2	0	11	86.1	90	10.5	220	4.3
TOTAL <i>Aeneid</i>	3.8	9.4	7	0	49	200.1	789	12.4	2,112	4.6	
<i>Aeneid</i>	I-IX	3.7	9.4	4	0	26	271	548	12.9	1,507	4.7
<i>Aeneid</i>	X-XII	4.3	9.2	3	0	23	119.9	241	11.4	605	4.6

TABLE 2.

DSSS REPEATS	% TOTAL REPEATS	% TOTAL DSSS	DSSS REPEATS + NEAR REPEATS	% REPEATS + NEAR REPEATS	% TOTAL DSSS	DSSS REPEATS	% TOTAL REPEATS	% TOTAL DSSS	DSSS REPEATS + NEAR REPEATS	% REPEATS + NEAR REPEATS	% TOTAL DSSS
0	—	—	0	—	—	1	33.33	12.50	2	14.29	25.0
0	—	—	0	—	—	1	14.29	12.50	2	11.76	25.0
0	—	—	2	7.41	25.0	0	—	—	1	3.70	14.29
3	50.0	23.08	6	37.50	46.15	0	—	—	2	12.50	18.18
0	—	—	1	12.50	14.29	2	100.0	15.34	4	50.0	30.77
0	—	—	4	25.0	30.77	0	—	—	0	—	—
2	40.0	25.0	2	16.67	25.0	0	—	—	0	—	—
2	22.22	13.33	5	25.0	33.33	1	11.11	10.0	3	15.0	30.0
1	20.0	20.0	1	8.33	20.0	0	—	—	2	16.67	33.33
2	14.29	18.18	4	21.05	36.36	0	—	—	0	—	—
10	15.87	11.36	25	15.53	28.41	5	7.94	6.33	16	9.94	20.25
15	34.09	18.07	32	28.32	38.55	9	20.45	14.52	23	20.35	37.10
13	33.33	13.83	44	37.61	46.81	8	20.51	11.59	21	17.95	30.43
10	21.74	12.50	34	28.10	42.50	5	10.87	8.06	15	12.40	24.19
14	29.17	15.91	41	31.30	46.51	5	10.42	7.14	21	16.03	30.0
52	29.38	15.07	151	31.33	43.77	27	15.25	10.30	80	16.60	30.53
11	17.46	10.48	37	21.76	35.48	14	22.22	17.07	25	14.71	30.49
15	25.0	13.04	40	25.98	34.78	10	16.67	11.63	21	13.64	24.42
10	20.41	9.62	36	27.48	34.62	10	20.41	11.90	19	14.50	22.62
9	17.65	9.57	35	23.18	37.45	8	15.69	10.96	17	11.26	23.29
12	21.43	11.21	38	20.32	35.51	4	7.14	4.65	28	14.92	32.56
15	22.39	11.90	39	20.97	30.95	14	20.90	13.59	31	16.67	30.10
10	15.63	9.09	32	18.08	30.28	17	26.56	20.0	29	16.38	34.12
16	23.19	15.84	36	20.57	35.64	10	14.49	15.15	21	12.0	31.82
17	24.64	13.49	44	25.0	34.92	7	10.14	7.53	24	13.64	25.81
22	27.85	15.38	55	28.21	38.47	17	21.52	15.45	34	17.44	30.91
14	19.44	11.11	38	20.0	30.16	16	22.22	15.24	38	20.0	36.19
24	26.67	15.58	59	26.82	38.31	21	23.33	17.50	44	20.0	36.67
175	22.18	12.40	489	23.15	34.66	148	18.76	13.54	331	15.67	30.28
115	20.99	11.64	337	22.36	34.21	94	17.15	12.40	215	14.27	28.40
60	24.90	14.18	152	25.12	35.93	54	22.41	16.12	116	19.17	34.63

VARIETY AND REPEATED PATTERNS

VERGIL		TOTAL OPPOSITES	ONE EVERY x LINES	TOTAL SDDD- DSSS	% SDDD WITH DSSS	TOTAL DDDD- SSSS	% DDDD WITH SSSS	TOTAL SSDD- DDSS	% SSDD WITH DDSS	TOTAL SSSSD- DDDS	% SSDD WITH DDSS
<i>Eclogues</i>	I	4	20.8	0	—	0	—	1	33.33	1	50.0
	II	4	18.3	0	—	1	25.0	0	—	1	33.33
	III	6	18.5	0	—	0	—	2	20.0	1	16.67
	IV	2	31.0	0	—	0	—	0	—	0	—
	V	6	14.8	0	—	0	—	0	—	0	—
	VI	1	86.0	0	—	0	—	0	—	0	—
	VII	3	23.0	0	—	0	—	1	33.33	0	—
	VIII	4	27.0	0	—	0	—	2	66.67	0	—
	IX	6	11.7	0	—	1	33.33	1	33.33	1	50.0
	X	6	12.8	1	100.0	0	—	0	—	0	—
TOTAL <i>Eclogues</i>		42	19.6	1	5.0	2	5.88	7	26.92	4	19.05
<i>Georgics</i>	I	24	21.4	2	22.22	2	16.67	2	18.18	2	11.11
	II	21	24.8	3	23.08	1	14.29	3	20.0	1	9.09
	III	28	20.2	2	28.57	2	12.50	5	41.67	1	8.33
	IV	33	17.2	8	61.54	1	7.14	4	28.57	2	13.33
TOTAL <i>Georgics</i>		106	20.9	15	35.71	6	12.24	14	26.92	6	10.71
<i>Aeneid</i>	I	31	24.4	3	25.0	0	—	4	21.05	3	12.0
	II	40	19.8	6	30.0	3	13.04	2	11.76	3	10.71
	III	32	22.1	3	18.75	3	17.65	2	13.33	7	20.59
	IV	41	17.0	5	38.46	5	25.0	2	22.22	7	46.67
	V	35	24.7	6	30.0	0	—	3	15.0	3	9.68
	VI	40	22.5	3	13.04	2	16.67	8	34.78	4	18.18
	VII	39	20.7	8	61.54	1	7.15	4	21.05	2	8.70
	VIII	29	24.9	3	27.27	1	5.88	6	35.29	2	8.70
	IX	37	21.7	4	25.0	4	20.0	5	26.32	6	26.09
	X	36	25.0	6	28.57	3	12.50	3	11.54	2	9.09
	XI	29	30.4	3	21.43	2	11.11	3	14.28	6	23.08
	XII	35	27.1	7	46.67	5	26.32	4	16.0	1	4.17
TOTAL <i>Aeneid</i>		424	23.1	57	29.38	29	13.94	46	20.0	46	15.54
<i>Aeneid</i>	I-IX	324	21.8	41	28.47	19	12.93	36	22.78	37	16.52
<i>Aeneid</i>	X-XII	100	27.6	16	32.0	10	16.39	10	13.89	9	12.50

TABLE 3.

TOTAL REVERSES	ONE EVERY x LINES	TOTAL SSSD— DSSS	% SSSD WITH DSSS	TOTAL SDDD— DDDS	% SDDD WITH DDDS	TOTAL SSDS— SDSS	% SSDS WITH SDSS	TOTAL DSDD— DDSD	% DSDD WITH DDSD
2	41.5	0	—	0	—	1	14.29	1	33.33
2	36.5	0	—	0	—	1	33.33	1	25.0
3	37.0	1	16.67	1	50.0	1	33.33	0	—
0	—	0	—	0	—	0	—	0	—
0	—	0	—	0	—	0	—	0	—
1	86.0	0	—	0	—	0	—	1	25.0
0	—	0	—	0	—	0	—	0	—
5	21.6	2	50.0	0	—	1	25.0	2	33.33
2	33.5	0	—	0	—	0	—	2	33.33
0	—	0	—	0	—	0	—	0	—
15	55.0	3	14.29	1	5.0	4	12.12	7	16.28
11	46.6	7	38.89	0	—	2	11.76	2	11.11
8	67.5	0	—	2	15.38	3	12.0	3	25.0
12	47.1	4	33.33	1	14.29	2	5.0	5	20.0
16	35.2	7	46.67	1	7.69	6	16.22	2	10.0
47	46.4	18	32.14	4	9.52	13	10.92	12	18.46
18	42.0	6	24.0	3	25.0	9	18.75	0	—
27	29.3	12	42.86	3	15.0	8	17.39	4	13.33
27	25.9	15	44.12	6	37.50	5	15.15	1	3.57
15	46.5	2	13.33	2	15.38	8	18.60	3	13.04
16	53.9	4	12.90	2	10.0	8	16.0	2	5.88
14	64.1	5	22.73	4	17.39	3	5.56	2	5.13
25	32.4	12	52.17	0	—	6	13.04	7	23.33
27	26.7	7	30.43	1	9.09	13	26.53	6	31.58
15	54.6	5	21.74	3	18.75	5	10.87	2	7.41
22	40.9	4	18.18	2	9.52	12	27.27	4	13.33
15	60.7	6	23.08	0	—	8	12.50	1	3.13
31	30.6	9	37.50	3	20.0	16	25.0	3	11.11
252	38.9	87	29.56	29	14.95	101	17.21	35	9.92
184	38.3	68	30.36	24	16.67	65	15.66	27	10.23
68	40.6	19	26.39	5	10.0	36	20.93	8	8.99

VERGIL		FOURTH-FOOT HOMODYNE TOTAL (INCLUDING SPONDAIC VERSES)	% FOURTH- FOOT HOMODYNE	TOTAL REPEATS	TOTAL WITH CHANGE	% OF CHANGE	DIFFERS FROM HOMO- DYNE %	TOTAL REPEATS + NEAR REPEATS	TOTAL WITH CHANGE	% OF CHANGE	DIFFERS FROM HOMO- DYNE %
<i>Eclogues</i>	I	32	38.55	3	1	33.33	-5.22	14	6	42.86	+4.31
	II	24	32.88	7	2	28.57	-4.31	17	7	41.18	+8.30
	III	47	42.34	7	3	42.86	+0.52	27	13	48.15	+5.81
	IV	18	28.57	6	2	33.33	+4.76	16	5	31.25	+2.68
	V	29	32.22	2	1	50.0	+17.78	8	4	50.0	+17.78
	VI	46	53.49	5	2	40.0	-13.49	16	6	37.50	-15.99
	VII	32	45.71	5	2	40.0	-5.71	12	4	33.33	-12.38
	VIII	44	40.74	9	4	44.44	+3.70	20	8	40.0	-0.74
	IX	31	46.27	5	3	60.0	+13.73	12	6	50.0	+3.73
	X	26	33.77	14	11	78.57	+44.80	19	12	63.16	+29.29
TOTAL <i>Eclogues</i>		329	39.73	63	31	49.21	+9.48	161	71	44.10	+4.37
<i>Georgics</i>	I	198	38.52	44	18	40.91	+2.39	113	51	45.13	+6.61
	II	186	34.32	39	17	43.59	+9.27	117	52	44.44	+10.12
	III	195	34.45	46	21	45.65	+11.20	121	66	54.55	+20.10
	IV	210	37.17	48	21	43.75	+6.58	131	58	44.27	+7.10
TOTAL <i>Georgics</i>		789	36.08	177	77	43.50	+7.42	482	227	47.10	+11.02
<i>Aeneid</i>	I	234	30.91	63	27	42.86	+11.95	170	73	42.94	+12.03
	II	319	40.23	60	28	46.67	+6.44	154	71	46.10	+5.87
	III	268	37.75	49	30	61.22	+23.47	131	72	55.0	+17.25
	IV	284	40.69	51	23	46.0	+5.31	151	72	47.68	+6.99
	V	351	40.58	56	25	44.29	+3.71	187	79	42.25	+1.67
	VI	326	36.30	67	31	46.27	+9.97	186	79	42.47	+6.17
	VII	323	39.88	64	34	53.13	+13.25	177	91	51.41	+11.53
	VIII	303	41.68	69	35	50.72	+9.04	175	95	54.21	+12.53
	IX	293	36.26	69	34	49.28	+13.02	176	87	49.43	+13.17
	X	306	34.0	79	28	35.44	+1.44	195	91	46.67	+12.67
	XI	352	38.55	72	24	33.33	-5.22	190	66	34.74	-3.81
	XII	354	37.30	90	32	35.56	-1.74	220	92	41.82	+4.52
TOTAL <i>Aeneid</i>		3,713	37.78	789	351	44.49	+6.71	2,112	968	45.83	+8.05
<i>Aeneid</i>	I-IX	2,701	38.22	548	267	48.72	+10.50	1,507	719	47.71	+9.49
<i>Aeneid</i>	X-XII	1,012	36.64	241	84	34.85	-1.79	605	249	41.16	+4.52

TABLE 4.

DDSS REPEATS	TOTAL WITH CHANGE	% OF CHANGE	DDSS REPEATS + NEAR REPEATS	TOTAL WITH CHANGE	% OF CHANGE	DDSS REPEATS	TOTAL WITH CHANGE	% OF CHANGE	DDSS REPEATS + NEAR REPEATS	TOTAL WITH CHANGE	% OF CHANGE
0	—	—	4	2	50.0	1	0	0	2	0	0
4	1	25.0	6	2	33.33	1	0	0	2	1	50.0
3	2	66.67	6	3	50.0	0	—	—	1	1	100.0
3	0	0	7	2	28.57	0	—	—	2	0	0
0	—	—	1	1	100.0	2	1	50.0	4	1	25.0
4	2	50.0	5	2	40.0	0	—	—	0	—	—
0	—	—	1	0	0	0	—	—	0	—	—
4	2	50.0	4	2	50.0	1	0	0	3	0	0
0	—	—	2	2	100.0	0	—	—	2	0	0
2	2	100.0	3	2	66.67	0	—	—	0	—	—
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20	9	45.0	39	18	46.15	5	1	20.0	16	3	18.75
5	2	40.0	10	6	60.0	9	4	44.44	23	9	39.13
5	4	80.0	16	6	37.50	8	2	25.0	21	5	23.81
9	5	55.55	17	11	64.71	5	2	40.0	15	7	46.67
11	4	36.36	19	8	42.11	5	2	40.0	21	6	28.57
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30	15	50.0	62	31	50.0	27	10	37.04	80	27	33.75
14	10	71.43	34	21	61.76	14	4	28.57	25	5	20.0
6	2	33.33	18	10	55.56	10	3	30.0	21	6	28.57
8	6	75.0	18	13	72.22	10	4	40.0	19	6	31.58
6	3	50.0	22	11	50.0	8	4	50.0	17	8	47.06
10	6	60.0	37	19	51.35	4	0	0	28	10	35.71
13	5	38.46	36	16	44.44	14	7	50.0	31	12	38.71
14	5	35.71	41	20	48.78	17	7	41.18	29	11	37.93
12	8	66.67	27	17	62.96	10	4	40.0	21	9	42.86
9	7	77.78	30	19	63.33	7	4	57.14	24	8	33.33
12	2	16.67	31	11	35.48	17	3	17.65	34	10	29.41
12	4	33.33	29	12	41.38	16	1	6.25	38	4	10.53
9	3	33.33	26	9	34.62	21	4	19.05	44	17	38.64
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125	61	48.80	349	178	51.0	148	45	30.41	331	106	32.02
92	52	56.52	263	146	55.51	94	37	39.36	215	75	34.88
33	9	27.27	86	32	37.21	54	8	14.81	116	31	26.72

REPEATED PATTERNS AND FOURTH-FOOT TEXTURE