

# The Case of the Missing Line

## Nabokov's Mathematics in Pale Fire

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In his seminal work on the Latin tradition in European literature Ernst Robert Curtius (1948) propagated the term *Zahlenkomposition* (Exkurs XV) to cover those cases where a literary work follows certain mathematical rules regarding above all the amount of poetical entities. Unfortunately his term has not won general acceptance although it is very easy to translate, for instance into Danish (*talkomposition*). In English one sometimes comes across the expression *number symbolism*, which is directly misleading. Numerical composition has nothing whatsoever to do with symbolic values of various numbers (the 'study' of which belongs to the realm of *numerology* along with flying saucers, black cats, and other examples of superstition). The term *number poetry* is better, because more neutral, but not quite precise because it overlooks a crucial point, namely that the arithmetical entities belong to the *signifiant*, rather than the *signifié*, and may also direct the shape of prose texts, for instance the writings of Nabokov.

*Pale Fire* (i.e. John Francis Shade's poem) is a case in point. Already in the very first pages of the Foreword Charles Kinbote asserts that right from the start the text was intended to cover 1.000 lines, of which only 999 have been preserved. The loss, however, is not very great: 'Nay, I shall even assert (as our shadows still walk with us) that there remained to be written only *one* line of the poem (namely verse 1000) which would have been identical to line 1 and would have completed the symmetry of the structure'.

Number composition was known already in pre-Roman antiquity, witness the autobiography of Darius the First, the Persian emperor (522 – 486 BC). The text, inscribed on a limestone cliff near the present-day village Behistun (originally Old Persian Bagastana, 'the place of the Gods', is divided into five columns containing the following quantities of lines

column	1	2	3	4	5	
lines	96	98	92	92	36	
even	+	+	+	+	+	
odd	-	-	-	-	-	
sum			92	92		184
sum	96	98			36	230
proportion	184 : 230 = 4:5 = x : (x+1)					

A proportion of the type  $a : b = x : (x + 1)$  was called *epimorion* by Archytas (428 – 37 BC). For the Greek (Pythagorean) influence upon the Old Persian script and the Behistun inscription, see Jensen (1967, 1975, 1986).

Some very basic similarities as regards the sense of strict harmony occur in *Pale Fire* (the poem). That fact in no way implies that Nabokov had any knowledge of Persian literature, although he might easily have had. Ronald G. King's edition (1950) had been reprinted several times. Rather it goes to demonstrate that normally mathematical composition tends to utilize some very general, almost trivial arithmetical phenomena: the opposition even/odd, or prime numbers, squares and so on.

On the other hand he was undoubtedly well acquainted with another early example of numerical composition: the division of the Psalms of the Hebrew Bible into groups of 41, 31, 17, 17, 43 (the so-called nr. 150 being a later addition). All of the five numbers are primes, and so is their sum (149). Moreover, a strive for symmetry is obvious, although generally overlooked.

41	31	17	17	43		
41	31		17	43	72:60 = 6:5	
41				43	84:48	
	31		17		= 7:4	

After the addition of Psalm 150, the pattern looked like this:

41	31	17	17	44		
41				44	85:65 = 17:13	
	31	17	17		5p : 5p	

The difference is probably due to the psychological fact that the first 'redactor' had an arithmetical approach to numerical phenomena, whereas his colleague saw them from a geometrical point of view. That is, they were both highly intelligent and observant people, but belonged to different *psychologische Typen*, as C. G. Jung (1921) would have put it. Nabokov, it seems, possessed the ability to bridge between these two attitudes, as shall be demonstrated below.

The five Books are connected by means of an acrostic:

5.	4.	3.	2.	1.	
ה	ת	ם	ל	א	to a dead (woman)

So the notion of acrostic, which plays an important role in Pale Fire, was known already two millennia before his time.

There can hardly be any doubt that Nabokov knew his Vergil, in whose poetry one likewise finds evident traces of mathematical composition. Well known for centuries has been the fact that the name of Maecenas occurs in symmetrical positions (verse 1.2, 2.41, 3.41, 4.2). No classical philologist, however, has been able to interpret this arrangement correctly. What characterizes the figures 2 and 41 is that both of them are prime numbers. Also the only even prime number existing (2) is combined with an arbitrary odd prime number out of an infinite multitude in determining the exact amount of hexameters found in each Book and choosing them on a symmetrical basis:

Book	1	2	3	4
hexameters	514	542	566	566
divided by 2	257	271	283	283
squares	$16^2$			$17^2$
primes	first	middle	last	

The notion of 'doubled prime' is found in Nabokov in such an evident way that it has been generally overlooked:

Canto	1	2	3	4	formula
lines	166	334	334	*166	
divided by 2	83	167	167	83	$p$
place in prime list	24	40	40	24	$8p$
$p =$	3	5	5	3	

As in the Georgics, also the position in the line of primes has thus been taken into consideration.

The omission of line 1.000 similarly has a parallel in Vergil's composition of the Georgics. If a hexameter is defined as a specific metrical unit, then the Georgics contain 2.188. If however its definition is based on semantics, then there are only 2.187, as the wording of two verses is identical.

Since  $2187 = 3^7$ , i.e. a prime elevated to a potency which is also a prime, it may be considered an 'elegant' number. In Nabokov's case the outcome is 999, which is what in German is called a *Schnapszahl*. This phenomenon, as is well known, was mentioned by the author of the Apocalypse (666), although it would rash to assume that he had any first-hand acquaintance with Bavarian Bierstuben.

Vergil's youthful poetry marked the starting point of European mathematical composition. His elaborate system inspired Horace to an apparently very simple, but in reality extremely complicated construction in Book I of his Satires, written in hexameters, only the most conspicuous features of which can be described here.

Satire	1	2	3	4	5	6	7	8	9	10
hexameters	121	134	142	143	104	131	35	50	78	92
relative size	first<sec.		do.		do.		do.		do.	
combined	255		285		235		85		170	
divisible by 5	+		+		+		+		+	

In Pale Fire Canto IV has a clear numerical structure based on the fundamental distinction between even and odd numbers, cf. the following chart.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
lines	12	6	8	12	14	8	12	8	8	8	8	2	8	8	6	22	*16
even	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
odd	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				8		8		8	8	8		8	8				64 = 16·4
	12	6		12		12								6			48 = 16·3
				14						2					16		32 = 16·2
														22			22

Compare Canto I

sect.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
lines	12	16	12	8	9	13	8	7	13	6	10	10	6	16	10	10
even	12	16	12	8			8		13	6	10	10	6	16	10	10
				48			8	+	32	=	40			36		
odd				9	13		7	13								
				22			20									

The composition of this text, not to say construction, abounds in epimorion proportions:  $36:48 = 3:4$ ;  $36:40 = 9:10$ ;  $40:48 = 5:6$ ;  $20:22 = 10:11$ .

Moreover the first ten lines of Canto I are bound together by an embedded message, written in Latin:

line	1	2	3	4	5	6	7	8	9	10
initials	I	B	I	L	A	M	U	H	A	C
encoding	acrostic			anagram			acrostic			
decoding	<i>ibi</i>			<i>luam mula</i>			<i>hac</i>			

The central constellation of letters allows for a double decoding: *luam* (subj. or future of the verb *luo*) and *mula* (vocative of *mula* 'mule'). The literal meaning of the message is 'There I shall wash, you mule, in this manner'. The connotational meaning may be something like: 'there I shall atone, you silly cow, in this manner'. Further light on this question must be postponed until the whole of the poem has been submitted to a computer analysis. Where one hidden message has been unearthed, others might very well turn up.

This insertion of a personal message into a poetical text could equally have been inspired by Vergil's Georgics, the first few

lines run like this:

Quid faciat laetas segetes, quo sidere terram  
 uertere, Maecenas, ulmisque adiungere uitis  
 conueniat, quae cura boum, qui cultus habendo  
 sit pecori, apibus quanta experientia parcis,  
 hinc canere incipiam. uos, o clarissima mundi  
 lumina, labentem caelo quae ducitis annum;  
 Liber et alma Ceres, uestro si munere tellus

The message embedded on the position 'second word from the end' is an anagram saying: *caces d(eos) m(anes)*, 'fuck the Gods'. This youthful defiant blasphemy might in itself have caused the poet being sentenced to death. But worse was to come, in the proemium of the Aeneid. On the intriguing topic of Vergil's death see [www.virgilmurder.org](http://www.virgilmurder.org).

Nabokov mastered the technique of mathematical composition already at the age of 25, as demonstrated by his Shakespeare poem, written in Russian (for text and translation see Grayson (2002:1.216 – 219)). However, it is equally clear that he never handed over that knowledge to his son, Dmitri. Otherwise, the translation would have looked radically different.

The Shakespeare poem

sections	I	II	III	IV			
lines	6	16	8	12			$p =$
even	+	+	+	+			
odd	-	-	-	-			
	6		18		24	$8p$	3
		16		8	24	$8p$	3
words	31	85	89	43	248	$8p$	31
even	-	-	-	-			
odd	+	+	+	+			
	31		89		120	$120:128 =$	
		85		43	128	$15:16$	

A forerunner of Nabokov's was the prolific writer who around 100 BC composed two major texts of the New Testament, the Gospel according to Luke and Acts. A few embedded messages chosen (almost) at random (from Acts ch. 18) may suffice as to illustrate her use of Latin messages to describe certain very private situations.

18.2

καὶ εὗρόν τινα Ἰουδαῖον  
 ὀνόματι Ἀκύλαν, Ποντικὸν τῷ γένει, προσφάτως ἐληλυθότα  
 ἀπὸ τῆς Ἰταλίας καὶ Πρίσκιλλαν γυναῖκα  
 αὐτοῦ διὰ τὸ διατεταχέναι Κλαύδιον χωρίζεσθαι πάντας  
 τοὺς Ἰουδαίους  
 ἀπὸ τῆς Ῥώμης, προσῆλθεν αὐτοῖς

Translation: There he found a Jew named Aquila, a native of Pontus, who had recently come from Italy with his wife

Priscilla, because Claudius had ordered all the Jews to depart from Rome. Paul approached them...

Decoding:

<u>CETI</u>	CETI	cite
<u>OAPT</u> GPE	OAPT	apto
<u>ATICP</u> G	ATICP	capti
<u>AD</u> TDCCPTI	AD	da
<u>ATRPA</u>	ATRPA	parta(m)

Decoding: *cite apto capti da parta(m)* 'quickly give the slave's daughter to the intelligent man'. The accusative ending *-m* is regularly omitted in contemporary inscriptions, cf. below. The slave's daughter was Luke herself. She was a Jewish girl, whose real name was Eva. The name Luca derives from the garrison city in Northern Italy (nowadays Lucca), where her boyfriend Titus was a Roman officer. She bore him a son, also called Titus, but the father refused to marry her, which would have meant granting her Roman citizenship.

Acts 18.18:									
word init.	O	D	P	E	P	E	T	I	
acrostic								<i>peti</i>	
anagram								<i>pedo</i>	

  

Acts 18.18:									
word init.	(A)	A	E	E	T	K	S	A	P
acrostic									<i>cace</i>
anagram			<i>âete</i>			<i>pacs = pax</i>			

18.18

Ὁ δὲ Παῦλος ἔτι	ODPE	pedo
προσμεῖνας ἡμέρας ἰκανὰς τοῖς	PEIT	peti
ἀδελφοῖς ἀποταξάμενος ἐξέπλει εἰς τὴν	AAEET	âete
Συρίαν, καὶ σὺν αὐτῷ Πρίσκιλλα	CSAP	pax
καὶ Ἀκύλας κειράμενος ἐν	CACE	cace

Κεγχεραῖς τὴν κεφαλὴν, εἶχεν γὰρ εὐχήν.

Translation: And Paul after this tarried there yet a good while, and then took his leave of the brethren, and sailed thence into Syria, and with him Priscilla and Aquila. He had his hair cut off at Cenchrea because he had made a vow.

Decoding: 'I (don't give a) fart. I asked (you), (my) Eagle' (from Gk. αετός), peace (= let's be friends again), bad (boy)'. There is a vague possibility that the final initials CEGE stand for a misunderstood imperative of the verb *cogo*, the perfect of which *cegi* was probably monophthongized in Luke's time: 'force (me).

<u>CETI</u>	CETI	cite
<u>OAPT</u> GPE	OAPT	apto
<u>ATICP</u> G	ATICP	capti
<u>AD</u> TDCCPTI	AD	da
<u>ATRPA</u>	ATRPA	parta(m)

## 18.26

26οὔτος τε ἤρξαστο παρρησιάζεσθαι     OTEP     peto  
ἐν τῇ συναγωγῇ: ἀκούσαντες             SAT     sat  
δὲ αὐτοῦ     DA     da  
Πρίσκιλλα καὶ Ἀκύλας προσελάβοντο αὐτὸν  
   PCAPA     cappa(m)  
καὶ ἀκριβέστερον αὐτῷ ἐξέθεντο τὴν ὁδὸν  
   AAETO     âeto

Decoding: *peto, sat, da cappam aeto (= αετωι)*. 'I pray, enough, give the clothes back to (me), (your) Eagle'.

Luke was eager to put a memorial to her lover, the 'bad' boy, who evidently helped her editing the last of the above quotations. As her pet name for him was Aetos 'Eagle', she invented a totally fictitious man calling him Aquila (Latin for eagle). To symbolize herself as the epitome of 'das Ewig Weibliche, das zieht uns hinan' she similarly coined a diminutive of the Latin word *priscus* meaning 'ancient'. Hence the English name Priscilla.

### Literature

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