

## Adam – Where to Put You?

### The Place of Romans 5 in the Letter's Composition\*

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#### *Abstract*

How do we reconstruct the authentic disposition of Romans? Is there a main caesura before chapter 5 – or after? Content analysis gives no clear answer nor do the early manuscripts. Stichometry is introduced here as a new approach. In antiquity a standard line of an average hexameter, a *stichos* of 15-16 syllables, was the well-documented measure for the length of prose texts. It appears to have been the basis of formal disposition. When applied to Romans, chapters 1–4, 5–8, and 12–16 have the same size of  $272 = 8 \times 34$  *stichoi* each, and chapters 9–11 have  $204 = 6 \times 34$ . This hypothesis is corroborated by similar analysis of other New Testament writings. Thus we can conclude that Paul made a main caesura before, not after, chapter 5.

## 1 Introduction

This paper deals with the problem of whether a major caesura in the letter to the Romans is to be put before Romans 5:1 or before 6:1. Is the Adam-Christ typology of Romans 5:12-21 part of a proposed main section dealing with the revelation of God's righteousness, the subject of Romans 1–4, or rather part of a proposed main section dealing with liberation from sin, the law and death, the subject of Romans 6–8. The core verse of the typology is 5:18:<sup>1</sup>

Therefore just as one man's [Adam's] trespass  
led to condemnation for all,  
so one man's [Christ's] act of righteousness  
leads to justification and life for all.

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<sup>1</sup> Scripture quotations: *New Revised Standard Version*, ©1989 NCC in the USA.

## 2 Status controversiae

In commentaries and text editions one may find either solution. The same is true concerning translations, but it doesn't seem necessary for our purpose to survey the numerous versions. The recent edition of the Greek New Testament (*GNT*<sup>5</sup>) no longer gives any information about the major sections of Romans 5–6 in the totally revised 'Discourse Segmentation Apparatus'.<sup>2</sup> However, we are interested rather in the paragraphing of the Greek original than in the decisions of modern translators.

### 2.1 Commentaries

Our survey is limited to commentaries of the last decades that can serve as examples of the discussion of the question, especially in Germany.

The following exegetes begin a new main section in 5:1:

Michel 1955, VII  
 Käsemann 1973, V, 122  
 Lohse 2003, 9, 164  
 Klaiber 2009, 8

The following commentaries begin the new section in 6:1:

Wilckens 1979, IX, 181  
 Morris 1988, 33  
 Stuhlmacher 1989, 18  
 Haacker 1999, VIII, 112  
 Wolter 2014, 69-71

There are good arguments on both sides. On the one hand, Käsemann points out that chapters 7 and 8 are connected with chapter 5 theologically. In 7:7-25 ἐγώ refers to the man in Adam's shadow, for every man is interwoven into the Protoplast's fate.<sup>3</sup> In 8:19 the

<sup>2</sup> See *The Greek New Testament*, 4<sup>th</sup> Revised edition, ed. by B. Aland *et al.*, Stuttgart: Deutsche Bibelgesellschaft/United Bible Societies 1993, note *h* at Rom 4:25: major section in *New Jerusalem Bible* (1985); note *h* at 5:21: major section in *La Nouvelle Version Segond Révisée* (1978). Both notes are deleted in the 5<sup>th</sup> Revised Edition, Stuttgart 2014.

<sup>3</sup> Käsemann 1973, 187: 'Nach Adam ist jeder Mensch in das Geschick des Protoplasten verflochten'; 190: 'ἐγώ meint den Menschen im Schatten Adams'.

earnest expectation of the creation endorses the cosmic perspective of chapters 5–8 as a whole.<sup>4</sup> As a result of this eschatological horizon, Käsemann rejects a merely soteriological distinction between ‘justification’ in chapters 1–5 and ‘sanctification’ in chapters 6–8, as seen, for example, in the commentary of Morris, who labels these two sections ‘The Way of Deliverance’ and ‘The Way of Godliness’.<sup>5</sup> A further point in favor of the unity of chapters 5–8 is made by Lohse, who sees a correspondence of keywords between the beginning in 5:1-11 and the end of the section in 8:18-39 (love of God/Christ, justify, glory, hope, salvation, patience).<sup>6</sup>

Wilckens, on the other hand, lists the keywords that link 5:1-11 with chapters 1–4 (justify, grace, boasting, Christ’s atoning death, salvation) and connects the antithesis of Adam and Christ (5:12-21) with the universality of sin (1:18–3:20) and that of God’s righteousness (3:21–5:11).<sup>7</sup> Haacker criticizes an outline based on a theological *ordo salutis* (order of salvation) that distinguishes between justification (chapters 1–4) and its consequences in Christian life (chapters 5–8). Taking into account the epistolary situation, he prefers to distinguish between the presentation of the Gospel (chapters 1–5) and the reply to objections (chapters 6–8).<sup>8</sup>

It is hard to decide which interpretation fits Paul’s original intention better. This obviously depends on one’s general understanding of Paul’s theology. At any rate, all these commentaries agree that chapter 5 should not be divided by a main caesura after 5:11.<sup>9</sup>

## 2.2 Editions of the Greek text

In modern editions of the Greek New Testament we find the same situation. Our survey begins with the text editions based on a critical review of the oldest manuscripts rather than on the *textus receptus* of the 16<sup>th</sup>–17<sup>th</sup> century. We can distinguish here three groups.<sup>10</sup>

<sup>4</sup> Käsemann 1973, 223.

<sup>5</sup> Käsemann 1973, 84, 122; Morris 1988, 33.

<sup>6</sup> Lohse 2003, 164.

<sup>7</sup> Wilckens 1978, 286-287, 17-18.

<sup>8</sup> Haacker 1999, 112, with reference esp. to Bengel 1855, 528-529: distinction between ‘*de Justificatione*’ (1:18–4:25) and ‘*de Salute*’ (chaps. 5–8).

<sup>9</sup> See Käsemann 1973, 122; Wilckens 1978, 181-182 with n. 485; Lohse 2003, 163-164. In favour of a main caesura 5:11/5:12 see e.g.: Paulsen 1974, 18.

<sup>10</sup> No clear paragraphing system: Nolli 1981.

A main caesura is put before chapter 5 by:

Westcott & Hort 1881  
 Nestle 1898–1963 (1<sup>st</sup>–25<sup>th</sup> edition)  
 Vogels 1920  
 Bover (1943) 1950  
 Tasker 1964  
 Nestle-Aland 1979–2012 (26<sup>th</sup>–28<sup>th</sup> edition)

A main caesura is put after chapter 5 by:

Weiß 1902  
 Von Soden 1913

No main caesuras at all, only ordinary paragraphs are set by:

Tischendorf 1872  
 Tregelles (1869) 1879  
 Souter 1910  
 Merk 1933  
 Aland *et al.* 1966–2014 (1<sup>st</sup>–5<sup>th</sup> edition)  
 Hodges & Farstad 1982  
 Robinson-Pierpont 2005  
 Holmes 2010

### 3 The manuscripts

What can we learn from the ancient manuscripts concerning this question? What is the paragraphing system of the oldest codices and how do they deal with the problem of Romans 5? I have reviewed the six manuscripts that are described below.

*Papyrus Chester Beatty II* (P<sup>46</sup>) is one of the oldest New Testament codices, written probably between 150–250 AD.<sup>11</sup> The text is generally written in *scriptio continua*, but it is interrupted often, especially after the abbreviated *nomina sacra*. Sometimes a diagonal stroke above the line may indicate a new unit or at least a new sentence.<sup>12</sup> There is also an indication of a major section: a *kolon*

<sup>11</sup> Kenyon 1936, XV: ‘about A.D. 200’. On the problem of dating see: Barker 2011, esp. 581: ‘a tentative dating range of AD 150–250’; Orsini & Clarysse 2012, 462 [470]: ‘early third century [200–225], excluding dates in the first or the first half of the second century’.

<sup>12</sup> In Rom. 15, e.g. before v. 30 or v. 33 (thereafter, 16:25-27 is inserted in P<sup>46</sup>). According to Kenyon 1937, XIV, these ‘reading marks (...) have been added by another hand, perhaps that which has inserted the page-numeration.’

followed by a *spatium* in Romans 12:1 (Fig. 1),<sup>13</sup> obviously marking the shift to the paraenesis.

I have found a similar *spatium* without a *kolon* only in five other instances in the manuscript: before Romans 16:1 (beginning of the greetings, in P<sup>46</sup> after 16:27!); 2 Corinthians 13:12 (before the greetings); Galatians 1:6, 11 (after the praescript and before the corpus of the letter); and Ephesians 4:1 (again before the paraenesis begins).<sup>14</sup> Unfortunately the beginning of the codex is lost. The first preserved words are from 5:17, and the first preserved folio is only a fragment. Thus Papyrus 46 does not tell us anything about a caesura at 5:1 or 6:1.

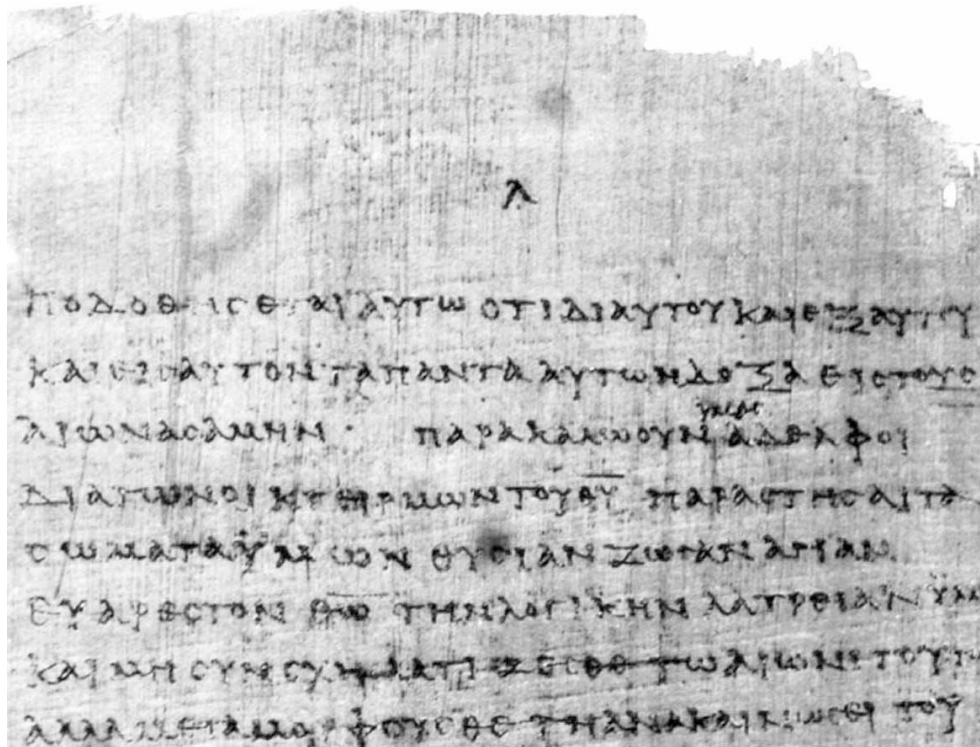


Fig. 1: Papyrus 46 (see note 14): Main caesura before Romans 12:1 (third line).

<sup>13</sup> Image digitally reproduced with the permission of the Papyrology Collection, Graduate Library, University of Michigan.

<sup>14</sup> See Kenyon 1937, Plates; Junack *et al.* 1989, 102 n.: in Rom. 12:1 'Hochpunkt von 1. Hand'. – In the facsimile edition, the width of the spatium is: 12 mm (Rom.), 10.5 mm (2 Cor.), 9 and 5.5 mm (Gal.), 7.5 mm (Eph.). After Hebr. 3:5, the small space at the end of the line cannot indicate a caesura, it is rather due to the *nomen sacrum* 'XPC' at the beginning of the next sentence that was too wide for the space. In 1 Cor. 15:2, a new line begins in the middle of the sentence, obviously due to a scribal mistake; the rest of the incomplete line is filled by a long horizontal stroke. – Junack *et al.* note a 'Spatium' about 30 times elsewhere in Romans, sometimes explained as 'Satztrenner' (e.g. 88 n.) or by a 'Fehler im Material' (100 n.); sometimes a direct speech or a *nomen sacrum* is marked. All these *spatia* are less than 5 mm.

*Codex Sinaiticus* (Ⲙ 01), one of the two 4<sup>th</sup> cent. codices, has paragraphs in its four columns quite often, indicated by a new line with a hanging indent (*ekthesis*). Sometimes, as also here in Romans 5, almost every grammatical sentence is written in this way.<sup>15</sup> At the end of these short paragraphs, the incomplete last line usually does not have a punctuation mark or has only a *kolon* (one dot above the line). In several instances a double *kolon* is used, that can be a dot above the line followed by a *kolon* with two dots (‘:.’) or the other way around (‘. ’), and before Romans 5:1 it is even a combination of *kolon* and dash (‘:–’).<sup>16</sup> However, the same double sign occurs in 4:3 and 4:12, therefore it is rather questionable whether it is an indication of a major caesura. According to Kenyon 1912, ‘punctuation by the first hand is rare’, so these marks may come from a later hand.<sup>17</sup>

In *Codex Vaticanus* (B 03),<sup>18</sup> the paragraph divisions are not so frequent. We find one, for example, before Romans 4:23; 5:1, 10, 12. Each of these is marked with a raised dot just past the last letter, sometimes connected with a *spatium*, and a little stroke (*paragraphos*) above the first letter of the following line. The *spatium*, of course, is made by the original scribe, the dots and strokes may be later additions. Main sections are indicated by two systems of chapter divisions. The older one, perhaps copied by the original scribe,<sup>19</sup> is in smaller letters. So at Romans 5:1 is a  $\sigma\tau\acute{\iota}\gamma\mu\alpha$  ( $\varsigma$ ), the letter for 6, that is, a sixth of a total of 21 chapters in Romans. A later system uses bigger letters, so at Romans 4:23 we find a ‘Γ’, for chapter 3 in a total of 8 chapters. In regard to our question about the main caesura, in 5:1 the *spatium* is somewhat broader than in 6:1, and the next chapters with the small letters begin in 5:20 (‘Z’ = 7) and 6:12 (‘H’ = 8). However, there is no obvious main division, neither in 5:1 nor in 6:1.

<sup>15</sup> Hanging indents in: 4:23; 5:1, 3, 6, 7, 8, 9, 10a, 10b, 11, 12, 13, 15a, 15b, 15c, 16b, 17a, 17b, 18, 19a, 19b, 20a, 20b, 21a, 21b; 6:1.

<sup>16</sup> Facsimile under: <http://codexsinaiticus.org>. The survey of Romans showed the following variants: ‘:.’ at the end of 9:33; 12:5, 14; 14:5; ‘. ’ at 8:27, 39; 9:19; 11:24, 36; 12:21; 14:9; ‘. . ’ at 12:3; ‘:.’ at 10:10; ‘:–’ at 8:21; ‘:–’ at the three instances above.

<sup>17</sup> Kenyon 1912, 64; for the comparable punctuation system of the papyri see Johnson 2009, 261.

<sup>18</sup> Facsimile: Codex Vaticanus 1999.

<sup>19</sup> Metzger 1964, 48, n. 1.

The three other codices I checked have quite a lot of paragraphs but no indication of main divisions. In *Codex Alexandrinus* (A 02, 5<sup>th</sup> c.)<sup>20</sup> a paragraph at 5:1 is even missing; the modern chapter figure was later added with an Arabic numeral. Before 6:1 a *spatium* marks a caesura, but without a new line as in other instances. In *Codex Ephraemi Syri rescriptus* (C 04, 5<sup>th</sup> c.)<sup>21</sup> the paragraphs always begin with a new line and hanging indent, and they end with *kolon* and *spatium*. *Codex Claromontanus* (D 06, 6<sup>th</sup> c.)<sup>22</sup> is written in colometric form, so that the Greek and the Latin columns correspond line by line. The hanging indent is the only paragraph indication.

Conclusion: The first scribes of the early manuscripts do not indicate a main caesura before Romans 5:1 or before 6:1 in any way. Perhaps they were not interested in this kind of structuring of the texts. It seems, however, that the scribe of Papyrus 46 knew about the shift in content, dividing the parts before Romans 12:1 from the following by a *spatium*.

#### 4 The *stichos* as standard measure in ancient literature

My suggestion is to use stichometry as a paragraphing tool. A type of mathematical method may give us indications of the original paragraphing. Since I have begun to count the lines of New Testament texts and to compare the size of single paragraphs and larger units, I have discovered many sections of identical size and many remarkable proportions between different sections that were presumably calculated by the ancient authors. There are several observations from ancient documentary and literary sources that corroborate this approach.

##### 4.1 *Definition of the stichos*

In Greek and Latin prose texts, a standard line was used for measuring the length of books or of their parts.<sup>23</sup> In Greek, this standard line is usually called *stichos* or *epos*, sometimes *στίχος ἥρωικός* or

<sup>20</sup> Kenyon 1909.

<sup>21</sup> Tischendorf 1843.

<sup>22</sup> Tischendorf 1852.

<sup>23</sup> For more information see Lang 1999 (based on the available references in Greek and Latin).

ἔπος ἑξάμετρον ('heroic line' or 'hexameter verse').<sup>24</sup> In Latin, the name is *versus*, sometimes *versus Vergilianus*.<sup>25</sup> Though it is used for prose, the poetic term indicates that its length is defined according to a metre of poetry. That means that it is defined by syllables, not by letters.<sup>26</sup>

The Latin *versus* has 16 syllables. This is explicitly stated in a note from probably the 4<sup>th</sup> c. AD that was discovered and described by T. Mommsen.<sup>27</sup> It is implicitly documented also for the Greek *stichos*. Galen (2<sup>nd</sup> c.) calculates that the 39 syllables of one of his sentences are equivalent to two and a half 'hexameter verses' and the 82 syllables of another to five.<sup>28</sup>

Originally, however, the Greek *stichos* must have had 15 syllables. This is the result of calculations on the basis of certain books of Herodotus and Demosthenes (5<sup>th</sup> and 4<sup>th</sup> c. BC), so it is supposed that it is the older standard line.<sup>29</sup> It also corresponds with the average hexameter of 15 syllables according to the rules of Greek metric; its maximum is 17, its minimum is 13 syllables.

The shift from the older to the younger definition of the Greek *stichos* took place sometime in late antiquity, probably in the early 2<sup>nd</sup> c. AD. According to my reconstruction (see below), the authors of the New Testament used the *stichos* of 15 syllables and Galen that of 16. It seems to be an adjustment to the Latin *versus Vergilianus*. Later on, the two standard lines are apparently valid at the same time. Mommsen's note says that the *versus* of 16 syllables has been chosen deliberately. This implies an alternative, i.e., that of 15

<sup>24</sup> Both terms are used by Galen, *De plac. Hipp. et Plat.* VIII 1.22-25 (CMG V 4, 1, 2); see Diels 1882, 378-379.

<sup>25</sup> See below, note 27.

<sup>26</sup> See Diels 1882, 378. – The first philologists who rediscovered the *stichos* in the 19<sup>th</sup> c. defined it by letters, e.g. Birt 1882, 197: average of 35,75 letters. The definition by syllables has been accepted since Diels, although some scholars kept on using a measure of about 36 letters, e.g. Canevaro 2013, 10, 321.

<sup>27</sup> Mommsen 1886, 146 (Mommsen 1886 and 1890 were republished in Mommsen 1909, 283-297): ... *per singulos libros computatis syllabis posui numero XVI versum Virgilianum omnibus libris numerum adscripsi* ('...in counting the syllables through the single [Biblical] books, I have set the *versus Vergilianus* by the number of 16 [syllables] [and] added the number to all books').

<sup>28</sup> Galen: see above note 24; the exact number of syllables would be:  $16 \times 2\frac{1}{2} = 40$ ;  $16 \times 5 = 80$ .

<sup>29</sup> See Diels 1882, 379-380: calculated on the basis of *stichoi* sums preserved in some manuscripts and the number of syllables counted in printed editions.



syllables. The relation between the length of the written line and the *stichos* should be investigated systematically in every manuscript.<sup>30</sup> In the case of Codex B (Vaticanus), already T. Zahn assumed that it may have been written in half-*stichoi*.<sup>31</sup>

#### 4.2 Three types of stichometry

The *stichos* was used by ancient publishers and librarians for paying the scribes, calculating the prices, and determining the original size of the finished books. The term stichometry in this sense is known and recognized within classical philology today. Stichometrical data occur in three forms.

The overall sum of *stichoi* is given in the subscription at the end of many writings (so-called *Totalstichometrie*). The oldest reference for the New Testament is Papyrus 46 where written at the end of Romans is 'στιχ[ῶν] Α', i.e. 'one thousand *stichoi*' (see Fig. 2).<sup>32</sup>

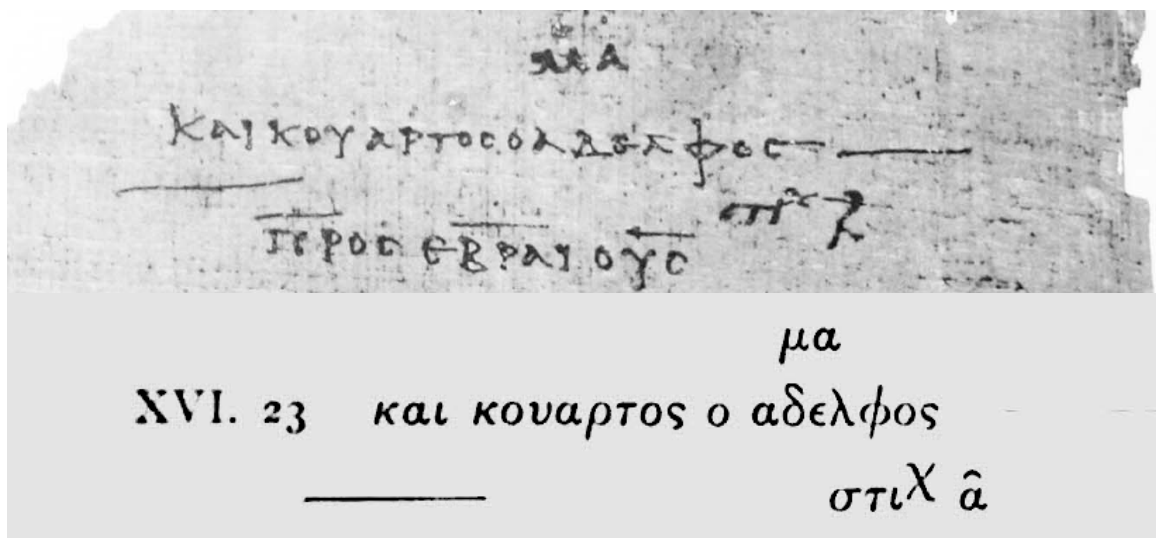


Fig. 2: Papyrus 46: Sum of *stichoi* ('Totalstichometrie') at the end after Romans 16:23.

Among the parchment manuscripts, Codex Sinaiticus is the oldest with stichometrical subscriptions, but only in the Pauline epistles; unfortunately the one under Romans is missing. Quite a few later codices (uncial and minuscule) note the number of *stichoi* under

<sup>30</sup> The papyrologists so far prefer to count letters per line, see e.g. Williams 2004, 12, 114 chart. 3.2.3a: A good portion of 183 surveyed papyri has around 17/18 letters per line, and that may correspond with 7-8 syllables or half a *stichos*.

<sup>31</sup> Zahn 1890, 391 n. 4.

<sup>32</sup> See above p. 193, note 13; Kenyon 1936, 21.

every biblical book. For Romans, mostly the number 920 is documented in Greek manuscripts, sometimes 950, and 911 in Latin manuscripts.<sup>33</sup>

The overall sum of *stichoi* is sometimes transmitted separately from the books in question, for example within biographies of philosophers or Church Fathers or in bibliographical lists. In catalogues of the biblical canon, the sum given for Romans is 1200, 1040, 950, 850 and 825 *stichoi*.<sup>34</sup> In two lists of the canon, the Pauline letters are summarised without numbers for the single letters.<sup>35</sup> There are obviously many scribal errors in these lists and it is most likely that for Romans the first number is too high, the last two are too low.<sup>36</sup>

In old manuscripts consecutive numbers written in the margin indicate every 100<sup>th</sup> line ('partial stichometry' or *Marginalstichometrie*).<sup>37</sup> This seems to have helped in quoting particular sentences or paragraphs. In late antiquity marginal numbers are only seldom used. For the Bible, they are preserved in two uncials: in Codex B (Vaticanus) for 1-4 Kings and Isaiah, and in LXX-Codex F (Ambrosianus, 5<sup>th</sup> c.) for Deuteronomy. For the New Testament some minuscule manuscripts containing the scholarly apparatus of Euthalius (4<sup>th</sup> c.?) mark every 50<sup>th</sup> line by a marginal number (also the lines of new chapters or sections).<sup>38</sup> In Codex B, we find a remarkable relation between written lines and marginal numbers. If the marginal counting system refers to the *stichoi* of 16 syllables, then the written lines of codex B are almost exactly half a *stichos* of 15 syllables, and Zahn's suggestion is corroborated.<sup>39</sup>

<sup>33</sup> See Zahn 1890, 384-408, esp. 394-395 (table), 385-386, n. 3 (main source for 920: Cod. L 020, also Cod. K 018; for 950: Cod. P 025 – all 9<sup>th</sup> c.).

<sup>34</sup> For 1200 see: Serruys 1902, 201; for 1040 and 825: Marksches 2012, 125 (*Catalogus Claromontanus*), 133 (Syriak list from Sinai); for 950: Lüdtkke 1915, 219 (variant in n. 5: 952); Klostermann 1895, 82 (Cod. Barberini gr. 317, 11<sup>th</sup> c.); for 850: Turner 1901, 242.

<sup>35</sup> See Marksches 2012, 123 (*Canon Mommsenianus*), 142 (Nicephorus).

<sup>36</sup> E.g. the Latin number DCCCCL (950) is easily misspelled as DCCCL (850).

<sup>37</sup> Lang 1999, 48.

<sup>38</sup> See the tables in: Harris 1893, 43-48, based on Cod. 181 (Vatic., Regius-Alexandrinus gr. 179, 15<sup>th</sup> c.) and Cod. 919 (Madrid, Escorial. Ψ.III.6, 11<sup>th</sup> c.). The numerous codices containing Euthalian appendices are listed by: Willard 2009, 160-169 (unfortunately it is not registered in which manuscripts the Biblical text is also connected with marginal numbers).

<sup>39</sup> See Lang 2004, 157 n. 39: between two 100-*stichoi* numbers, there are 214.1 written lines on average in 3 Kings, 216.4 in Isaiah, so an average written line

### 4.3 *The stichos used by authors*

The *stichos* served also as the standard measure in rhetorical instruction and in literary production. This has long been forgotten but the proofs are obvious. Here are some of the most important references:<sup>40</sup>

Menander Rhetor (3<sup>rd</sup> c. AD) gives recommendations explicitly about the length of three types of epideictic speeches: The so-called 'garlanding speech' (στεφανωτικός λόγος) should not exceed 150-200 *stichoi*, the farewell speech (συντακτικός) 200-300 and the lament (μονωδία) 150 – 'and nobody who is well disposed will blame you' (so *verbatim* concerning farewell).<sup>41</sup>

Some authors brag about the many thousands of *stichoi* they have written, for example, Theopompus Historicus (4<sup>th</sup> c. BC) or later<sup>42</sup> Josephus (1<sup>st</sup> c. AD)<sup>43</sup> and Galen (2<sup>nd</sup> c. AD).<sup>44</sup> Although the numbers they use are roughly estimated, these references prove that the counting of *stichoi* was known and practiced among authors through the centuries.

Quintilianus (1<sup>st</sup> c. AD) gives an idea of how the writing to measure was done technically. He does not want that 'the wax tablets are overly broad, since I have known a student whose speeches used to become too long because he measured them by the number of lines, and this mistake [...] was corrected by changing the tablets'.<sup>45</sup> The interpretation is not altogether easy. The student was criticised for

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has 7.47 (1600 / 214,1) or 7.39 (1600 / 216.4) syllables, that is insignificantly less than half of 15 syllables. Cf. Harris 1893, 59-63.

<sup>40</sup> For more references see: Lang 2015, esp. 74-76.

<sup>41</sup> Bursian 1882, esp. 106, 118, 121:6.4 (garlanding); 9.14 (farewell); 10.12 (lament).

<sup>42</sup> Theopompos, *FGrHist* 115, Frag. 25 (proem of the first of his 58 books of *Philippica*, cited by Photius [9<sup>th</sup> c.], *Bibl* 176): 'he said to have written no less than 20,000 lines of epideictic speeches, but more than 150,000 [of historical books]'.  
<sup>43</sup> Josephus, *Ant.* 20.267: size of the complete *Antiquities* = 20 books of 60,000 *stichoi* (ἕξ δὲ μυριάσι στίχων); so the average book has 3,000 *stichoi* (rounded up generously!).

<sup>44</sup> Cf. his recently discovered letter in: Boudon-Millot & Jouanna 2010, 9 (24a): Out of 50 books of a lexicon 'I prepared an epitome in six thousand lines' (ἐπιτομήν ἐπεποιήμην ἐν ἑξακισχιλίαις στίχοις); translation Rothschild & Thompson 2011, 117.

<sup>45</sup> Quintilianus, *Inst. Orat.* X 3.32: *ne latas [...] ultra modum esse ceras velim, expertus iuvenem [...] praelongos habuisse sermones, quia illos numero versuum metiebatur, idque vitium [...] mutatis codicibus esse sublatum.*

making his texts too long because he counted their length by the standard line of 16 syllables (*versus*). What is the relation between these two points? In my understanding, the student counted lines like a professional writer and wanted to achieve a certain number of lines, but the focus on lines rather than on contents, on quantity rather than quality, made his texts longer than advisable. Quintilian's remedy was to give him smaller wax tablets. I suggest that the student used tablets about as broad as a *versus*, so he was able to count the number of lines easily. This was impeded by the smaller tablets. At any rate, a specific wax tablet was used for counting the lines and realising the desired size.

Pliny the Younger (1<sup>st</sup>/2<sup>nd</sup> c.) writes to a penfriend that he expects a letter in response at least as long as his letter (*non minus longa epistula*): 'I will count not the pages only, but the *versus*, too, and the syllables' (*ego non paginas tantum, sed versus etiam syllabasque numerabo*).<sup>46</sup> Since Pliny's letter has about 80 lines of 16 syllables, the count will not be a matter of minutes though the writers are probably used to such a procedure. Counting lines as playful pleasure for leisure hours!

Galen complains that he had to write five books for a thesis he can summarise in two syllogisms of eight *stichoi* together.<sup>47</sup> That means he pays attention to the length of the sentences he writes and he measures them in *stichoi* of 16 syllables while writing, at least in this context.

#### 4.4 *The stichos as a tool in disposing and proportioning books*

It seems that at least some of the classical authors applied the *stichos* not only for measuring the size of the finished books, but already when disposing the main parts. However, there are no instructions of that kind in the handbooks of rhetoric we have from the time. It is a suggestion based on a thorough analysis of structure. The remarkable proportions observed in several books of poetry as well as prose have to be explained. Admittedly, recourse to the *stichos* is a hypothesis, but it may provide solutions to the following observations.

F. Pfister was probably the first one to discover in Plato's *Phaidros* (4<sup>th</sup> c. BC) that several parts in it are of the same size and

<sup>46</sup> Plinius, *ep.* IV 11.16.

<sup>47</sup> See above p. 196, notes 24 and 28.

that the two main sections 230E–259D and 259D–278B (without introduction 227A–230E and conclusion 278B–279C), having 645 and 1045 print lines, are disposed in a proportion of about '5 : 8 = 8 : 13' or the golden ratio.<sup>48</sup> He gives examples of this approach in other authors, esp. in Gorgias, Thucydides and Xenophon. He detects the golden ratio also in the disposition of Sallust's *Bellum Iugurthinum* (1<sup>st</sup> c. BC), but does not present his calculation.<sup>49</sup>

K. Vretska thoroughly analysed the disposition of Plato's *Politeia* and found several corresponding parts with (approximately) the same number of print lines. Regarding a key sentence on the four state constitutions (545B/C) Vretska even refers to the syllables of its four parts (though not to the *stichos* or the golden ratio). He concludes that Plato had an overall plan of form and content before writing down the ten books of his work.<sup>50</sup>

Isocrates' oration *Panegyricus* (4<sup>th</sup> c. BC) as analysed by F. Seck consists of two parts: a longer epideictic one praising Athens and dispraising Sparta and a smaller deliberative one calling for internal peace against the Persians. The one has 905 print lines, the rest, including proem and epilogue, 565. Seck discovers the golden ratio here:  $565 / 905 = 0.6243$ , very close to:  $5/8 = 0.625$ . He demonstrates that the value  $5/8$  is an old approximation to the irrational golden ratio.<sup>51</sup>

Lucian (2<sup>nd</sup> c. AD) gives attention to the right proportions explicitly. In his instruction for historians, he caricatures some writers who describe trivialities like the reins of a Parthian prince in 'myriads [= tens of thousands!] of lines' or the entire battle of Dura-Europos 'in less than seven lines'.<sup>52</sup> When he talks about the *σῶμα τῆς ἱστορίας* ('corpus of the history'), he wants the proem of a book to harmonise with the rest of the story like the head with the human body.<sup>53</sup> He does not refer to *stichoi* or numerical proportions in this context, but the treatise itself is disposed in the golden ratio:

<sup>48</sup> Pfister 1922, 1197; Pfister 1946, 348. The ratio  $645 / 1045 = 0.6172 \dots$  is closer to  $8/13 = 0.6154$  than to  $5/8 = 0.625$  and very close to the golden ratio of  $0.6180339 \dots$

<sup>49</sup> Pfister 1922, 1198: The excursus *Bell. Iug.* 41-42 is supposed to divide the book in this way.

<sup>50</sup> Vretska 1955, 42-49 (Einleitung); 1956, 408.

<sup>51</sup> Seck 1976, 367-368 (the exact ratio would be:  $565 / 904 = 0.625$ ).

<sup>52</sup> Lucianus, *Hist. conscrib.* 19, 28.

<sup>53</sup> Lucianus, *Hist. conscrib.* 23, 48.

its two parts (without proem), dealing with errors in historiography (chaps. 6–33) and recommendations (34–63), have 514 and 320 print lines and a ratio very close to  $8/5$ .<sup>54</sup>

In works of poetry remarkable proportions are much more likely than in prose. The poets try to find an optimal form and the poetic verses are the given measure to define proportions. One example is in Vergil's *Aeneid*, where G.E. Duckworth claims he has found 'in short passages, in larger patterns of thought, and in the main divisions of each book, the amazingly large total of 1044 ratios' of the 'exact or approximate Golden Section'; he usually demonstrates this by the decimal fraction of around 0.618 which he traces back to the so-called Fibonacci series (see below) or its variants.<sup>55</sup> Similarly, Horace has divided his *Ars poetica* according to the golden ratio: verses 1-294 deal with poetry as art, the 182 verses of 295-476 with the poet, and the caesura follows the Fibonacci numbers:  $14 \times 13 = 182$ ,  $14 \times 21 = 294$ ,  $14 \times 34 = 476$ .<sup>56</sup>

Passages of the same size and remarkable proportions have also been discovered in the New Testament, even before the *stichos* or the Fibonacci numbers were applied. In my 1977 article on Mark, I analysed the entire Gospel in terms of Nestle-lines (25<sup>th</sup> edition) and found that the second Galilee main section (3:7–8:21) is exactly a third of the whole book, with 505 of 1515 lines. Furthermore, the two parts of it, built in parallel after a summary (3:7-12), have the same length, 3:13–6:6a with 246 and 6:6b–8:21 with 245 lines.<sup>57</sup> The same article includes similar findings for Romans, Acts and John. I mention here only the two exhortatory parts of Romans (12:1–13:14; 14:1–15:13) that are equal, with 80 Nestle-lines each. Concerning Matthew, U. Luz has observed that the antitheses of the Sermon on the Mount (5:21-48) and the corresponding section of instructions (6:19–7:11) have the same number of Nestle-lines, and that the six antitheses are divided into two equal parts.<sup>58</sup>

How were the authors able to realize such equally-sized sections and sophisticated proportions? This question has puzzled me for

<sup>54</sup> See Lang 1999, 56 n. 87:  $320 / 514 = 0.6226$ ; the exact ratio  $5/8$  would be  $320 / 512$  print lines (counted in ed. Sommerbrodt, Berlin: Weidmann, 1893).

<sup>55</sup> Duckworth 1962, 45-46 (quote), 37-39.

<sup>56</sup> See Duckworth 1962, 76-77; Sbordone 1981, 1902.

<sup>57</sup> Lang 1977, 10, 13.

<sup>58</sup> Luz 1985, 186; Luz 2002, 254: 'je 56 Nestlezeilen' [full lines of the 26<sup>th</sup> ed.]; 245 (2002: 325) n. 1: '258/244 Worte; 1131/1130 Buchstaben' for 5:21-32/33-48.

many years. I began to format the Greek New Testament in lines of 15 syllables each and tried to reconstruct the disposition of all 27 writings. I have published my results on Ephesians, Mark, and the two short letters of John.<sup>59</sup> The analysis of Romans follows here.

#### 4.5 *The Fibonacci series*

It seems that an important tool for disposing texts has been the numerical series that enables approximate realisation of the irrational 'Golden Ratio'.

Definition: Two texts are in the golden ratio if the ratio between the number of their lines is about the same as the ratio between the larger part of them and their sum. In the example of Horace above, the two main parts of the poem have together  $294 + 182 = 476$  verses. The ratios are very close:  $182 / 294 = 13/21 = 0.61904 \dots$  which is about the same as  $294 / 476 = 21/34 = 0.61764 \dots$  The three numbers 13, 21 and 34 belong to the so-called Fibonacci series that begins with 1, 1, 2, 3, 5, 8, each number being the sum of the two numbers before:  $1+1 = 2$ ;  $1+2 = 3$ ;  $2+3 = 5$ ;  $3+5 = 8$ ;  $5+8 = 13$ , etc. The ratio of two successive numbers is approaching the irrational value of 0.6180339 . . . .

The terms we use for this ratio are relatively young, dating back only to the 19<sup>th</sup> century. In German *Goldener Schnitt* (golden section, golden ratio) is first documented in 1835 by the mathematician Martin Ohm.<sup>60</sup> The name 'Fibonacci series' refers to the medieval mathematician Leonardo of Pisa, called son (*filius*) of Bonacci (around 1200), whose book *Liber Abbaci* was published only in 1857; the numerical sequence found in it was named for him only in 1877.<sup>61</sup>

The series itself was already known in antiquity. The oldest reference we can date – characterized by the numbers 3, 5, 8 – is found in Nicomachus of Gerasa (2<sup>nd</sup> c. AD). It is the last one of ten numerical sequences presented as old tradition.<sup>62</sup> Iamblichus (c. 300) in his commentary on Nicomachus explains that the tenth place is chosen here not by chance, for ten is supposed to be a 'perfect number' in Pythagorean tradition.<sup>63</sup> The thesis is well founded that

<sup>59</sup> See Lang 2004; Lang 2009a; 2009b; 2015. For the rest of the NT see my homepage: [www.stichometrie.de](http://www.stichometrie.de).

<sup>60</sup> Ohm 1835, 194 note, 268 note.

<sup>61</sup> See Boncompagni 1857, 283-284; Lucas 1877.

<sup>62</sup> Nicomachus, *Introd. arithm.* II 28.6, 10.

<sup>63</sup> See Iamblichus, *In Nicom. arithm. intr.* (ed. Pistelli/Klein) 117.20-23; 118.9-18.

Hippasos of Metapont (5<sup>th</sup> c. BC), a disciple of Pythagoras, used the series in developing the irrational ratio of the ‘golden mean’ (Heller 1965, 346). So it seems to be very old, older than Euclides (3<sup>rd</sup> c. BC), who taught how to construct this ratio geometrically.

There are several variations of the series. One type begins with a higher interval between the first two numbers, but the following numbers are also the sum of the two before, and the ratio of two following numbers is also approaching the golden ratio, albeit somewhat later. Variation 1: 1, 3, 4, 7, 11, 18, 29, 47, etc.; variation 2: 1, 4, 5, 9, 14, 23, 37, 60, etc.; variation 3: 1, 5, 6, 11, 17, 28, 45, 73, etc.; and so on. The numbers of these variations can also be understood as the sum of two numbers of the series, the one of them being a specific multiple of the basic numbers, in variation 1:  $3x1+1 = 4$ ,  $3x2+1 = 7$ ,  $3x3+2 = 11$ ,  $3x5+3 = 18$ , etc.; variation 2:  $4x1+1 = 5$ ,  $4x2+1 = 9$ ,  $4x3+2 = 14$ ,  $4x5+3 = 23$ , etc.; variation 3:  $5x1+1 = 6$ ,  $5x2+1 = 11$ ,  $5x3+2 = 17$ ,  $5x4+3 = 23$ , etc.<sup>64</sup> Generally speaking, two numbers built in the same way of following Fibonacci numbers, either as multiples or as sums or as sums of multiples, are in a ratio approximate to the golden ratio. For example:  $(7x21 + 4x8) / (7x34 + 4x13) = 179 / 290 = 0.6172 \dots$

When the Fibonacci series is applied to stichometry, another arithmetical rule is important: the square of one of the numbers of the series differs from the products of the two adjacent and next adjacent numbers in  $\pm 1$ .<sup>65</sup> See the following examples:  $3x3 = 9$ ,  $2x5 = 10$ ,  $1x8 = 8$ ; or  $5x5 = 25$ ,  $3x8 = 24$ ,  $2x13 = 26$ ; or  $8x8 = 64$ ,  $5x13 = 65$ ,  $3x21 = 63$ ; or  $13x13 = 169$ ,  $8x21 = 168$ ,  $5x34 = 170$ , etc. Similarly, the product of two adjacent numbers differs from the product of the two next numbers in  $\pm 1$ , from the next again numbers in  $\pm 2$ :  $3x5 = 15$ ,  $2x8 = 16$ ,  $1x13 = 13$ ; or  $5x8 = 40$ ,  $3x13 = 39$ ,  $2x21 = 42$ ; or  $13x21 = 273$ ,  $8x34 = 272$ ,  $5x55 = 275$ ; and so on.

## 5 The stichometry of Romans

We have observed that proportions of the golden ratio discovered in the disposition of some classical books have been derived from values within the Fibonacci series. Horace realised the golden ratio

<sup>64</sup> Duckworth 1962, 38-39.

<sup>65</sup> Heller 1965, 342.



by applying numbers of the Fibonacci series to the numbers of his hexameters. Accordingly, we try to explain the observed proportions of NT texts on the basis of the *stichos*. What can we say about the proportions in Paul's letter to the Romans?

### 5.1 *The paragraph as basis of stichometrical calculations*

As already mentioned, the two exhortatory parts of Romans in 12:1–13:14 and 14:1–15:13 are of exactly the same length. Counted in *stichoi* of 15 syllables, each of them is 82 *stichoi* plus 6 syllables (82:06). It may be a coincidence. Yet there are some other remarkable proportions in Romans, and the major part 3:21–4:25 has almost the same size with 81:01 *stichoi*. So we should consider the possibility that Paul has intentionally adjusted the length of these parts. How could he have done it? Did he or his secretary Tertius (mentioned in 16:22) count the total sum of these *stichoi*, line after line, though the draft may have filled several wax tablets? That is hard to believe. Why should they choose just 82 or 83 *stichoi*? I cannot see any reason.

Therefore I offer the following hypothesis: They wanted to achieve the target of 84 *stichoi*, for it is a multiple of the Fibonacci number 21. Yet what about the difference of 1:09 *stichoi* = 21 syllables? Perhaps they did not care about exact numbers. We do not know; we can only conjecture. If they wanted to be exact, they may have regarded the last lines of these particular paragraphs making up the two exhortatory parts as a full *stichos* each, though usually it is less than 15 syllables. The *stichoi* numbers of the paragraphs were added up then to the total of 84 *stichoi*. In this case, the paragraphs, albeit each with incomplete last line, are the basis of the author's stichometrical calculation. It may have been made at the stage when the first draft had been written on wax tablets. Later on, when the papyrus copy was made, the paragraphs were probably not marked by a new line any more, becoming almost invisible in the *scriptio continua* of the manuscripts.

How can we know that Paul and Tertius were really interested in the number 84? It is remarkable that in this case the two exhortatory parts together have  $2 \times 84 = 8 \times 21 = 168$  *stichoi*. This is the product of two numbers belonging to the Fibonacci series. The concluding main section of Romans (15:14–16:23) has 104 *stichoi*,

even when counted without paragraphs (103:01!).<sup>66</sup> This, too, is the product of two Fibonacci numbers:  $104 = 8 \times 13$ . So the two exhortatory parts and the conclusion of Romans are in the relation of the golden ratio. It may be hard to believe that Paul should have cared about such proportions, but the numbers presented here cannot be denied. Are they incidental? That could be the case when these numbers appear once. However, we find them again. The sum of chapters 12–16 is  $8 \times 21 + 8 \times 13 = 8 \times 34 = 272$  *stichoi*. We get the same sum in chapters 5–8, a total of 272 *stichoi* or, counted without paragraphs, of 268:07. The difference to 267:13, the exact counting of chapters 12–16, is just 9 syllables. Coincidence or intention?

## 5.2 *The proportions of the entire epistle*

When we look at chapters 1–4, we come across the sum of exactly 262:13 *stichoi*. May we assume that it is also supposed to fill the target number of 272 *stichoi*? The difference of 9:02 *stichoi* is certainly more than between chapters 5–8 and 12–16. If we accept, however, the author's interest in the number 272 and therefore in the proportioning with Fibonacci numbers, we would expect to see here the product of  $8 \times 34$ , too. Indeed, we have this number when we summarise the *stichoi* of the specific paragraphs. We should analyse the contents of these chapters in detail in order to know whether our paragraphing is well-founded, but we will confine ourselves here to the major caesuras.

Commentaries usually begin the first main section with 1:18. It is seen as having two major parts: first the revelation of God's wrath, then the revelation of God's righteousness beginning in 3:21. God's righteousness, however, is introduced already in 1:17, in the first concise definition of the gospel Paul has to proclaim (1:16). Therefore I suggest beginning the first main section with 1:16-17, with this short summary of the letter's theme.<sup>67</sup> In this view, the revelation of God's righteousness (1:16-17 and 3:21–4:25) constitutes

<sup>66</sup> The doxology Rom. 16:25-27 is not regarded as an original part of Romans, see Metzger 1975, 533-536, 540 (*ad* 14:23; 16:25-27).

<sup>67</sup> See already Bengel 1855, 528; Klaiber 2009, 26. For some others, the verses 1:16-17 are a separate paragraph as last part of the letter's beginning: see Michel 1955, 44; Käsemann 1973, 18. Differently Wolter, 2014, 1:103-104: The two verses should not be regarded as a separate *propositio*, for this rhetoric term would refer to the *narratio* of a forensic speech which is missing here – but why not call it just 'thesis' without reference to rhetoric categories?

the frame of the part on God's wrath (1:18–3:20). I admit that there is a smooth transition from the beginning to the corpus of the letter because of the repeated connective γάρ ('for') in 1:16, 17, 18. However, if we put the main caesura before 1:16, not only the following main section 1:16–4:25 is composed of three parts, but also the letter's opening consists of three paragraphs: the praescript 1:1–7, the proem 1:8–12, and Paul's motive introduced by the address 'brothers' 1:13–15. Thus the text is well structured in both directions by this caesura. The last word of the beginning, εὐαγγελίσασθαι ('proclaim the gospel'), yields the keyword for the theme in 1:16 and its explication in the letter's corpus.

This analysis is corroborated by stichometrical observations. The opening 1:1–15 is 33:01 or rounded up 34 *stichoi*. Its three paragraphs have 14 (13:12), 13 (12:08), and 7 (6:11) *stichoi*. So it seems that it is carefully composed according to the Fibonacci series:  $14 + 7 = 21$ ;  $13 + 21 = 34$ . Since this is not the only instance of Romans where we come across these numbers, they seem to be the result of intentional disposition. These observations confirm the hypothesis that the incomplete last line of a particular paragraph is counted as a full *stichos*.

Similarly, the first main section explicating the gospel for Jews and Gentiles (1:16–4:25) is structured by the golden ratio. The exact total is 229:12 *stichoi*, the major part on God's wrath is 143:01, the two parts on God's righteousness are 86:11 together. The ratio is  $143 / 230 = 0.6217$  or  $87 / 143 = 0.6084$ , close to the Fibonacci ratios  $3/5 = 0.6$  or  $5/8 = 0.625$ . Again the question of how ratios like these could be realised. My hypothetical suggestion is that the target numbers have been  $238 = 7 \times 34$  for the main section,  $147 = 7 \times 21$  for the part on God's wrath, and  $91 = 7 \times 13$  for the parts on God's righteousness. To be exact, the difference between actual and target *stichoi* numbers must be bridged by the needed number of paragraphs and incomplete last lines. We do not know, however, how exact Paul wanted to be.

Concerning chapters. 9–11, there is no debate about the delimitation. This main section dealing with the special problem of Israel's partial unbelief builds a unit in itself. The size is 197:12 *stichoi* without paragraphs. Including the last lines of the paragraphs, we get a sum again with the Fibonacci number 34 as multiplier:  $6 \times 34 = 204$ . The further subdivision seems to follow the formula:

$34 = 2 \times 13 + 8$  or  $6 \times 34 = 12 \times 13 + 6 \times 8$ . According to this solution, 9:1-33 is  $72 = 6 \times 12$  (69:12) *stichoi*, 10:1-21 is  $48 = 6 \times 8$  (47:07), and 11:1-36 is  $84 = 7 \times 12$  (80:08).<sup>68</sup>

Now we can summarise our hypothesis (see Table 1). The entire letter is disposed with a modulus of 34 *stichoi*. The opening (1:1-15) seems to set the measure. The first three main sections (1:16-11:36) belong together as explications of the gospel's message. They have  $7 \times 34$ ,  $8 \times 34$  and  $6 \times 34$ , together  $21 \times 34 = 714$  *stichoi*, again the product of two Fibonacci numbers. Of this total, the first main part is one third; the exact ratio (counted without paragraphs) is  $229:11 / 696:01 = 0.330$ . The first and third main parts have  $13 \times 34 = 442$  together. So we get the ratio  $8/13 = 0.6154$  between the second one and the two others or  $13/21 = 0.6190$  between these two and the sum of all three, that is, approximately the golden ratio. The exact ratio is close to it:  $268:07 / 427:08 = 0.6281$  and  $427:08 / 696:01 = 0.6141$ . The last three main parts explicating the gospel's admonition (12:1-15:13) and concluding the letter (15:14-16:23) also have  $8 \times 34$  *stichoi* together. According to this analysis the total for Romans is  $30 \times 34 = 1020$  *stichoi*.

Romans	Parts	Contents	Stichoi	as product
1:1-15	0.	Introduction	34 (33:01)	$1 \times 34$
1:16-4:25	1.	Gospel for Jews and Gentiles	238 (229:11)	$7 \times 34$
5:1-8:39	2.	The universal salvation	272 (268:07)	$8 \times 34$
9:1-11:36	3.	Israel's unbelief	204 (197:12)	$6 \times 34$
1:16-11:36	1.-3.		714 (696:01)	$21 \times 34$
12:1-13:14	4.	General exhortation	84 (82:06)	$4 \times 21$
14:1-15:13	5.	Special exhortation	84 (82:06)	$4 \times 21$
15:14-16:23	6.	Conclusion	104 (103:01)	$8 \times 13$
12:1-16:23	4.-6.		272 (267:13)	$8 \times 34$
1:1-16:23	0.-6.		1020 (997:00)	$30 \times 34$

Table 1: Summarising Outline of Romans

Let us crosscheck this. If we put the main caesura at 6:1 instead of 5:1, there is also a way of arranging the numbers even without changing the paragraphs of our previous analysis. The paragraphs of 5:1-21 have 62 *stichoi* together (exact: 60:12). So the section 1:18-5:21 would be  $294 = 14 \times 21$  *stichoi* (284:14), the section chapters 6-8 would be  $210 = 10 \times 21$  (207:10). In order to get a common

<sup>68</sup> For more details see: [www.stichometrie.de//pdf/Roem-Tabellen.pdf](http://www.stichometrie.de//pdf/Roem-Tabellen.pdf).

denominator we would take together 1:16-17 and chapters 9–11, so we get  $204 + 6 = 210 = 10 \times 21$  *stichoi* (203:07) as well. The sum of 1:16–11:36 remains  $21 \times 34$ , but the caesuras do not follow the golden ratio that we have found in the subdivision of chapters 12–16. It is also a disadvantage that the thesis of Romans in 1:16-17 has to be taken separately. The disposition with the new section beginning in 5:1 is easier to understand in terms of proportions, and it seems that ancient authors and even apostles did pay attention to these formal matters. So the stichometrical analysis does rather confirm a main caesura before chapter 5, and Adam (5:12-19) belongs together with the creation (8:18-25).

### 5.3 *Differences between actual and target numbers of Stichoi*

It is obvious that this reconstructed disposition of Romans is based on several hypotheses. We assume that ancient authors used the *stichos* for measuring their texts and that they calculated the proportions by applying the Fibonacci series. We do not know, however, how precisely they wanted to realize the pre-programmed disposition. Did it serve for general orientation? Or did they try to fill up the predefined number of *stichoi* as tightly as possible? Nor can we exclude their having made mistakes while counting syllables and *stichoi*. We have tried to adjust the actual *stichoi* numbers to the conjectured target. There are three ways to do this.

The most important way is to vary the number of paragraphs. If the last incomplete lines are regarded as full *stichoi*, the more the paragraphs, the bigger the gap that can be bridged. In my analysis I began with the paragraphs of the *GNT*, but I had to increase the number of paragraphs especially in chapters 1–4. New paragraphs are introduced before 1:13; 1:28; 2:5; 2:12; 3:19; 3:25; 4:9; 4:16; 4:23; and also before 5:18; 15:17. Sometimes a change resulted from content analysis as well as from formal disposition. Therefore some *GNT*-paragraphs are deleted: those before 3:9; 4:13; 9:14; 11:11; 11:33; 12:9; 13:8; 13:11; 15:1; 15:22; 16:3; 16:21. Some other paragraphs are transposed: before 7:14 instead of 7:13; before 8:28 instead of 8:26; before 16:16b instead of 16:17. Sometimes I did not want to do without structuring paragraphs in major sections. Instead, I rather accepted a sixteenth syllable in the last line of a paragraph: in 5:21; 8:27; 15:16; 15:33 – a step not necessary in terms of formal disposition, but preferable in terms of internal structure.

The second possibility relates to textual criticism. Since the *GNT*-text is the result of thorough scholarly debate, this way is used only as an exception and in Romans only twice:

1. In 15:30, the disputed word is enclosed in square brackets. That means that the *GNT*-editors could not reach a clear decision. The address [ἀδελφοί] ('brothers') is supported by all witnesses except  $\mathfrak{P}^{46}$  and B, but it can be regarded as a secondary adjustment to the formula 'I appeal to you, brothers' (see 12:1; 16:17; 1 Cor. 1:10; 16:15). Without these three syllables, the section 15:14-33 has 49 *stichoi* (49:01) in three paragraphs.<sup>69</sup> Including the word ἀδελφοί, the last main section 15:14–16:23 would be exactly 103:04 *stichoi* and could not be divided in paragraphs any more within the supposed size of  $8 \times 13 = 104$  *stichoi*. So I prefer to delete it.

2. In 7:25b, we read: ἄρα οὖν αὐτὸς ἐγὼ τῷ μὲν νοῦ δουλεύω νόμῳ θεοῦ τῇ δὲ σαρκὶ νόμῳ ἁμαρτίας ('So then, with my mind I am a slave to the law of God, but with my flesh I am a slave to the law of sin'). How does the prosaic summary fit in with Paul's highly emotional lamentation and doxology (7:24-25a)? The sentence is witnessed in the entire textual tradition, but it is questioned by some renowned exegetes, starting with Bultmann.<sup>70</sup> They take it for a marginal note of a very early reader (not Paul himself) inserted into the text by one of the first copyists; in the strict sense, this is not a case of textual criticism but of interpretation. The size is 1:13 *stichoi*. If it would be maintained, the main section 5:1–8:31 would be 270:05 *stichoi* and could be divided only into five large paragraphs in order to reach 272 *stichoi*.<sup>71</sup> Without this sentence, the exact number of *stichoi* is 268:07, and the main section can easily be adjusted to 272 by 15 paragraphs of an average size comparable to the rest of Romans. In terms of stichometrical analysis, the elimination of 7:25b is not necessary, but preferable.

<sup>69</sup> My paragraphing: 15:14-16 with 10 (10:01), 15:17-29 with 30 (29:14), and 15:30-33 with 9 (9:01) *stichoi*, i.e. twice a sixteenth syllable in the last line.

<sup>70</sup> See Bultmann 1947, 198 (= Bultmann 1967, 278-284); Käsemann 1973, 202; Wilckens 1978, 2:97.

<sup>71</sup> The five paragraphs including 7:25b would be: 5:1-21; 6:1-23; 7:1-25; 8:1-30; 8:31-39 with 61 (60:12), 56 (55:10), 65 (64:05), 69 (69:00), and 21 (20:08) *stichoi*. Without 7:25b we get seven major parts (by dividing: 5:1-11; 5:12-21; 8:1-11; 8:12-30), four of them with three paragraphs each.

In 1:16-17 we face a third problem: the two verses should be 7 *stichoi*, but have only 6 (5:10). There is no way of adjusting the actual number to the target. It is not possible to divide the few *stichoi* into two paragraphs or to prefer a longer textual variant. We have to accept the difference. Whether the author did not care, or whether he made a mistake in counting, we do not know. Our own reconstruction, however, is supposed to be as precise as possible. So we have increased the major part 1:18–3:20 by 1 *stichos* to 148 (143:01) instead of  $7 \times 21 = 147$  *stichoi*. The total of the main section 1:16–4:25 remains with  $7 \times 34 = 238$  *stichoi*.

Lastly, we have to explain the difference between the proposed total of 1020 *stichoi* and the *Totalstichometrie* of the manuscripts.<sup>72</sup> We skip the extreme numbers 1200 and 850/825; they seem to be corrupt. The number 1040 (*Catalogus Claromontanus*) matches closely the 2075 written half-*stichoi* or 1037.5 *stichoi* of Codex B. At least in the case of Codex B, this sum is not the result of exact counting, but an approximation the copyist presumably wanted to achieve. The number 1000 of  $\wp^{46}$  comes very close to the 997:00 *stichoi* of our counting, esp. when we add the 1:13 *stichoi* of 7:25b. To be exact, we have to add also the 8:02 *stichoi* of the doxology 16:25-27 inserted in  $\wp^{46}$  after 15:33. The sum of 1007:00, however, is to be reduced again. Already in the early manuscripts, the *nomina sacra* are abbreviated.<sup>73</sup> If we take the four dominant 'holy names'  $\Theta\text{E}\text{O}\Sigma$ ,  $\text{X}\text{P}\text{I}\Sigma\text{T}\text{O}\Sigma$ ,  $\text{K}\text{Y}\text{P}\text{I}\text{O}\Sigma$ ,  $\text{I}\text{H}\Sigma\text{O}\text{Y}\Sigma$ , and count their abbreviations (hypothetically) as 1 syllable each (instead of 2 or 3), the number of syllables reduced in Romans is 378.<sup>74</sup> These are 25:03 *stichoi* of 15 syllables. Then the text of Romans amounts to 1007:00 – 25:03 = 981:12 *stichoi*, and the number 1000 seems to be rounded off. When we convert this sum of 15-syllables-*stichoi* into *stichoi* of 16 syllables, we come to 920:07. In other words: the transmitted number 920 can be explained as the result of careful counting.<sup>75</sup> In summary, the reliable stichometrical sums found for Romans are

<sup>72</sup> See above pp. 197-198, notes 31 and 32-36.

<sup>73</sup> See the summary of older findings Bokedal 2012, 263-295.

<sup>74</sup> Morgenthaler 1982:  $\Theta\text{E}\text{O}\Sigma$  153 +  $\text{X}\text{P}\text{I}\Sigma\text{T}\text{O}\Sigma$  65 +  $\text{K}\text{Y}\text{P}\text{I}\text{O}\Sigma$   $43 \times 2$  +  $\text{I}\text{H}\Sigma\text{O}\text{Y}\Sigma$   $37 \times 2$  = 378 syllables.

<sup>75</sup> See the following calculation:  $981 \times 15 + 12 = 14727$  syllables =  $920 \times 16 + 7$ . The numbers 950 and 1000 may correspond as well:  $950 \times 16/15 = 1013.3$ , or  $1000 \times 15/16 = 937.5$ ; both may be rounded off.

based either on the *stichos* of 15 or the *stichos* of 16 syllables, partly rounded and partly exact.<sup>76</sup> Other differences may be due to different textual versions or a different use of *nomina sacra*.<sup>77</sup> At any rate, it should be noted that the numbers of the *Totalstichometrie* are part of the later book edition and not derived from the author's first disposition.

## 6 The length of 272/273 *stichoi* as standard measure

It is astonishing that the same length of 272 *stichoi* is also found in Matthew and Luke.<sup>78</sup> The Sermon on the Mount Matthew 5–7 has exactly this size, the Parable Speech Matthew 13:1–52 half of it with  $136 = 4 \times 34$  *stichoi*. In Luke, the beginnings of John and Jesus (1:5–4:13) have one and a half times this size with  $408 = 12 \times 34$  *stichoi*. Since the product of the adjacent Fibonacci numbers is almost the same, we may also include  $273 = 13 \times 21$ .<sup>79</sup> The two letters James and 1 Peter are exactly of this length, the great Galilee Section Mark 3:7–8:21 is twice this size with  $546 = 26 \times 21$  *stichoi*.<sup>80</sup> Probably the paraenetic parts at the end of Hebrews (10:19–13:21 without the conclusion 13:22–25) belong in this series as well, though the sum of 273:09 *stichoi* (exact counting without paragraphs) exceeds the limit by nine syllables.

In Table 2 all these texts can be compared. The list contains the number of *GNT*-lines (4<sup>th</sup> edition), the counted *stichoi* on the basis of the paragraphs reflecting the outline of contents and on the basis of the exact number of syllables. Thus one can see that it is possible to adjust the length of the texts to the projected target number of lines by inserting more or fewer line breaks. The number of paragraphs is quite different in spite of the same amount of *stichoi*. Why should the size of the texts be adjusted? It is the same reason we found in Romans. We have to explain how the authors were able to approximately realize the golden ratio. For example, Jesus' journey

<sup>76</sup> This was also proved for Ephesians and Mark; see Lang 2004, 156–158; Lang 2009a, 117–119.

<sup>77</sup> Only four of the other eleven *nomina sacra* appear more than ten times in Romans: *πνεῦμα* 34x, *πατήρ* 14x, *υἰός* 12x, *Ἰσραήλ* 11x. About the use in the individual manuscripts see: Bokedal 2012, 278–281.

<sup>78</sup> See [www.stichometrie.de](http://www.stichometrie.de): 'Gliederungstabellen' of Mt., Lk., Jas., 1 Petr., Mk. and Hebr.

<sup>79</sup> See above p. 204, note 65.

<sup>80</sup> See Lang 2009a, 116.



Matthew 8:1–9:34 and his sermon 5:1–7:29, with 168:03 and 270:13 counted *stichoi*, have a ratio of 0.621; we need only a few paragraphs to get  $170 / 272 = 5 \times 34 / 8 \times 34$ . In 1 Peter the two main parts about ‘life in a hostile world’ and ‘congregation under persecution’ (2:11–5:9) have 162:00 counted *stichoi* and the whole letter 262:05, which makes a ratio of 0.6175. We can explain this ratio using  $168 / 273 = 8 \times 21 / 13 \times 21$  *stichoi*, based on an outline of 27 paragraphs.<sup>81</sup> In Hebrews the (second) main part 3:1–6:20 and the (fourth and fifth) main parts 10:19–13:21, with 167:06 and 273:09 *stichoi*, are in the ratio 0.6118 and match perfectly the Fibonacci numbers  $168 / 273 = 8 \times 21 / 13 \times 21$ .

	GNT <sup>4</sup> lines	Number of <i>stichoi</i> with exact paragraphs	Number of paragraphs	Number of <i>stichoi</i> as product	
Rom. 1:1–4:25	229	272	262:13	22	$8 \times 34 = 272$
Rom. 5:1–8:39	231	272	268:07	15	$8 \times 34 = 272$
Rom. 12:1–16:23	236	272	267:13	11	$8 \times 34 = 272$
Mt. 5:1–7:29	241	272	270:13	6	$8 \times 34 = 272$
Mt. 13:1–52	119	136	135:02	4	$4 \times 34 = 136$
Lk. 1:5–4:13	347	408	397:05	25	$12 \times 34 = 408$
1 Peter	229	273	262:05	27	$13 \times 21 = 273$
James	229	273	257:07	30	$13 \times 21 = 273$
Mk. 3:7–8:21	460	546	531:02	35	$26 \times 21 = 546$
Hebr. 10:19–13:21	241	274	273:09	3	$13 \times 21 = 273$

Table 2: A length of 272 or 273 *stichoi* as a standard size in New Testament writings

It is noteworthy that this same standard size was used by authors so heterogeneous as Paul, James, Matthew and in Hebrews, and was applied in writings so dissimilar as gospels and epistles. This specific text length was seemingly preferred by authors of the New Testament and perhaps also in ancient literature. I think they followed the customary method of disposition taught in rhetoric lessons. There are good reasons to assume that they counted *stichoi* and that they calculated the structure of their writings by means of the Fibonacci figures. It is hard to imagine that even apostles and evangelists bothered with the number of lines. However, when we begin to

<sup>81</sup> In addition to the 23 *GNT*-paragraphs, six line breaks are inserted according to the analysis of contents: before 1:6; 2:4; 2:21; 3:18; 5:10; 5:13; two line breaks are deleted: before 5:6 and 5:8.

analyse the proportions almost every book of the New Testament is full of evidence for this interpretation. Presumably the classical literature in general would bring an overwhelming cloud of further examples if analysed in the same way.

## 7 Summary

The ancient manuscripts do not give any hints as to the author's planned outline (see part 2 of the article). Nevertheless we have tried to find a way to reach the original disposition of Romans by combining the content analysis (part 1) and the stichometrical analysis (part 4). For this we introduced the stichometrical approach (part 3), and finally we compared the observations on Romans with those on other New Testament writings (part 5). Our considerations point to a major caesura before Romans 5.

An additional hypothesis refers to Paul's rhetoric education. When we see how he applied stichometrical methods in disposing his letters, we must assume that he received a formal training including a sense for aesthetic criteria. He may have come to agree with Plato's thesis or at least the idea of it:

*Every speech*

*must be put together like a living creature, with a body of its own;*

*it must be neither without head nor without foot,*

*but it must have a middle and extremities*

*that are fitting to one another and to the whole in the written work.<sup>82</sup>*

The phrase 'have a middle and extremities' seems to allude to the Greek term 'divide in the middle and external ratio' that means the 'golden ratio'.<sup>83</sup> Plato's principle is probably related to the so-called canon of Polycleitus (5<sup>th</sup> c. BC). If the proportions of the human body follow the golden ratio, then it is quite consistent that caesuras according with this ratio were found in Greek literature.<sup>84</sup> The figures of the Fibonacci series were a useful device for achieving such proportions and Paul evidently used them, as did many others.

<sup>82</sup> Plato, *Phaidr.* 264C, transl. after A. Nehamas / P. Woodruff, in: Plato, *Complete Works*, ed. J.M. Cooper.

<sup>83</sup> Euclides, *Elem.* 6. 30: ἄκρον καὶ μέσον λόγον τεμεῖν. Cf. Seck 1976, 365-366. The phrase refers to the equation 'a+b : a = a : b'; the middle term is 'a', the external terms are 'a+b' and 'b'.

<sup>84</sup> See above pp. 201-202, notes 48-56.

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