

**A Genealogical History of
the Greek Text of
the New Testament**

Volume 10

**A Genealogical History of
the Greek Text of
the Epistle to the Ephesians**

By

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PREFACE

My interest in textual criticism was first aroused when I studied the subject in seminary in the 1950s, and my interest in tree-diagraming (also called *stemmatics*) was first awakened when, in the 1960s, I learned to apply it to grammatical analysis and to computer aids for translation. I learned that the method works best when applied always to the most deeply imbedded unanalyzed element—that is, the element at the lowest hierarchic level. When I began using tree-diagraming techniques to teach Hebrew grammar and syntax in the 1970s, it occurred to me that the same analytic principles would logically apply to textual criticism, and that just as these principles could be implemented by computer programs for grammatical and syntactical analysis of language, so also, they could be implemented for the genealogical analysis of textual criticism. So began a lifetime of research and experimentation to create a computer program for reconstructing the genealogical history of an ancient text based on genealogical principles and tree-diagraming.

Earlier textual scholars had determined that the key to the genealogical history of a text lies in those places in the text where its manuscript copies differ, and that the percentage of agreement between two manuscript copies at those places of variation is a measure of their genealogical affinity. I call that percentage of agreement *quantitative affinity*. Gradually over time I realized that the variant readings in a manuscript are a record of its genealogical history; its variant readings are the accumulation of the inherited genetic mutations of all its ancestor exemplars, and its variants constitute a kind of genetic DNA code. One must learn to read the history of a manuscript from its genetic code. Quantitative affinity was one of the leading principles guiding my earlier research and computer implementation.

Eventually I also realized that a manuscript inherits the unique mutant variants of its parent exemplar and only its sibling sister manuscripts share those same variant readings. That collection of variants peculiar to sibling sister manuscripts serves as their genetic marker—a kind of sibling gene. Every manuscript has a marker by which its sister manuscripts may be identified. For lack

of a better term, I call that marker a *sibling gene*. Now I am not naïve enough to suppose that in a collection of extant manuscripts every *sibling gene* marks real sister manuscripts, although it often does; but what it actually marks are nearest relative manuscripts having a recoverable nearest common ancestor exemplar. The presence of the sibling gene assures true genetic relationship and a consistent line of genealogical descent.

This work brings together both quantitative affinity and the sibling gene, working in harmony with tree diagramming methodology, to reconstruct parent exemplars one at a time, always for the most remote unreconstructed branch—that is, the most deeply imbedded branch, being at the lowest hierarchy or the most recent generation—to reconstruct the genealogical history of the text of an ancient document one branch at a time. The principles and analytical methods of this theory have been implemented and tested on computer software which I call Lachmann-10. That is what this work is all about.

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May, 2021

CHAPTER 1 INTRODUCTION

This book is the ninth in a series of studies regarding the genealogical history of the text of the Greek New Testament. Volume 1 provided the genealogical history of the Greek text of the Gospel of Matthew; this volume does the same for the Epistle to the Ephesians. The first volume provides an introduction to textual criticism, a review of the various textual critical theories and methodologies, a description of a genealogical theory of textual criticism along with its methodology. Readers not familiar with that volume should read at least the first four chapters of that study before going further, because this work presumes the reader has that informed background. What follows is a brief summary of those chapters.

Textual Criticism

Textual criticism is the branch of literary science which studies surviving copies of ancient literature¹ with the intent of determining the original form of a literary composition.² The problem is that surviving copies of a composition differ because of scribal errors accumulated during the copying history of the composition. At certain places in the text of a composition, existing copies may differ, one having this reading, another having that reading, and yet another having the reading originally written by the author. Such places are called places of variation, and such differing readings are called textual variants. Every place of variation has at least two textual variants.

¹ Literature composed before the invention of printing, copies of which exist only in handwritten documents. A handwritten copy is referred to as a manuscript.

² The original text of a composition, that is, the actual words written by the hand of its author, is referred to as its autographic text.

Because every manuscript is a copy of some earlier copy (exemplar), intuitively one imagines the history of the manuscripts of a composition to be like a family tree. So initially textual scholars of classical literature took this approach with some measure of success. However, when it came to the text of the Greek New Testament, scholars despaired and regarded the genealogical approach as much too complex because of the large number of manuscripts and large number of variants. So, various theories and methodologies were developed to work with the variants at each place of variation to decide which one is more likely original. But with the development of high-speed computers, the complex data processing is no longer a problem; all that is needed is a viable genealogical theory together with its associated programable methodology. That's where this project came on the scene.

The present genealogical theory is based on several known facts about the relationship of manuscripts and variant readings. (1) It is a fact that the variants in a manuscript consist of all the uncorrected scribal errors of its ancestral exemplars;³ this collection of variants may be regarded as the genealogical history of the manuscript, and may be likened to its DNA code. In addition, the variants introduced by the parent exemplar of a manuscript may be regarded as its sibling gene. So, every manuscript has its own DNA and sibling gene, and these data are recoverable from the manuscript database. (2) Sibling manuscripts may be identified by mutual sibling genes, or by greatest quantitative affinity,⁴ or by both. (3) Sibling manuscripts are daughters of the same parent exemplar the readings of which may be recovered from the consensus of its daughters' readings, except where no consensus exists. Sibling daughter manuscripts inherit all the readings of their parent exemplar except where their own scribes initiate a new one. In case of ambiguity (where no consensus exists), one variant will have been inherited and the other will have been newly initiated. Inherited variants have history and may be identified by the principle of delayed ambiguity,⁵ whereas newly initiated variants have no history and fail the test of delayed ambiguity. (4) A reconstructed exemplar may stand in place of all its descendants in the database, and function as their representative in that stage of reconstructing the genealogical history. (5) Iteration of the above steps will converge genealogical stemma into a single exemplar representing the

³ An exemplar is a manuscript from which other manuscripts were copied.

⁴ Quantitative affinity is a measure of how similar two manuscripts are to one another.

⁵ The principle of delayed ambiguity says that the inherited variant will be a reading of a sister exemplar when it develops.

autographic text. The actual methodology as described in the first volume is more complex than the above, but the above is sufficient to describe the basic principles.

The Problem of Mixture

Mixture occurred when a scribe copied from more than one exemplar. Critics of the genealogical method assert that mixture creates an irresolvable complication. But, as it turned out, as far as the reconstructing procedure is concerned, a reading copied from a secondary exemplar is no different than a variant newly initiated by the scribe either by mistake or intent. Both are uninherited from the primary exemplar; the only difference is that a newly initiated variant has no history, whereas a variant borrowed by mixture has a history, but a history outside the genealogical descent of the primary exemplar. So, mixture is not a problem for the reconstruction methodology described above. The sources of mixture in genealogical history may be of interest in some cases. A separate algorithm of the software finds the most likely source of every variant introduced by mixture rather than by scribal error or intent.

The Database Used

The database used in this project is derived from an expansion of the Nestle-Aland 27th edition of the *Greek New Testament*⁶ hereafter referred to as NA-27. The variations of the text are listed at the bottom of each page, providing the verse number where the variation occurs, the associated symbol indicating the kind of variation, the alternate readings that occur there, and a list of witnesses⁷ that contain the given alternate reading. The list of witnesses is provided in compressed form in order to avoid as much repetition as possible. This compressed form is useful for conserving paper and ink, and is relatively easy for scholars to follow. But the computer software must have every item of data explicitly recorded, that is, there must be a record of every witness to the text under study, and a record of which variant reading each witness has at every place of variation. This necessity requires the NA-27 database to be unpacked and expanded. Until recently the NA-27 database existed only in printed form, and expanding the data into the form needed by the genealogical software was a complex and time-consuming task.⁸ However, the database is now

⁶ *Novum Testamentum Graece* (Stuttgart: Deutsche Bibelgesellschaft, 1997).

⁷ The witnesses consist of individual manuscripts, translations, and patristic quotations.

⁸ All my prior research with the genealogical software was done with data manually extracted from the already expanded database in the United Bible Society's *Greek New Testament*.

available in digital electronic form in the *Stuttgart Electronic Study Bible*.⁹ That form of the database is capable of being expanded and unpacked electronically.

The expanded database consists of two separate files, one containing a list of every witness together with its name, date, language, and content. The second file is a list of every place of variation in the NA-27 database, the chapter and verse number where the variation occurs, the Greek text of each variant at that place of variation, along with a list of witnesses containing the given variant.

The present program, called Lachmann-10 herein, is written in the Turbo Pascal 7.0 programming language intended for IBM compatible machines with extended memory. The size of the problems it can handle is flexible and is limited only by the amount of RAM available and the speed of the machine [up to a maximum of 2,000 variation units and 2,000 manuscripts]. Large problems require a reasonable amount of time to converge on a solution. The next chapter describes the genealogical history of the extant witnesses to the Greek text of the Epistle to the Ephesians.

⁹ Christof Hardmeier, Eep Talstra, and Bertram Salzmänn, *The Stuttgart Electronic Study Bible* (Stuttgart, Germany: The German Bible Society, 2004); used with permission.

CHAPTER 2 WITNESSES TO THE TEXT OF EPHESIANS

The witnesses¹ to the text of the Book of Ephesians used in this study are those derived from the electronic form of the textual apparatus of the NA-27 edition of the Greek New Testament as contained in the *Stuttgart Electronic Study Bible*² as edited and modified for the purposes of this project. They consist of 129 existing witness³ of various types:

(1) Papyrus manuscripts	4
(2) Uncial manuscripts	26
(3) Minuscule manuscripts	35
(4) Lectionary manuscripts	2
(5) Latin Versions	14
(6) Egyptian Versions	4
(7) Syriac Versions	2
(8) Greek Church Fathers	16
(9) Latin Church Fathers	19
(10) Printed Editions	8 ⁴

The witnesses to the text of an ancient document must have several characteristics before a reasonably reliable reconstruction of its genealogical history can be made. Among these are (1) number of witnesses, (2) date, (3) completeness, (4) limited variableness, (5) commonness of text, and (6) genealogical affinity. These characteristics of the available witnesses to the text of Ephesians are discussed below and are shown to be suitable for a reasonable reconstruction of its textual history.

¹ I use the term *witness* because the reconstruction of genealogical history derives evidence not only from extant manuscripts but also from ancient translations and quotations from church fathers. In addition, a few printed editions are involved although not for reconstruction purposes.

² Christof Hardmeier, Eep Talstra, and Bertram Salzmann, *The Stuttgart Electronic Study Bible* (Stuttgart, Germany: The German Bible Society, 2004).

³ Appendix A lists all the extant witnesses by name, date, language, content, number of readings, and percentage of completeness.

⁴ Four editions of the Latin Vulgate: vg^{cl}, cg^s, vgst, and vg^{ww}; Scrivener's TR; Hodges-Farstad HF; Robinson-Pierpont's RP; and NA-27. These do not contribute to reconstructing the stemma.

Number of Witnesses

Contrary to the number of available witnesses to the texts of ancient classical literature, there are approximately 2,328 existing Greek manuscripts of the Gospels, including about 178 fragments.⁵ This does not include the witnesses of the ancient translations and church fathers. This study makes use of the 129 witnesses to the Book of Ephesians recorded in the NA-27 apparatus which includes all the ancient papyri witnesses and most of the existing manuscripts dating before the ninth century and a good sample of those from later times. This number includes the consensus witness of the many manuscripts of the text used in the Greek speaking Byzantine churches together with a number of manuscripts related to the Byzantine text. Also, it contains the consensus witness of the many manuscripts of the Latin Vulgate and the individual witness of four different printed editions of the Vulgate. The various Old Latin translations also are represented by a consensus of a number of manuscripts of each of these individual translations. Consequently, the consensus witnesses bring many additional manuscripts indirectly into the reconstruction process. There is good reason to believe that there are sufficient witnesses to the text of the Book of Ephesians to reconstruct its genealogical history.

Date

While it is possible to reconstruct the genealogical history of a text without the benefit of dates, they are very helpful for accurately locating scribal activity in real history. The dates of the witnesses to Ephesians range from the second to the twenty-first centuries.⁶ Table 2.1 and its associated graph display the reasonably good distribution of the witnesses by date.

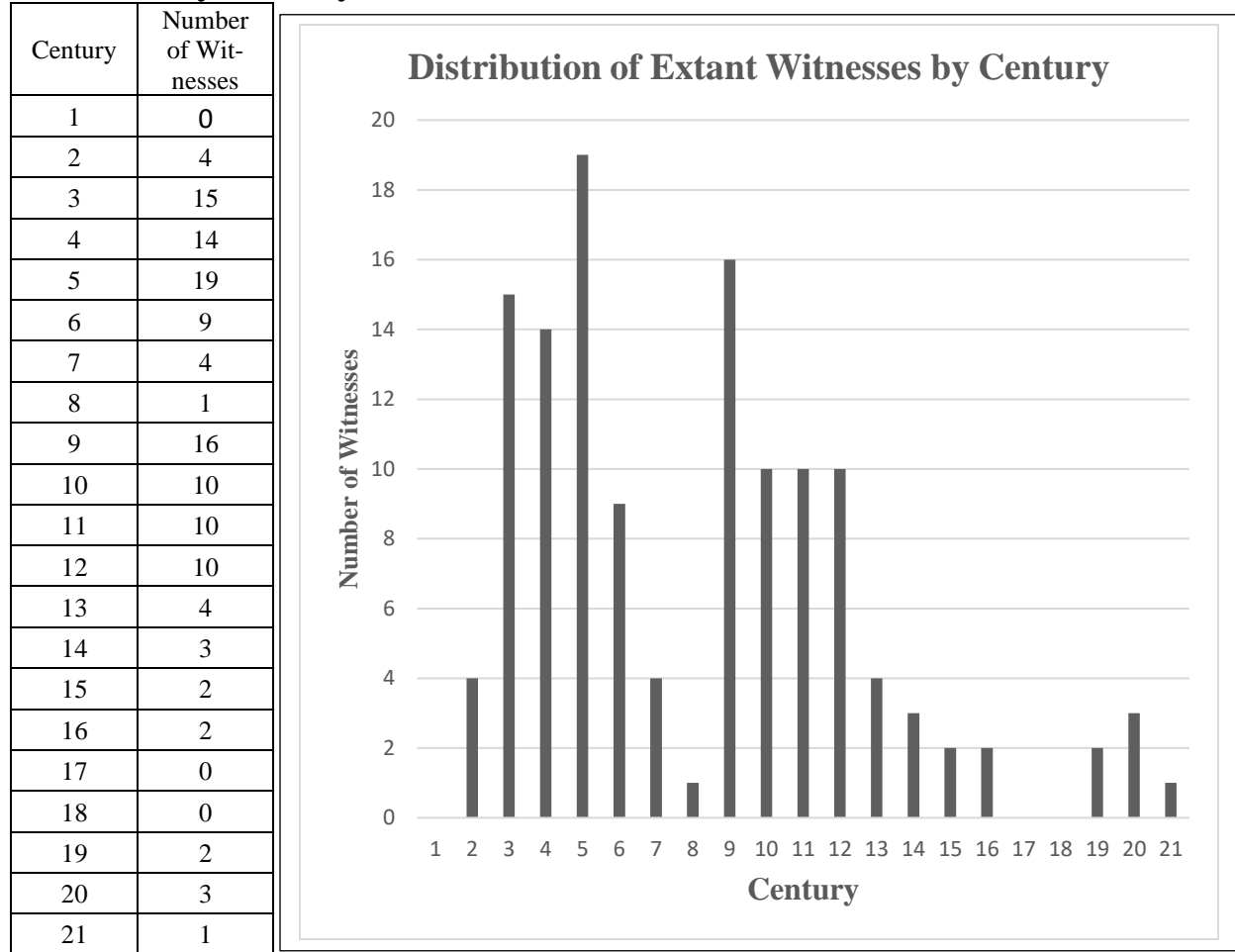
Completeness

Many of the witnesses are fragmentary, not all their text having survived the passage of time. Only 41 of the 129 witnesses have 96-100% of their text complete, and only 52 have a text 80% or more complete; thus, completeness is significant for this study. Table 2.2 and its associated graph display the distribution of completeness for the witnesses used in this study.

⁵ Aland, Kurt, and Barbara Aland. *The Text of the New Testament*, trans. by Erroll F. Rhodes. (Grand Rapids: Wm. B. Eerdmans Publishing Co., 1987), p. 83.

⁶ The witnesses in the 19th to the 21st centuries are printed editions that do not contribute to the reconstruction of the genealogical history.

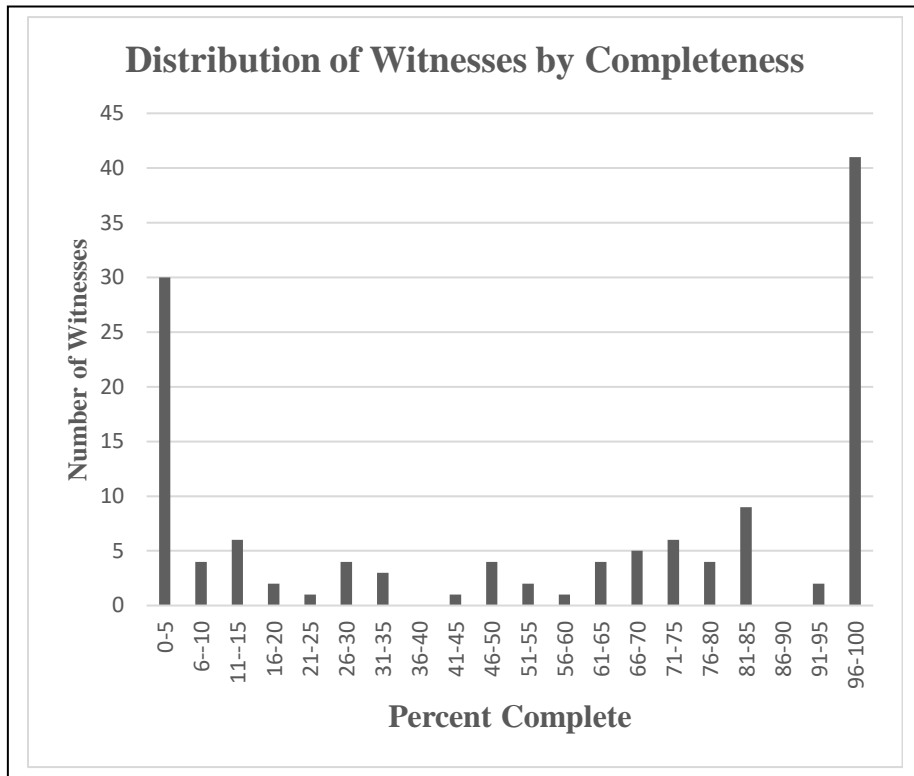
Table 2.1:
Distribution of Extant
Witnesses by Century:



Completeness is important for the reconstruction of the textual history, because the computer depends on minimal difference between witnesses to determine quantitative affinity. Consequently, the computer reconstructed the genealogical history on the basis of witnesses having at least 80% of their text complete; the more fragmentary witnesses are added to the genealogical tree where they best fit after the tree is constructed. The fragmentary witnesses are still important and should not be excluded from the study because they contribute to establishing fixed dates in the textual history.

Table 2.2
Distribution of Witnesses
by Completeness:

% Complete	Number of Witnesses
0-5	30
6-10	4
11-15	6
16-20	2
21-25	1
26-30	4
31-35	3
36-40	0
41-45	1
46-50	4
51-55	2
56-60	1
61-65	4
66-70	5
71-75	6
76-80	4
81-85	9
86-90	0
91-95	2
96-100	41



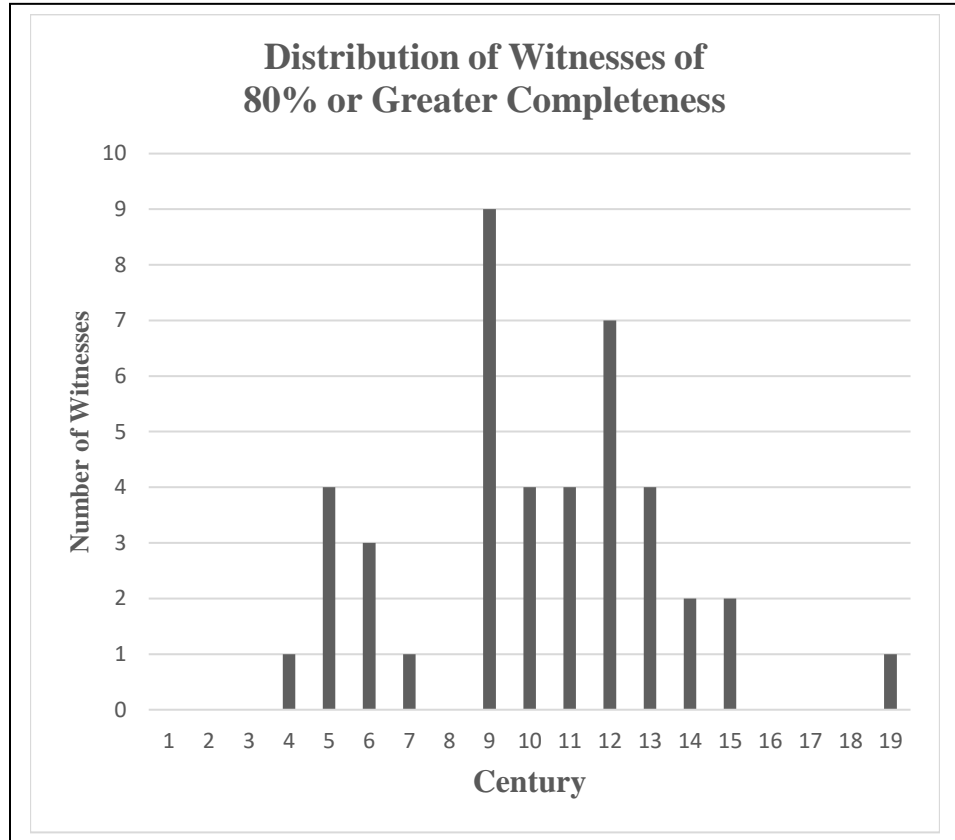
Because many of the witnesses are fragmentary, it is of interest to know the distribution of those witnesses having 80% or greater completeness. They are the ones that contribute to the reconstruction of the genealogical history. Table 2.3 and its associated graph display the distribution of these witnesses. It is evident that numerous contributing witnesses are from as early as the fourth century, so a reasonably good reconstruction can be expected.

Limited Diversity

The more diverse the text the more difficult the reconstruction of its textual history is. In the overall picture, all witnesses to Ephesians agree in over 90% of the text. The places of variation and the number of variants at those sites provide the data for reconstruction. However, even so, the number of places of variation and the number of variants constitute a limit to what can be reconstructed because of the magnitude and complexity of the problem.

Table 2.3
Distribution of Witnesses of
80% or Greater Completeness
by Century

Century	Num. of Witnesses
1	0
2	0
3	0
4	1
5	4
6	3
7	1
8	0
9	9
10	4
11	4
12	7
13	4
14	2
15	2
16	0
17	0
18	0
19	1

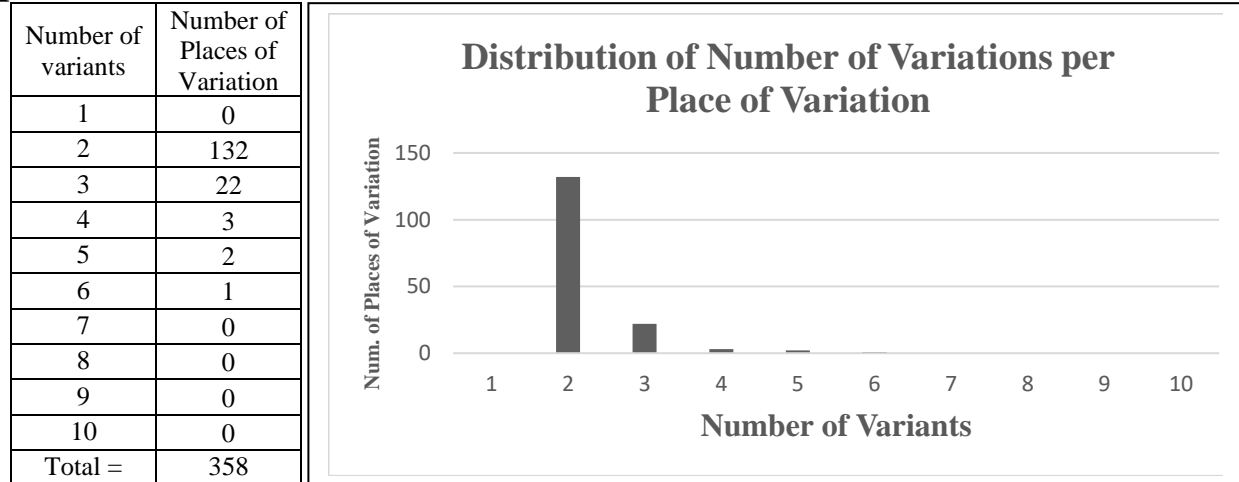


But modern technology has expanded that limit to where reconstruction is now possible for texts the size and diversity of Ephesians. The NA-27 apparatus records 160 places of variation⁷ for the Book of Ephesians with a total of 358 variant readings distributed among them.⁸ This averaged out to 2.24 variants per place of variation. In earlier decades, this amount of information would have been impossible to manually process, but not so today; my desktop computer provides complete solutions to problems this size in just a matter of minutes. Table 2.4 and its associated graph display the distribution of the number of variations per place of variation. For example, 132 places of variation have only two variations whereas only one place of variation has six variations.

⁷ Of course, there are more places of variation than this, but the editors of the NA-27 text have weeded out those that are insignificant for reconstruction and meaning.

⁸ Appendix B provides a map showing where the places of variation occur in the text by chapter and verse.

Table 2.4
Distribution of Number of Variations
per Place of Variation



However, a few maverick witnesses occur whose diversity obscures their genealogical affinity. These witnesses skew the reconstruction of the stemma and for this reason are excluded from the process but are added to the completed stemma where they best fit. For Ephesians they are P^{46*}, B*, D06*, D06¹, and D06²; these each have an affinity with their parent exemplar of only 65-70%.

The NA-27 apparatus records seven different types of variations to the text. Table 2.5 displays the distribution of these types of variation for the Book of Ephesians. While the type of variation has no significance for the reconstruction process, the information is provided for those who are interested.

Table 2.5
Distribution of Variation Type

Omit a word	33
Omit a phrase	7
Alternate word	61
Alternate words	26
Transposed words	6
Added word or phrase	27
Other	0
Total =	160

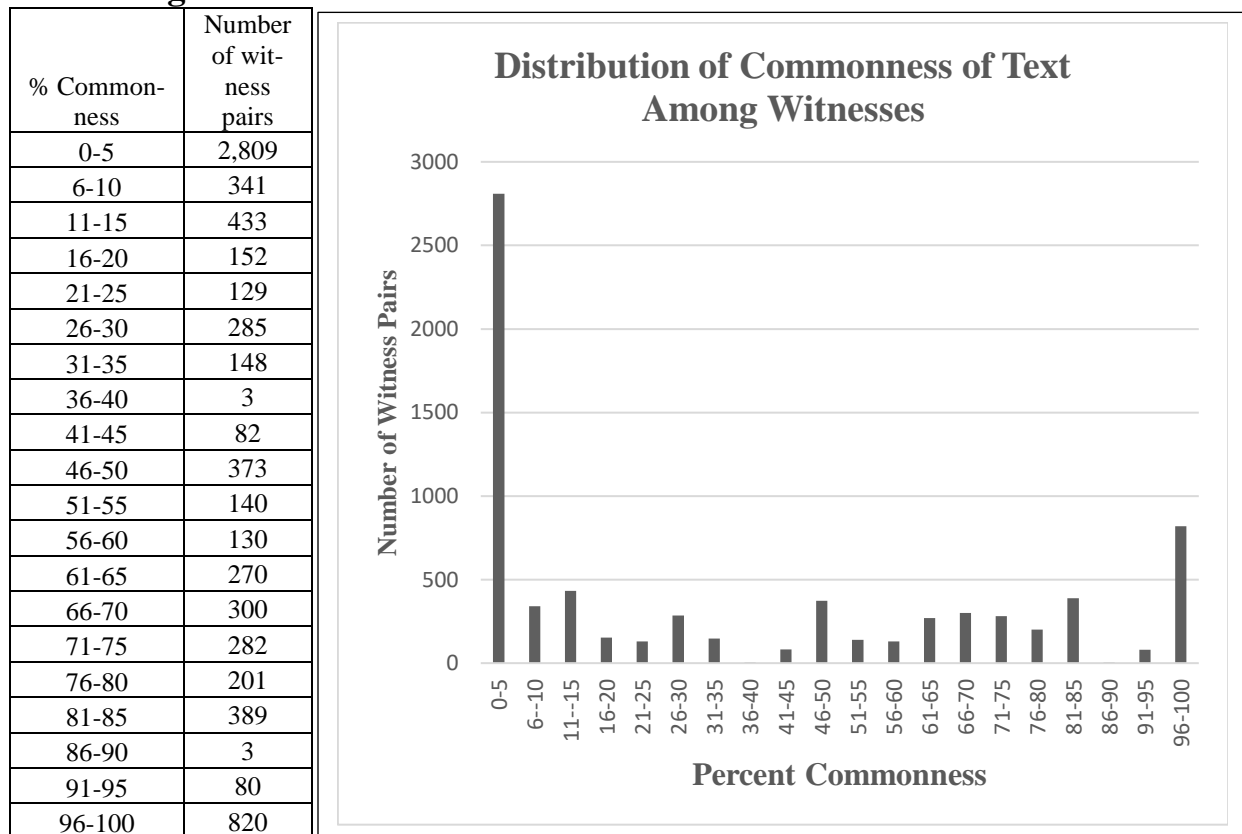
Commonness of Text

Commonness is a measure of the percentage of text two witnesses have in common. When two witnesses both have complete texts, that is, they are not fragmentary, having readings at every

place of variation, they have 100% commonness, regardless of the agreement or disagreement of their readings.

Fragmentary witnesses, however, are less than complete and may actually have no commonness of text. For example, witness A may be 40% complete, lacking the text for the last 60% of the places of variation, and witness B may be 40% complete, lacking the text for the first 60% of the places of variation; as a result, the two witnesses have no commonness of text. The greater the commonness of text two witnesses have the greater potential they have for genealogical affinity. Table 2.6 and its associated graph display the distribution of commonness each witness shares with every other witness for the Book of Ephesians.

Table 2.6
Distribution of Commonness of
Text among Witnesses



Quantitative Affinity

Quantitative affinity⁹ is a measure of how strongly two witnesses are genealogically related. Witnesses are genealogically related when they have many of the same readings at their shared places of variation. Quantitative affinity is determined by the number of places of variation where the witnesses have the same reading divided by the number of places of variation the witnesses have in common. For example, if witness A and witness B have 1,000 places of variation in common, and in 952 places they have the same reading, the quantitative affinity of A to B is $952 \div 1,000 = 0.952$ or 95.2%. Table 2.7 and its associated graph display the distribution of quantitative affinity among all the pairs of witnesses for the Book of Ephesians.

It is evident that many of the extant witnesses to Ephesians have relatively strong quantitative affinity with one another. These data are skewed because of the many fragmentary witnesses. A better picture of the significant affinity is that which is among witnesses having 80% content or greater. These witnesses are the ones used to reconstruct the genealogical history. Table 2.8 and its associated graph display the distribution of quantitative affinity among witnesses having 80% content or greater. This suggests that reconstruction of the genealogical history is reasonably feasible.

Genealogical Affinity

Genealogical affinity among witnesses occurs when they share a common sibling gene. The sibling gene of a witness consists of the variants initiated in its parent exemplar. This information is derived from the database as the variants two witnesses share that occur a minimum number of times in the database.

Conclusion

There are sufficient witnesses to the text of the Book of Ephesians with dates distributed over the historical period of interest, being sufficiently complete, having relatively limited diversity, and having ample mutual commonness and strong genealogical affinity. There is good reason to expect that the genealogical history derived from these witnesses will be a good approximation of the actual textual history of the book.

⁹ Quantitative affinity is supplemented by the sibling gene to affirm sibling relationship.

Table 2.7
Distribution of Quantitative Affinity
Among all Witnesses

% Affinity	Number of Witnesses
0-5	2,121
6-10	31
11-15	85
16-20	133
21-25	166
26-30	24
31-35	213
36-40	101
41-45	71
46-50	554
51-55	223
56-60	408
61-65	420
66-70	739
71-75	575
76-80	484
81-85	453
86-90	433
91-95	325
96-100	697

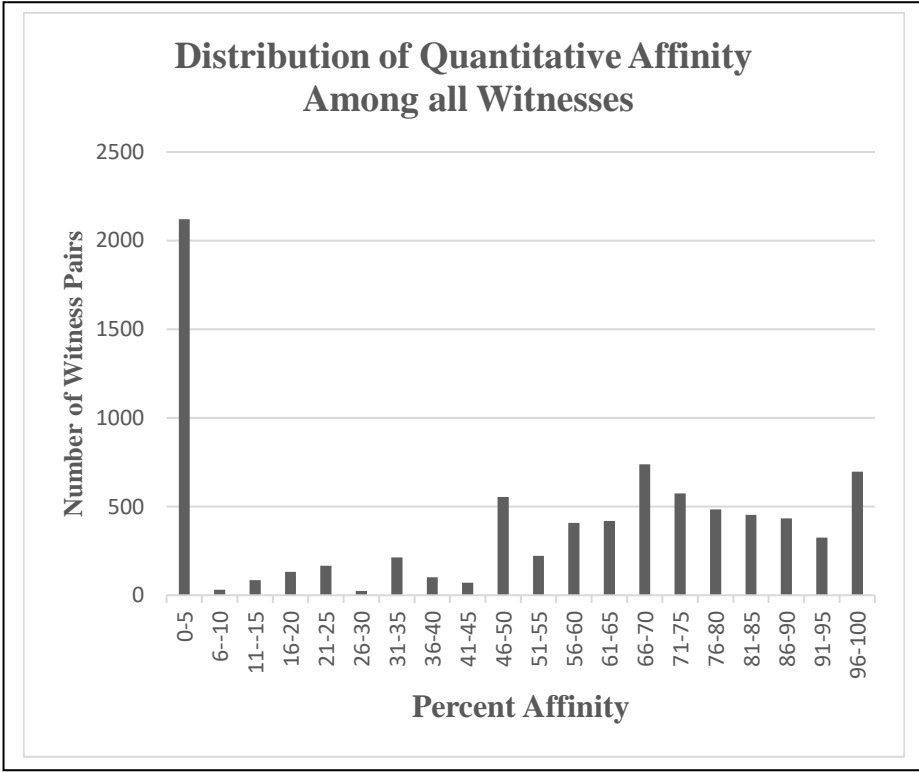
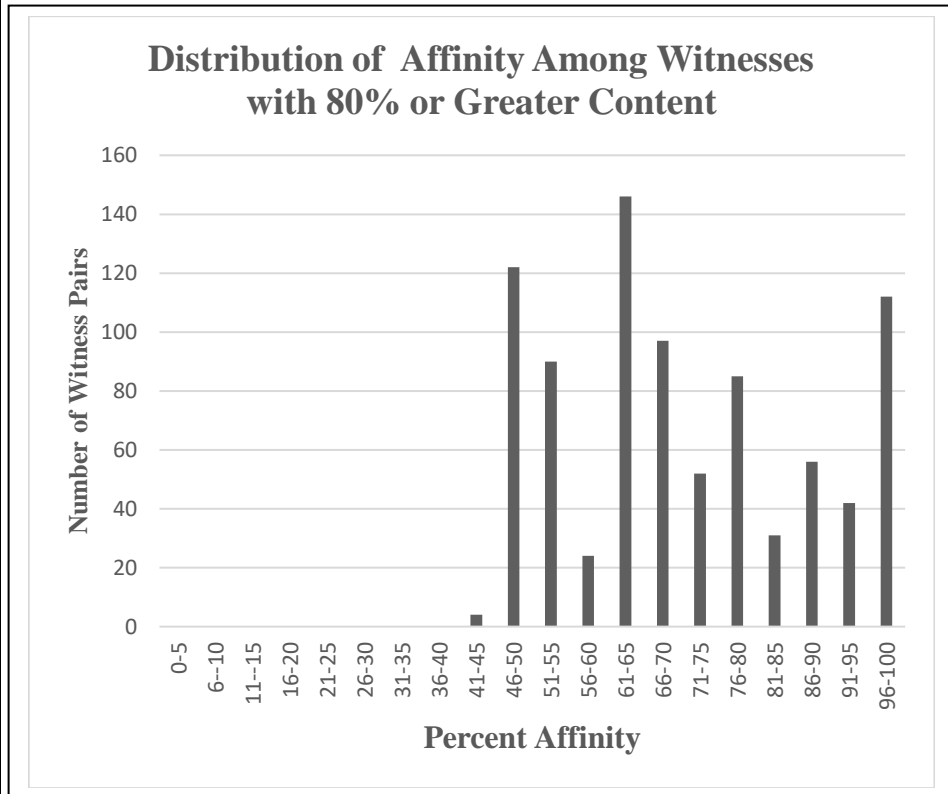


Table 2.8
Distribution of
Quantitative Affinity
Among Witnesses with
80% or Greater Content

% Affinity	Number of Witnesses
0-5	0
6--10	0
11--15	0
16-20	0
21-25	0
26-30	0
31-35	0
36-40	0
41-45	4
46-50	122
51-55	90
56-60	24
61-65	146
66-70	97
71-75	52
76-80	85
81-85	31
86-90	56
91-95	42
96-100	112



CHAPTER 3

GENEALOGICAL HISTORY OF EPHESIANS' MANUSCRIPTS

This chapter presents the genealogical history of the manuscripts¹ of the Greek text of the Epistle to the Ephesians as reconstructed by computer program Lachmann-10.² Beginning with a data base of 129 existing witnesses, 160 places of variation, and 358 variants, the program reconstructed 19 intermediate exemplars, arranging them in the genealogical stemma (tree diagram) presented in its full form in Appendix C, but in a condensed form in Figure 3.1. This condensed form portrays the genealogical interrelationship of all the reconstructed exemplars of the text of Ephesians including most of the terminal witnesses. The rectangular boxes contain the information for the exemplars created by the software and the boxes with rounded corners contain the information for the extant witnesses. Witnesses in the same box are siblings. Figure 3.2³ displays a second tree diagram in which the principal line of descent from the autograph to the Western text tradition appears in a straight line from which the other text traditions branch off. All the technical data and diagrams contained in this chapter were derived from the monitor screen of Lachmann-10 or the report it created.

The head exemplars of the three main branches of the stemma are exemplars Ex-144#, Ex-146#, and Ex-147#. These branches are quite independent of one another, having mutual affinities ranging from 51% to 84%. But they have affinities with the autograph ranging from 59% to 94%. In addition, the sibling gene of each uniquely distinguishes them from one another. The following table lists their mutual differences and affinities.

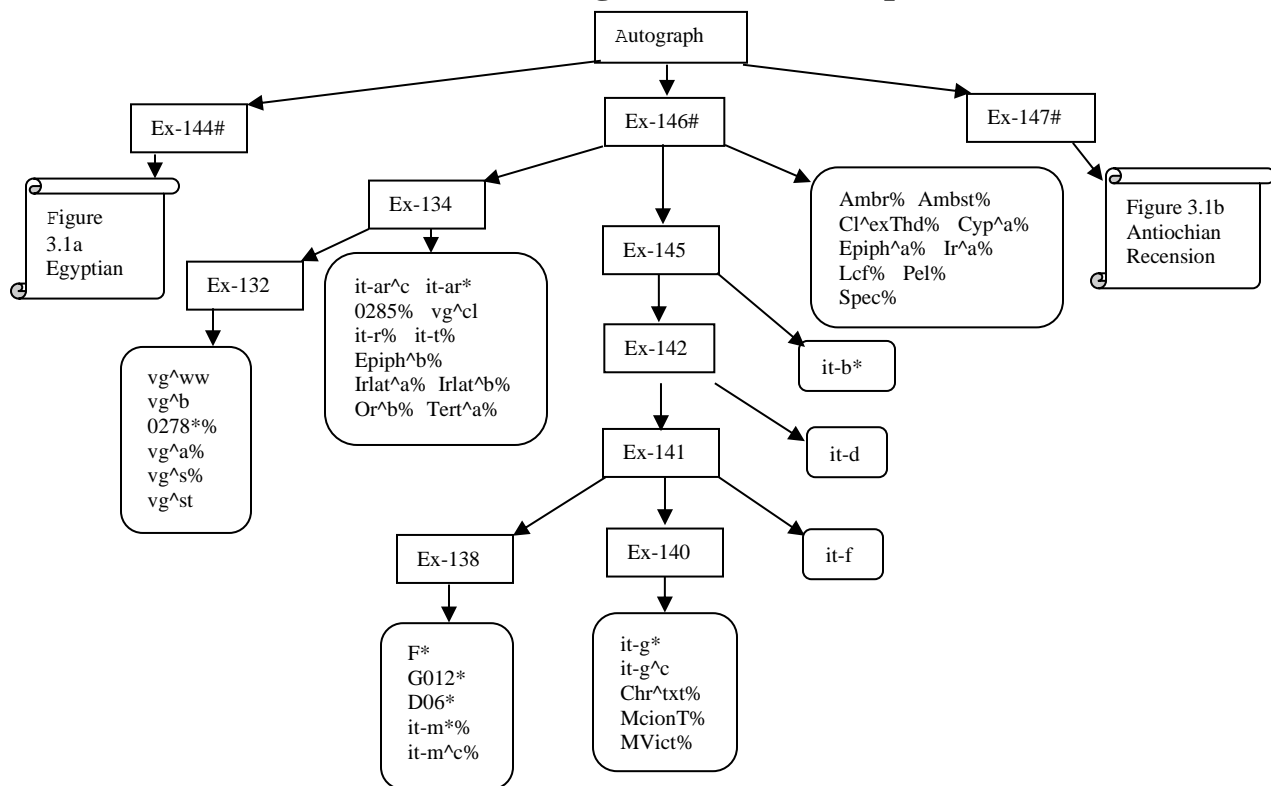
¹ The term *manuscript* is used here in its inclusive sense of manuscripts, translations, church fathers, and reconstructed exemplars—the sense I usually assign to the term *witness*.

² The total computing time was one minute and forty-three seconds including the time required for the software to assemble and format all the information contained in the tables, diagrams, and appendices of this book.

³ The full diagram, displayed in Appendix C, requires six pages. The condensed form deletes all the terminal branches (extant witnesses) except one at each exemplar—the most interesting one. Likewise, it omits exemplars that only account for same-generation mixture (those with a \$ sign attached to their name).

	Ex-144#	Ex-146#	Ex-147#	Autograph
Ex-144#		54%	84%	94%
Ex-146#	74		51%	59%
Ex-147#	25	79		90%
Autograph	9	65	16	

Figure 3.1
Condensed Genealogical Stemma of Ephesians



The above diagram displays the overall structure of the genealogical stemma of Ephesians, but it presents only the branch of the Western text tradition in full detail, listing all the sibling descendants of each exemplar. The corresponding branch of the Egyptian text tradition is presented in Figure 3.1a and that of the Antiochian text tradition in Figure 3.1b. Exemplar Ex-146# is the Western recension, the ancestral source of the witnesses in the Western tradition. Its date (c. AD 65) is derived from that of sixth-generation church father Tertullian (c. AD 150). It has an unusually low affinity with the autographic text of only 59%, differing from it in 65 places.⁴ This text tradition contains mostly the Latin Vulgate, the Old Latin witnesses, and the Latin church fathers.

⁴ The date, affinity and difference are found in Appendix C; so also for the other branches.

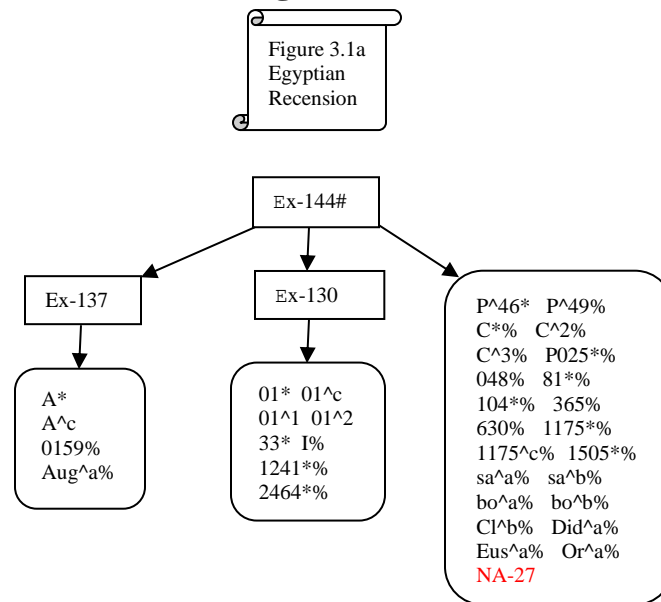
Figure 3.1a

Figure 3.1a displays the Egyptian branch of the genealogical stemma of Ephesians. Exemplar Ex-144# is the Egyptian recension, the ancestral source of the witnesses in the Egyptian tradition. Its date (c. AD 152) is derived from that of the second-generation papyrus P⁴⁶* (c. AD 202). It has an affinity with the autographic text of 94%, differing from it in nine places. The NA-27 text found its best fit as a daughter of first-generation Exemplar Ex-144# beside MS P⁴⁶*. Unexpectedly, Codex Vaticanus (B*) does not occur in this text tradition, but in a sub-branch of the Antiochian tradition.

Figure 3.1b displays the Antiochian branch of the genealogical stemma of Ephesians. Exemplar Ex-147# is the Antiochian recension, the ancestral source of the witnesses in the Antiochian tradition. Its date (c. AD 80) is derived from that of third-generation church father Marcion (McionE% c. AD 150). It has an affinity with the autographic text of 96%, differing from it in five places. Unexpectedly, Codex Vaticanus (B*) is found in the sub-branch headed by third-generation Exemplar Ex-136. Scrivener's TR, together with HF and RP, found their best fit as a daughter of fourth-generation Exemplar Ex-131.

Figure 3.1b

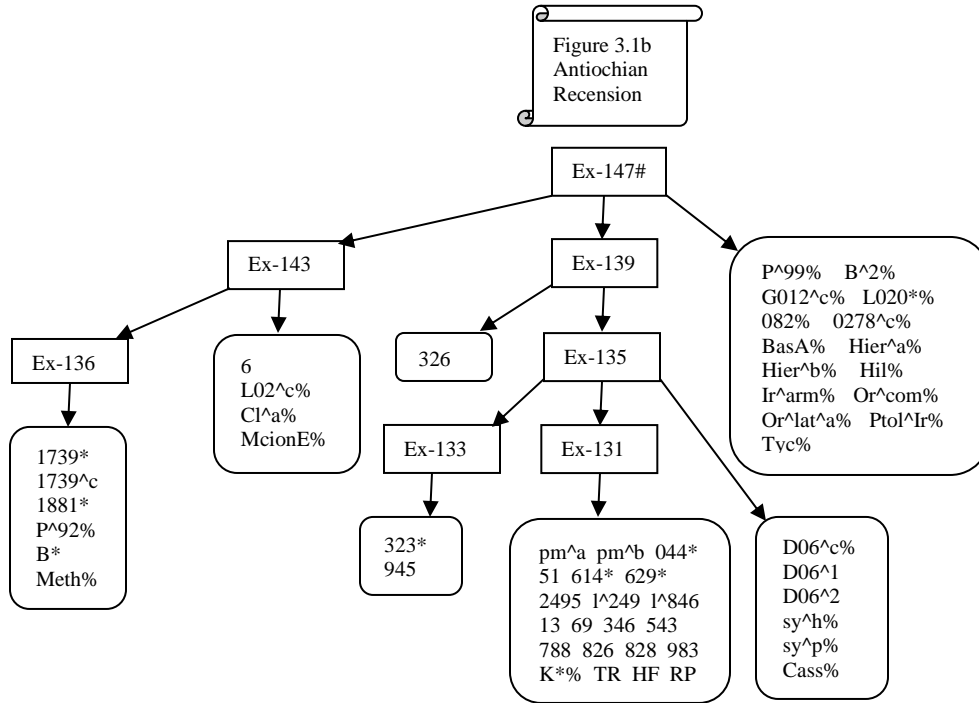
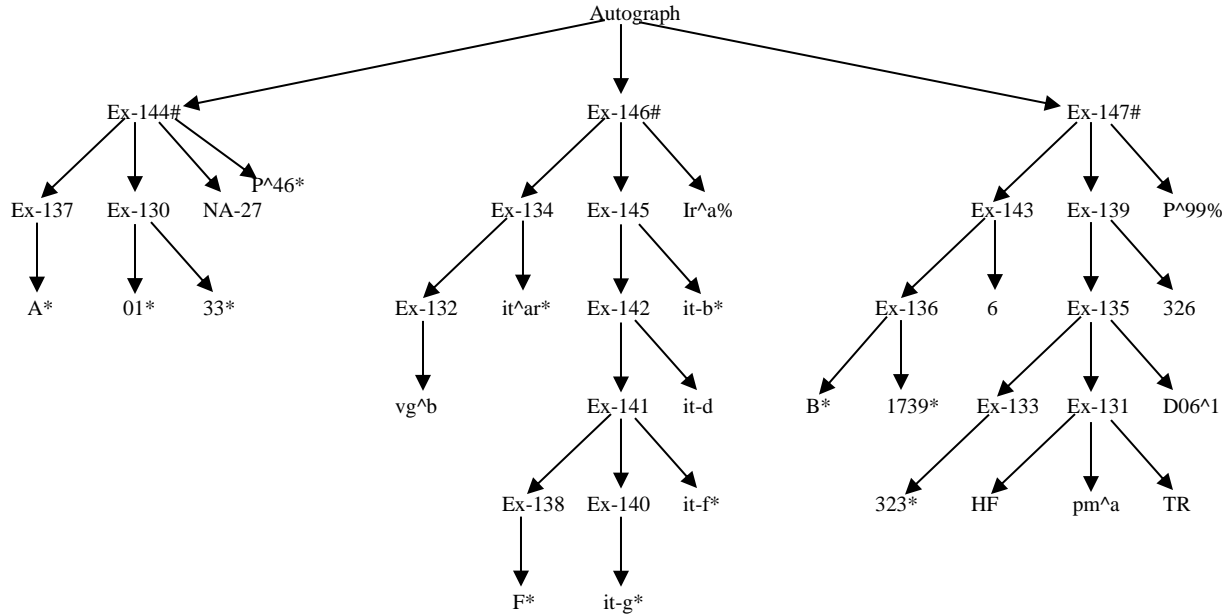


Figure 3.2
Condensed Tree Diagram of Ephesians



Readings of the Autographic Text

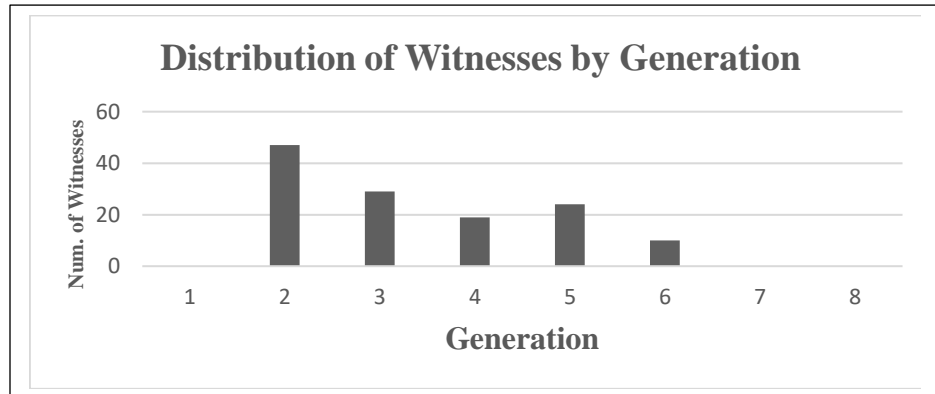
The theory expressed in the first volume of this series⁵ indicates that the readings of the autographic text should be determined on the basis of the “consensus among ancient independent witnesses.” The solution for Ephesians ended up with three independent recensions which were candidates for being witnesses to the text of the autograph. The guideline given in the theory recommended selecting the three most ancient recensions for use in determining the consensus; for Ephesians they are: Exemplars Ex-144#, Ex-146#, and Ex-147#. The text of the autograph is presented in Appendix D.

The Generations of Genealogical History

Program Lachmann-10 reconstructed the genealogical history of the text of Ephesians in six generations of descent from the autograph. Of course, the exact number of generations cannot be known because the genealogical history before the alleged first-generation major recensions was too fuzzy for the software to accurately reconstruct. The 124 extant witnesses are distributed throughout every generation of the genealogical history. Table 3.1 and its associated graph display the distribution of the extant witnesses of Ephesians by generation. Every generation has at least 2 extant witnesses.

Table 3.1
Distribution of Extant Witnesses
by Generation

Generation	Num. of Witnesses
1	0
2	47
3	29
4	19
5	24
6	10
7	0
8	0



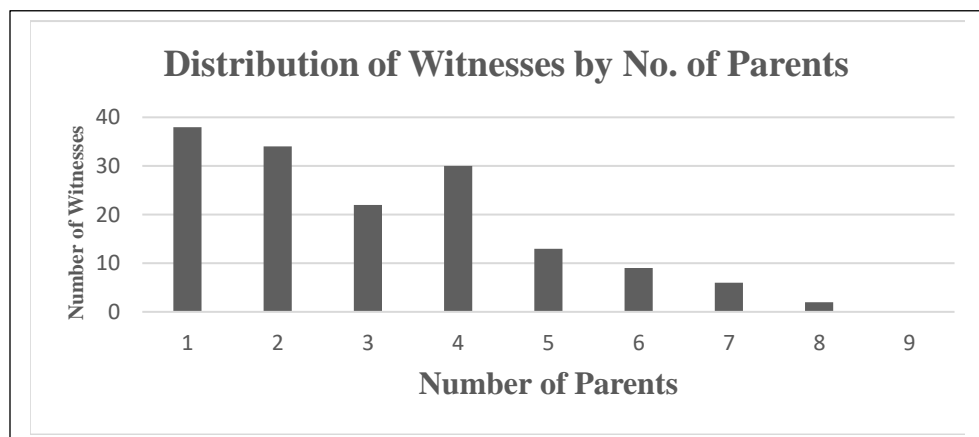
⁵ Chapter Two of *The Genealogical History of the Greek Text of the Gospel of Matthew*.

Mixture

The number of parents a witness had is a measure of the mixture of its text; the more parents, the more mixture. At any place of variation, the reading of a witness may differ from that of its primary parent exemplar⁶ for one of two reasons: (1) the reading is a newly initiated variant having no prior existence; or (2) the scribe selected the reading from one of the secondary exemplars he was consulting. Witnesses having only one parent experienced no mixture; every variant differing from that of the primary parent exemplar was newly initiated by the scribe either accidentally or intentionally. Table 3.2 displays the distribution of witnesses by number of parents. Those witnesses with the greatest mixture are those with the most diverse text; for example: 38 of the witnesses had only one parent, having no mixture at all; MSS D06¹ and 044*, have 8 parents, indicating the extreme mixture of those witnesses. The sources of mixture are not displayed in the tree diagrams.

Table 3.2
Distribution of Witnesses
by Number of Parents

Num. of Parents	Num. of Witnesses
1	38
2	34
3	22
4	30
5	13
6	9
7	6
8	2
9	0



Primary Daughters

When an exemplar is the primary parent of one of its daughter manuscripts, then that daughter in turn is a primary descendant of the exemplar. Except for exemplars created to account for same-generation mixture (those marked with \$), an exemplar always has at least two primary

⁶ A primary parent exemplar is the exemplar from which a witness derives its genealogical descent; secondary parent exemplars are the sources from which a witness acquires mixture. A witness has only one primary parent, but it may have any number of secondary parent exemplars.

daughters, but it may have as many as needed for grouping multiple sibling daughters. The number of primary daughters of an exemplar is a measure of how well the software was able to find groups of sibling sisters. Table 3.3 displays the distribution of primary daughters by number of exemplars. Exemplars Ex-130, has five primary daughters; and Ex-131 has 17.

Critics of the genealogical theory protest that the genealogical trees it develops are almost exclusively binary, that is, nodes in the tree have only two branches—in other words, reconstructed exemplars have only two primary daughter descendants. Table 3.3 demonstrates the error of this claim. Exemplars with no primary descendants are those created to account for same-generation mixture; they rightly have no primary descendants.

Table 3.3 Distribution of Exemplars by Number of Primary Daughters		Table 3.4 Distribution of Exemplars by Number of Secondary Daughters			
Num. of Primary Daughters	Num. of Exemplars	Num. of Secondary Daughters	Num. of Exemplars	Num. of Secondary Daughters	Num. of Exemplars
2	13	0	8	12	1
3	4	1	2	13	1
5	1	2	1	17	1
17	1	3	1	20	2
		4	2	40	1
		6	2	47	1
		7	1	96	1
		10	1	Total =	309

Secondary Daughters

When an exemplar is the source of mixture (a secondary parent) for one of its daughter descendants, then that daughter is a secondary descendant of the exemplar. An exemplar does not need to have any secondary descendants, but it may have as many as needed for resolving mixture within its associated branch. The number of secondary descendants of an exemplar is a measure of its value as a source of mixture, suggesting that scribes regarded the exemplar as having some measure of authority. Table 3.4 displays the distribution of secondary daughters by number of exemplars. For example, Exemplar Ex-146#, the first-generation exemplar of the Western text tradition, had 40 secondary daughters; those with more than 40 secondary daughters were merely sources of same-generation mixture.

Resolution of Mixture

The optimizing procedures of the software resolve all mixture in a genealogical tree, leaving every instance of a variant accounted for either by genealogical descent, by mixture, or by initiation. That is, the software locates the exemplar where every variant originated in the genealogical history of the witnesses.⁷ This feature is treated further in Chapter Four where the genealogical history of the variants is discussed.

Distribution of Affinity

Another measure of the success of the software in reconstructing the genealogical history of the text of Ephesians is the distribution of the affinity of the witnesses to their primary parent exemplars. If this affinity is consistently high, the success may be regarded as high. Table 3.5 and its associated graph display the distribution of the affinity of the extant witnesses⁸ to their corresponding primary parent exemplar. Table 3.6 and its associated graph display the distribution of the affinity of the reconstructed exemplars to their corresponding primary parent exemplar, not including those functioning only to resolve same-generation mixture.⁹

The evidence from Table 3.5 indicates that all but 12 extant witnesses had a strong affinity (> 90%) with their primary parent exemplar, and all but one had an affinity greater than 80%. This demonstrates that considerable close grouping exists among the extant witnesses.

The evidence from Table 3.6 indicates that 11 (61.1%) of the 18 reconstructed exemplars¹⁰ have a strong affinity (> 90%) with their primary parent exemplar, and another 5 (27.8%) had a moderate affinity (81-90%) with their parent; Exemplar Ex-134 has a weak affinity of 73%, and Exemplar Ex-146#, the source of the Western text tradition, has only 59%.

⁷ While this is true for the book of Ephesians, for some of the other books the software may fail to uniquely identify the place of origin for a small percentage of variants.

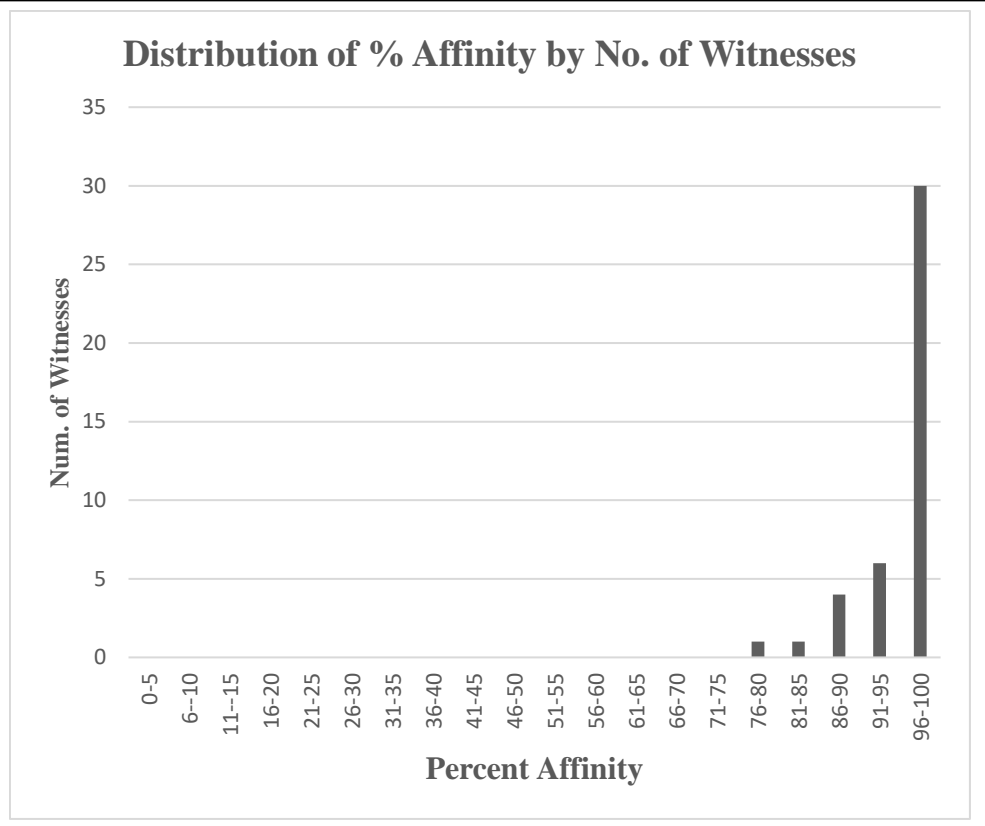
⁸ Witnesses with less than 80% content are excluded because they do not contribute to the reconstruction of the genealogical history but are attached at the most appropriate place after the tree is complete.

⁹ Such exemplars do not contribute to the reconstruction of the tree diagram of the genealogical history of the witnesses, their affinity with their parent exemplar having no significance to the reconstruction process.

¹⁰ The exemplars constructed just to account for same-generation mixture were not included in the study because they do not contribute to the construction of the genealogical tree.

Table 3.5
Distribution of Affinity of Extant
Witnesses with Primary Parent

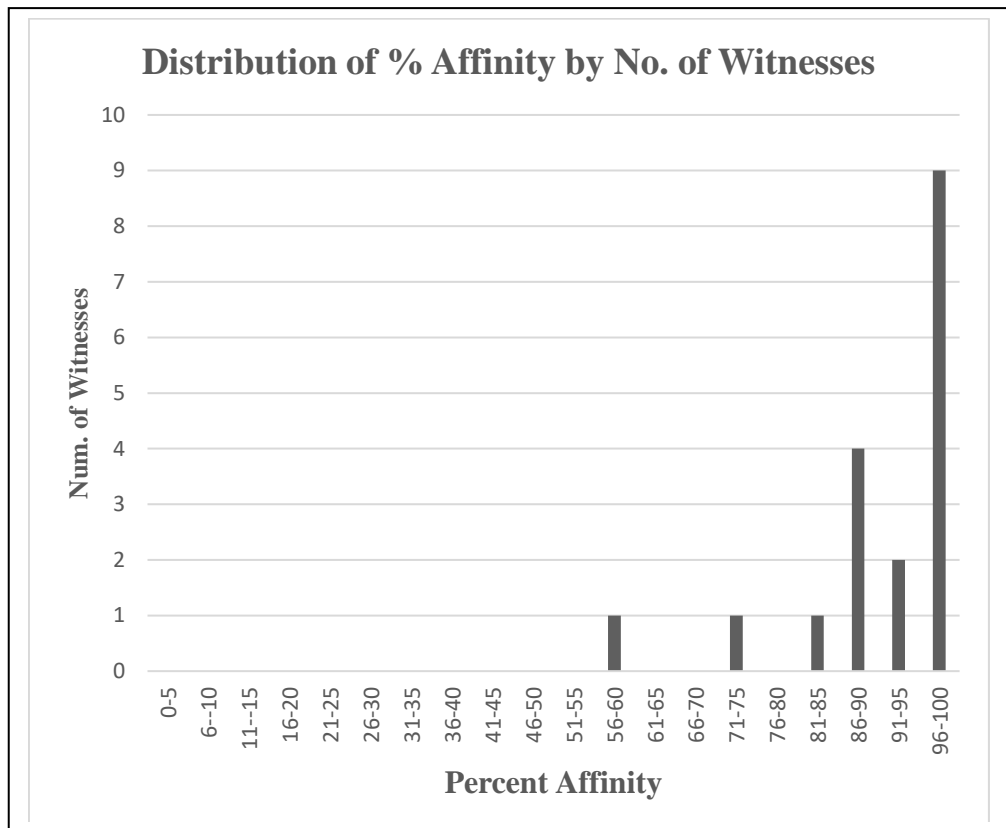
% Af- finity	No. of Wit- nesses
0-5	0
6-10	0
11--15	0
16-20	0
21-25	0
26-30	0
31-35	0
36-40	0
41-45	0
46-50	0
51-55	0
56-60	0
61-65	0
66-70	0
71-75	0
76-80	1
81-85	1
86-90	4
91-95	6
96-100	30
Total	42



The presence of weak affinities is troubling because it questions the reality of any actual genealogical relationships. But the corresponding presence of sizeable sibling genes confirms that the given witness has a common ancestry with its alleged sisters, even though the relationship may be one of distant cousins; whatever the actual relationship may have been, within the collection of witnesses the relationship is closest possible.

Table 3.6
Distribution of Affinity of
Exemplars with Primary Parent

% Af- finity	No. of Exem- plars
0-5	0
6-11	0
11-15	0
16-20	0
21-25	0
26-30	0
31-35	0
36-40	0
41-45	0
46-50	0
51-55	0
56-60	1
61-65	0
66-70	0
71-75	1
76-80	0
81-85	1
86-90	4
91-95	2
96-100	9
Total	18



Date of the Autograph

The date of the autograph was determined by the rule that a parent exemplar is fifty years older than its oldest sibling daughter. When the dates diminish to below AD 100, the generation gap is reduced to twenty years, giving more room for activity in the first century. The date of the autograph (AD 60) is traced down through the Western recension to sixth-generation Latin church father Marcion (McionT% c. AD 150) through the following exemplars:

```
Autograph[0.00]<0>{AD 60}/0/0/0
|-Ex-146#[0.59]<1>{AD 65}/65/65/2
|-Ex-145[1.00]<2>{AD 70}/0/65/1
|-Ex-142[1.00]<3>{AD 75}/0/0/1
|-Ex-141[1.00]<4>{AD 80}/0/0/1
|-Ex-140[0.99]<5>{AD 100}/2/0/3
|-McionT%[0.50]<6>{AD 150}/3/2/3
```

Marcion's witness is very fragmentary, having only six readings and only 50% affinity with its parent exemplar. So, the date of the autograph is not very firm, but it may be at least as early as c. AD 75 based on the date of fourth-generation papyrus P⁴⁶ (c. AD 200).

Conclusions

The software does indeed reconstruct a genealogical history of the manuscripts of the Epistle to the Ephesians, and of the other books of the New Testament as well. However, the results are not what was anticipated, based on earlier experiments with smaller books, smaller databases, and less sophisticated programs. I anticipated that the commonly accepted text traditions would emerge as independent witnesses to the autograph. Those text traditions did emerge, but they turned out to be not exactly Western, Alexandrian, Caesarean, and Antiochian, but rather Western, Egyptian, and Antiochian, with the Byzantine tradition being the latest form of the Antiochian text tradition, and with no clear evidence of a Caesarean tradition. Furthermore, The Egyptian witnesses did not form one uniform tradition but rather two somewhat diverse independent branches. Codex Sinaiticus (01*) and Codex Vaticanus (B*) emerged as totally independent of each other, with B* in a remote sub-branch of an entirely different text tradition—the Antiochian.

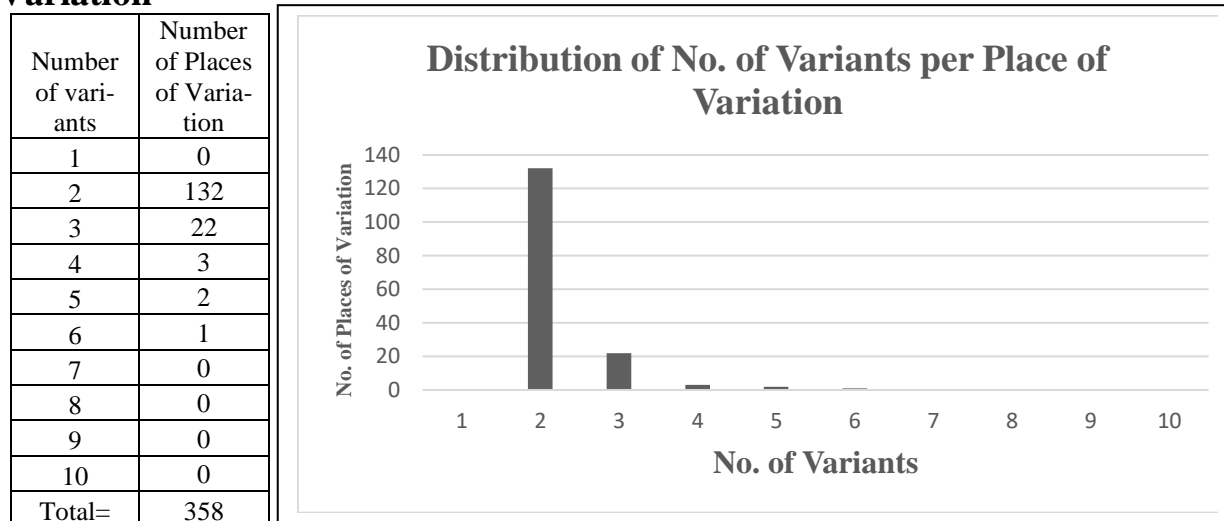
This concludes the discussion of the genealogical history of the witnesses to Ephesians. While the reconstruction of the genealogical history of witnesses depends on the genetic affinity (consensus), sibling genes, and the date of the witnesses, the genealogical history of variant readings depends on the consensus and inheritance of variants. The history of the variant readings of the text of Ephesians is discussed in Chapter Four.

CHAPTER 4

THE HISTORY OF THE TEXTUAL VARIANTS IN EPHESIANS

Chapter Three presents the genealogical history of the manuscripts²⁹ of the Greek text of the Epistle to the Ephesians. That history is necessary before the genealogical history of an individual variant may be safely discussed, because the history of a textual variant is totally dependent upon the history of the manuscripts in which it occurs. The NA-27 Greek New Testament records 160 places of textual variation in the Book of Ephesians and 358 variant readings. This averages out to a variableness index of 2.24 variants per place of variation—a relatively low value. Table 4.1 and its associated graph display the distribution of the number of variants per place of variation.

Table 4.1
Distribution of Number of
Variants per Place of
Variation



Initially the number 358 seems large when considering textual variations in a book of the Bible, but this number must be considered with respect to the total number of places where

²⁹ Again, the term *manuscript* is used in its broader sense to include manuscripts, translations, quotations from church fathers, and reconstructed exemplars.

variation could occur. If the number of words in the Greek text of Ephesians (c. 2,437) is regarded as the number of places where variation could occur, and each variation is regarded as the equivalent of one word, then the text of Ephesians is 93.3% pure³⁰ before variations are even considered. Thus, variation occurs in only 6.7% of the text. In that small portion of the text 358 variants are recorded, but 160 of them are original readings, so only 198 are real variants. While this still seems like a large number, the genealogical software clearly identified all of them as non-original.

Types of Variants

Four basic types of textual variations occur in the text of Ephesians: (1) omissions, (2) alterations, (3) transpositions, and (4) additions. Table 4.2 lists the distribution of these types of variants in the 160 places of variation in the text of the Epistle to the Ephesians, and Table 4.3 lists their distribution with respect to all variations.

Table 4.2
Distribution of Variants by Type

Variation type	Number of Variants
Omit a word	33
Omit a phrase	7
Alternate word	61
Alternate words	26
Transposed words	6
Added word or phrase	27
Total	160

Table 4.3
Distribution of All Variants by Type

Variation Type	Number of Variants
Omit a word	66
Omit a phrase	14
Alternate word	135
Alternate words	74
Transposed words	12
Added word or phrase	57
Total	358

³⁰ $((2,437 - 160) \div 2,437) \times 100 = 93.3$.

Determining Exemplar Readings

Whenever the genealogical software creates a new exemplar as the parent of a group of sibling sister witnesses, at each place of variation, the reading of the exemplar is decided on the basis of four ordered rules:

- (1) Majority consensus among all the immediate sibling children;
- (2) if no majority, then postpone the decision until a sibling emerges for the exemplar currently being reconstructed, that sibling will have the inherited reading;³¹
- (3) if, in the case of deciding the readings of the autograph, majority consensus fails, then accept the first variant (the NA-27 reading) if it is an option;
- (4) if the first variant is not an option, then by default arbitrarily select the smallest variant number that is an option;³²
- (5) if witnesses are of different languages, then select the Greek reading, if available.

Table 4.4 lists the number of times each of the above rules was used in the process of constructing the genealogical history of the text of Ephesians.

Table 4.4
Frequency of Exemplar Reading Rules

(1) by greatest probability	2,769
(2) by deferred ambiguity	103
(4) by default to NA-27	23
(5) by arbitrary choice	4
(6) by language deference	96
Total	2,995

The evidence indicates that the vast majority of exemplar readings (92.45%) were determined by “consensus among independent witnesses,” and 3.44% were determined by deferred ambiguity, while 0.77% were deferred to the NA-27 reading, and 3.34% were determined by arbitrary choice or language deference.

³¹ I call this practice *deferred ambiguity*. Since sibling witnesses rarely have scribal errors at the same place of variation, where the reading of one sibling is ambiguous—that is, it is uncertain which of two readings is the inherited reading and which is a newly initiated error—the other siblings will have the inherited reading. Of the 2,995 decisions the software made, only 103 were made on the basis of deferred ambiguity.

³² Next to the first variant—the NA-27 choice—the reading with the smaller variant number is usually supported by more witnesses than those with larger variant numbers. While this option is purely arbitrary, it turns out to be rarely significant for determining the readings of the autograph. For determining the readings of the autograph, the algorithm treats the exemplars of the last five branches to be constructed as siblings constituting the ancient independent witnesses.

Autographic Readings

The readings of the autographic text of Ephesians were determined on the basis of consensus among the three most ancient independent witnesses. For the Book of Ephesians, the exemplars of the three most ancient independent recensions were used: (1) Exemplar Ex-144#, the Egyptian text tradition; (2) Exemplar Ex-146#, the Western text tradition; and (3) Exemplar Ex-147#, the Antiochian text tradition. Appendix D lists each of the 160 readings of the autograph together with its place of variation, the chapter and verse where it occurs, the reading of the text at that place, and the probability that the reading is original. Those readings lacking consensus were determined by default to the decision of the NA-27 editors' evaluation of internal evidence if that reading was among the available alternatives; otherwise, the next lowest variant number was selected by arbitrary choice. Table 4.5 lists the number of times each of the above rules was used in the process of determining the autographic readings of the text of Ephesians. Again, the evidence indicates that 100% of the readings were determined by "consensus among ancient independent witnesses."

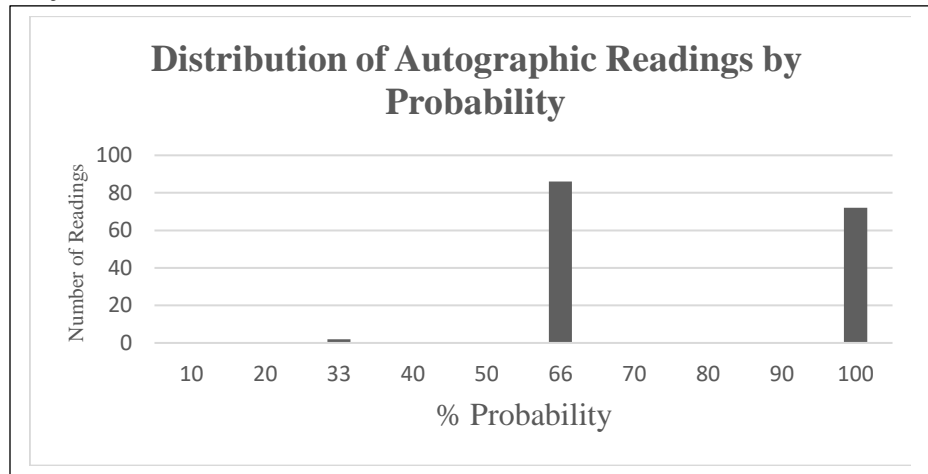
Table 4.5
Frequency of Exemplar Reading Rules

Number of Autographic variants decided by greatest probability	160	100%
Number of Autographic variants decided by choice of NA27	0	0.00%
Number of Autographic variants decided by arbitrary choice	0	0.00%
Number of Autographic variants decided by language deference	0	0.00%
Total	160	

Table 4.6 and its associated graph displays the distribution of the probability of the reconstructed autographic readings. Of the 160 readings, 72 had a probability of 1.0 (100%), 86 had a probability of 0.66 (66%), and 2 had a probability of 0.33 (33%).

Table 4.6
Distribution of Autographic Readings by Probability

Probability	Number of Readings
0.1	0
0.2	0
0.33	2
0.4	0
0.5	0
0.66	86
0.7	0
0.8	0
0.9	0
1	72



Agreement with NA-27

In the database used in this work, the first variant at any place of variation is the reading of the NA-27 text. The second and subsequent variants are the alternate readings listed in the NA-27 database. Table 4.7 lists how often the various alternate readings were found to be original. The evidence indicates that the autographic text reconstructed by the genealogical software agrees with the text of NA-27 138 times or 86.25% of the time, and differs from the NA-27 text 22 times or 13.75% of the time. Appendix E lists the 22 places where the Lachmann-10 text differs from that of NA-27.

Table 4.7
Frequency of Variants

Variant 1	138
Variant 2	21
Variant 3	1
Variant 4	0
Variant 5	0
Variant 6	0
Variant 7	0
Total	160

The Origin of the Variants

The software identifies the place of origin of every variant in the genealogical tree, accounting for every instance of a variant as being the result of genealogical descent, mixture, or initiation—that is, the software finds the one and only exemplar or extant witness in the genealogical history where each variant originated.³³ Often, after the first initiation of a reading, it may have been introduced again in a later exemplar by means of mixture.

Exemplars Ex-149\$ through Ex-155\$, are children of the Autograph created by the software as sources for resolving same-generation mixture between the branches headed by the first-generation recensions, that is, for non-autographic readings that occur in more than one primary branch of the genealogical tree. These exemplars serve as virtual exemplars lost in the unrecoverable genealogical history between the Autograph and the assumed first-generation recensions. Of the 198 non-autographic variants, 160 are listed as originating in one of these virtual exemplars. Two possibilities exist for each of these variants: either it really originated only once in the earliest decades of unrecoverable history, or it originated independently in two or more major branches of the tree diagram of genealogical history; the latter case can be true for commonly occurring scribal errors, but not for the uncommon ones. Variants of the first kind are weakly distributed among the branches of the first-generation recensions and are of little genealogical significance individually; their distribution among the three most ancient recensions is weaker than that of their corresponding autographic reading.

Egyptian Recension

First-generation exemplar Ex-144# was the ancestral forefather of the Egyptian text tradition. This recension differs from the autograph by 9 secondary variants³⁴ among which it uniquely originated the following 5 variants peculiar to this entire text tradition:

³³ The place a variant reading was initially introduced in genealogical history is determined by locating the witness containing the variant reading where the reading differs from that of its parent exemplar and the reading is not accounted for by mixture. Mixture fails when the reading does not occur in any witness in preceding generations.

³⁴ In this and other lists of variants herein, an exemplar enclosed in square brackets [] is the source of mixture for the associated variant. Variants are listed only by their reference: 1:20,2.3[Ex-154\$]; 3:6,1.1; 3:8,2.1; 3:13,1.1; 4:7,1.1[Ex-154\$]; 4:18,1.1; 5:15,1.1[Ex-154\$]; 6:5,1.1[Ex-154\$]; 6:10,1.1; Count = 9.

Place of Variation	Reference	Variant
54.1	3:6,1.1	ομιτ
57.1	3:8,2.1	ομιτ
64.1	3:13,1.1	ἐγκακειν
92.1	4:18,1.1	ἐσκοτωμενοι
144.1	6:10,1.1	του λοιπου

Western Recension

First-generation Exemplar Ex-146# was the Western recension, being the text from which most of the Old Latin translations were made. It differs from the autographic text by 65 secondary variants,³⁵ among which it uniquely originated the following 40 variants peculiar to this entire text tradition:

Place of Variation	Reference	Variant
5.2	1:4,1.2	εαυτω
7.2	1:6,2.2	υιω αυτου
10.2	1:9,1.2	Πσαι
14.2	1:11,1.2	εκληθ
15.2	1:11,2.2	του θεου
19.4	1:15,1.4	1 2 4-7
20.2	1:16,1.2	υμων
24.2	1:19,1.2	υμ
32.3	2:5,1.3	ταις αμαρταις
34.2	2:5,3.2	οῦ
37.2	2:11,1.2	δια τουτο
40.2	2:15,2.2	εαυ
42.2	2:16,1.2	εαυ
46.2	2:20,1.2	λιθου
52.2	3:3,2.2	γαρ εγν.
61.2	3:10,1.2	ομιτ
67.2	3:14,1.2	του κυριου ημων Ιησου Χριστου

³⁵ 1:4,1.2; 1:6,1.2[Ex-154\$]; 1:6,2.2; 1:9,1.2; 1:9,2.2[Ex-154\$]; 1:11,1.2; 1:11,2.2; 1:15,1.4; 1:16,1.2; 1:19,1.2; 2:3,1.3[Ex-154\$]; 2:4,1.2[Ex-154\$]; 2:5,1.3; 2:5,3.2; 2:11,1.2; 2:15,2.2; 2:15,3.2[Ex-154\$]; 2:16,1.2; 2:19,1.2[Ex-154\$]; 2:20,1.2; 3:1,1.2[Ex-154\$]; 3:3,1.2[Ex-154\$]; 3:3,2.2; 3:10,1.2; 3:14,1.2; 3:18,1.1[Ex-154\$]; 3:20,1.2[Ex-154\$]; 4:4,1.2; 4:6,2.2; 4:8,2.2[Ex-154\$]; 4:9,2.2[Ex-154\$]; 4:13,1.2[Ex-154\$]; 4:15,1.2; 4:15,2.2[Ex-154\$]; 4:15,3.2[Ex-154\$]; 4:16,1.3; 4:16,3.2[Ex-154\$]; 4:19,1.2[Ex-154\$]; 4:19,2.2; 4:23,1.2[Ex-154\$]; 4:24,1.2[Ex-154\$]; 4:24,2.2; 4:29,1.2; 4:32,1.2; 5:2,1.2[Ex-154\$]; 5:4,1.2; 5:4,2.2[Ex-154\$]; 5:5,2.3; 5:10,1.2; 5:17,1.2; 5:20,1.2[Ex-154\$]; 5:20,2.2; 5:22,1.3; 5:23,1.2; 5:25,1.2; 5:28,1.3; 5:30,1.2; 5:31,1.2; 5:31,2.2; 6:1,1.2; 6:12,1.2[Ex-154\$]; 6:16,2.2[Ex-154\$]; 6:17,1.2; 6:19,1.2; 6:24,1.2[Ex-154\$]; Count = 65.

74.2	4:4,1.2	ομιτ
76.2	4:6,2.2	ημιν
85.2	4:15,1.2	αληθειαν δε ποιουντες
88.3	4:16,1.3	
94.2	4:19,2.2	και Πιας
99.2	4:24,2.2	και αληθεια
103.2	4:29,1.2	πιστεως
105.2	4:32,1.2	ουιν
109.2	5:4,1.2	ἡ
113.3	5:5,2.3	τ. θ. και Χρ.
115.2	5:10,1.2	θεω
118.2	5:17,1.2	συνιεντες
125.2	5:20,2.2	Ιησου Χρ.
126.3	5:22,1.3	υποτασσεσθε
127.2	5:23,1.2	2 1
130.2	5:25,1.2	υμων
131.3	5:28,1.3	2-4 1
133.2	5:30,1.2	εκ της σαρκος αυτου και εκ των οστεων αυτου
134.2	5:31,1.2	ομιτ
135.2	5:31,2.2	ομιτ
138.2	6:1,1.2	ομιτ
153.2	6:17,1.2	ομιτ
154.2	6:19,1.2	ομιτ

Antiochian Recension

Exemplar Ex-147# was the Antiochian recension, being the text from which the Syrian and Antiochian witnesses were derived. It differs from the autographic text by 16 secondary variants,³⁶ among which it uniquely originated the following 9 variants peculiar to this entire text tradition:

Place of Variation	Reference	Variant
19.1	1:15,1.1	την ἀγαπην την εις παντας τους αγιους
23.2	1:18,2.2	και
43.2	2:17,1.2	ομιτ
45.3	2:19,2.3	

³⁶1:15,1.1; 1:18,2.2; 2:17,1.2; 2:19,2.3; 2:21,1.2[Ex-154\$]; 3:7,1.2; 3:9,3.2[Ex-154\$]; 4:8,1.2[Ex-154\$]; 5:5,1.2[Ex-154\$]; 5:19,3.2; 5:23,2.2; 5:25,1.3[Ex-154\$]; 5:29,1.2; 5:31,3.1[Ex-154\$]; 6:12,3.2[Ex-154\$]; 6:21,1.1; Count = 16.

55.2	3:7,1.2	την Παν
123.2	5:19,3.2	εν τη κ.
128.2	5:23,2.2	και αυ. εστιν
132.2	5:29,1.2	κυριος
156.1	6:21,1.1	ειδητε και υμεις

Tracing Variant History

For various reasons, it may be of interest to trace the history of the genealogical heritage of the alternate readings at particular places of variation. For each variant at the desired place, one may want to see where it originated in genealogical history and how it was subsequently distributed by genetic inheritance. Upon request, software program Lachmann-10 displays the genealogical history of the variants at any selected place of variation. It constructs the historical tree diagram (like the one in Appendix C) and displays on the monitor screen the generation and index number of the variant contained in each and every witness. The following section presents typical examples of possible studies of interest.

Variants of Textual Interest

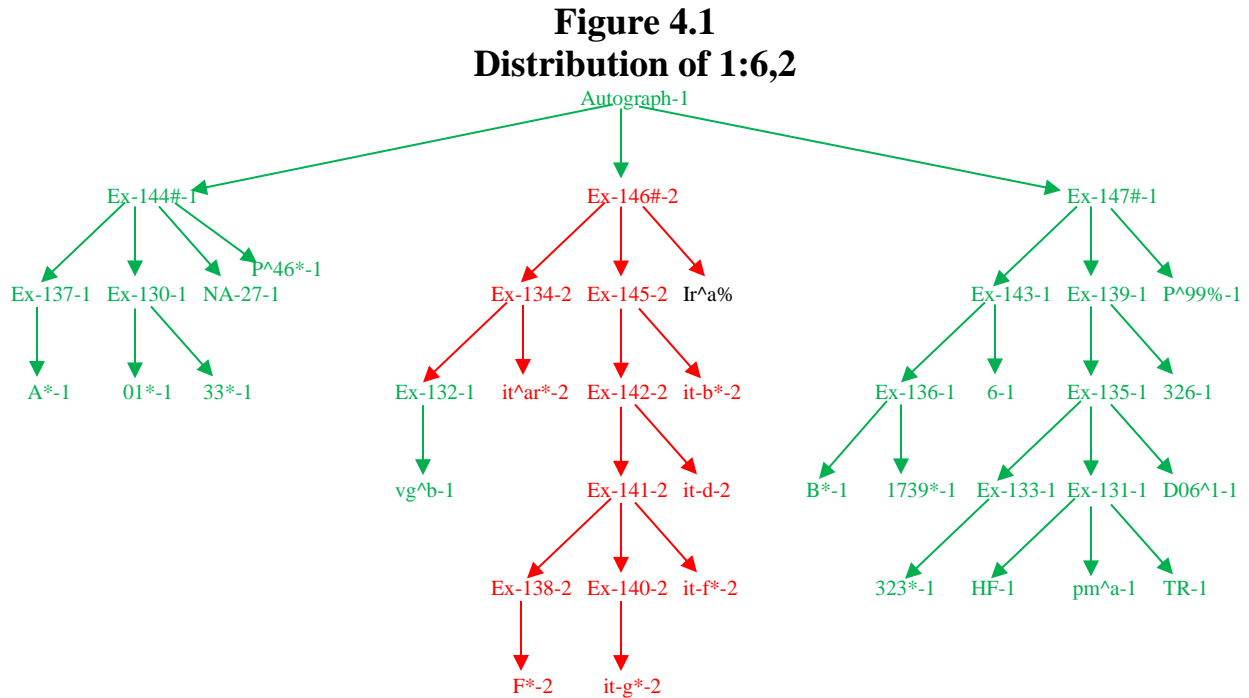
The genealogical history of some variants is more interesting than that of others because of their significance for translation. For example, words or phrases are missing in some witnesses (1:6, 11; 3:14); also, some places of variation have multiple options widely distributed among the witnesses (4:28); the genealogical history may help to decide which option is more likely original.

Missing Words in 1:6,2

Ephesians 1:6 reads: “to the praise of the glory of His grace, by which He has made us accepted in the Beloved.” Some witnesses have the phrase “His Son” at the end of the verse and some do not. The variants are:

- (1) ομιτ—omit
- (2) υιω αυτου—His Son

Figure 4.1 displays the distribution of the variants throughout genealogical history.



Variant 1 (omit the phrase) has the consensus of two of the first-generation recensions: Exemplar Ex-144#, the recension from which the Egyptian text tradition was derived, and Exemplar Ex-147#, the recension from which the Antiochian text tradition was derived; it was selected as the autographic reading on this basis with a probability of 67%. It has the support of all the witnesses in the Egyptian text tradition headed by first-generation Exemplar Ex-144#, except for MSS sa^a% and sa^b (no shown). It also has the support of all the witnesses in the Antiochian text tradition headed by first-generation Exemplar Ex-147#, except for MS 629* (not shown). It was subsequently introduced by mixture in the sub-branch of the Western text tradition headed by third-generation Exemplar Ex-132, after which it persisted throughout the history of that branch. It has the greatest antiquity,³⁷ the broadest distribution,³⁸ and excellent persistence.

Variant 2 (“His Son”) was first initiated in the branch of the Western text tradition headed by first-generation Exemplar Ex-146#, after which it persisted throughout the history of that branch, except for those in the sub-branch headed by third-generation Exemplar Ex-132. It also

³⁷ Antiquity is the characteristic of a reading being older than the witness in which it occurs. See the glossary of terms.

³⁸ Distribution is the characteristic of a reading occurring in more than one text tradition. An original reading occurs in more than one first-generation exemplar. See the glossary of terms.

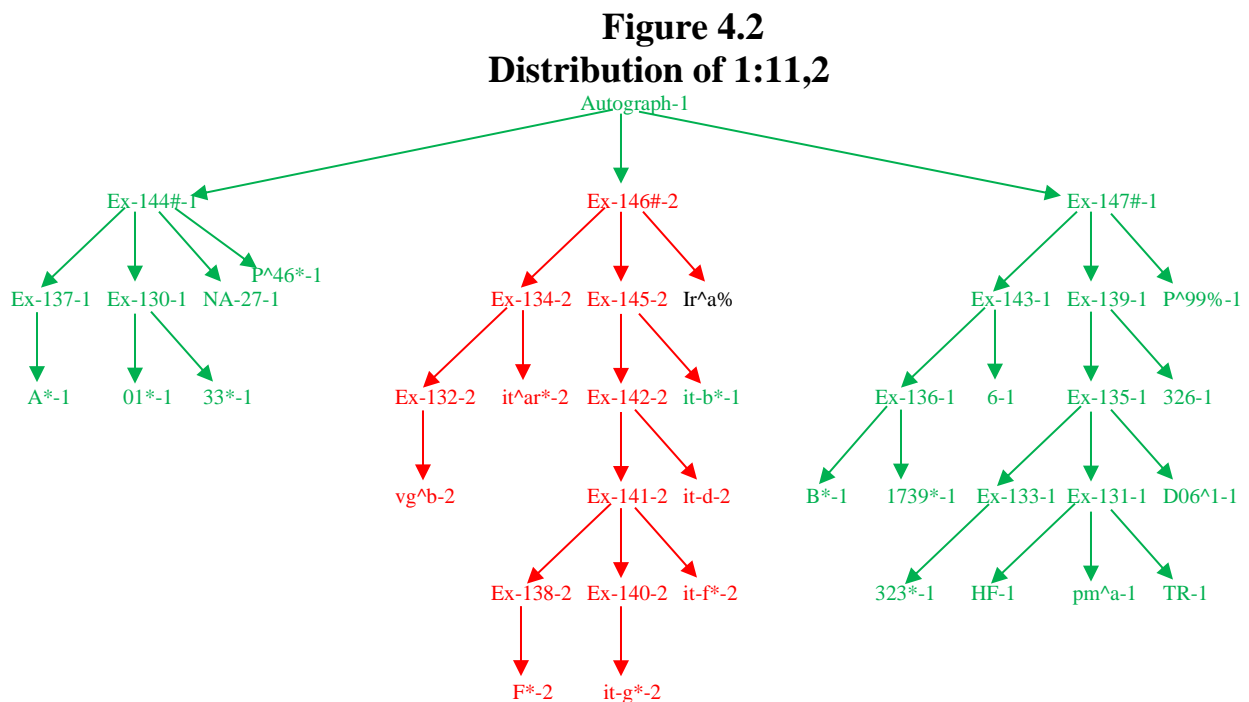
occurs independently as singularities³⁹ in MSS 629*, sa^a%, and sa^b% (not shown). This reading lacks antiquity and adequate distribution, but it has good persistence once introduced.

Missing Words in 1:11,2

Ephesians 1:11 reads: “In Him also we have obtained an inheritance, being predestined according to the purpose of Him who works all things according to the counsel of His will.” Some witnesses have the phrase “of God” after the word “purpose” and some do not. The variants are:

- (1) ομῖτ—omit
- (2) τοῦ θεοῦ—of God

Figure 4.2 displays the distribution of the variants throughout genealogical history.



Variant 1 (omit the phrase) has the consensus of two of the first-generation recensions: Exemplar Ex-144#, the recension from which the Egyptian text tradition was derived, and Exemplar Ex-147#, the recension from which the Antiochian text tradition was derived; it was selected as the autographic reading on this basis with a probability of 67%. It has the support of all the witnesses in the Egyptian text tradition headed by first-generation Exemplar Ex-144#, except for MSS sa^a%, sa^b, and bo^b% (no shown). It also has the support of all the witnesses in the

³⁹ A singularity is a reading having no heredity; it differs from that in its parent exemplar.

Antiochian text tradition headed by first-generation Exemplar Ex-147#, except for MSS 81*%, 104*%, 365%, 1175*%, and 1175^c% (not shown). It has the greatest antiquity, the broadest distribution, and excellent persistence.

Variant 2 (“of God”) was first initiated in the branch of the Western text tradition headed by first-generation Exemplar Ex-146#, after which it persisted throughout the history of that branch. It also occurs independently as singularities in MSS D06^c*%, D06^1, D06^2, 81*%, 104*%, 365%, 1175*%, and 1175^c%, sa^a%, sa^b%, and bo^b% (not shown). This reading lacks antiquity and adequate distribution, but it has good persistence once introduced.

Multiple Variants in 4:28,1

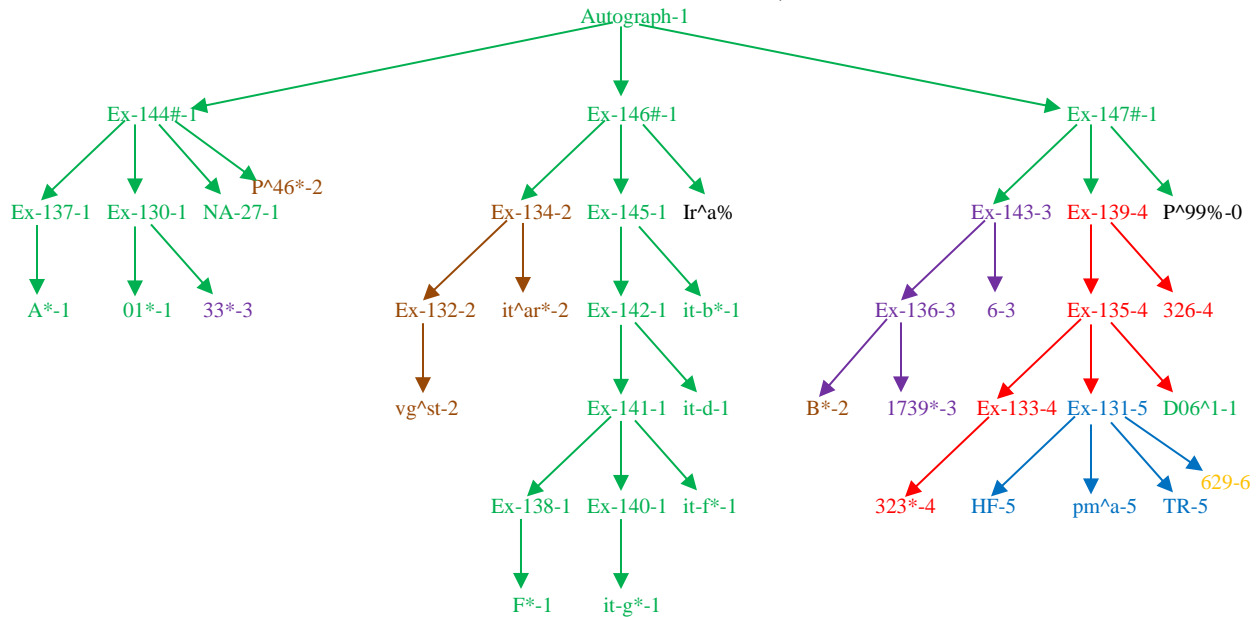
Ephesians 4:28 reads: “Let him who stole steal no longer, but rather let him labor, working with *his* hands what is good, that he may have something to give him who has need.” The words of the phrase “with *his* hands what is good” have six different renderings among the various witnesses. They are:

- (1) ταις ἰδῖαις χερσιν το ἄγαθον—*with his own hands the good*
- (2) ταις χερσιν το ἄγαθον—*with the hands the good*
- (3) το ἄγαθον—the good
- (4) το ἄγαθον ταις χερσιν—the good with the hands
- (5) το ἄγαθον ταις ἰδῖαις χερσιν—the good with his own hands
- (6) εν ταις χερσιν αὐτου το ἄγαθον—*with his hands the good*

Figure 4.3 displays the genealogical distribution of these variants. Variant 1 (“with his own hands the good”) has the consensus of all three of the first-generation recensions: Exemplar Ex-144#, the recension from which the Egyptian text tradition was derived, and Exemplar Ex-147#, the recension from which the Antiochian text tradition was derived, and Exemplar Ex-146#, the recension from which the Western text tradition was derived; it was selected as the autographic reading on this basis with a probability of 100%. It has the support of all the witnesses in the Egyptian text tradition, except for MSS P^46*, P^49%, P025%, 630%, 1505*%, 01^2, and 33*. It has the support of all the witnesses in the Western text tradition, except for those in the sub-branch headed by second-generation Exemplars Ex-134, and for MS Spec%. It has the apparent support of the first-generation witnesses of the Antiochian text tradition, except for those in the sub-branches headed by second-generation Exemplars Ex-139 and Ex-143; this is an instance where the reading of Exemplar Ex-147# is ambiguous, and the deferred ambiguity principle fails, so Lachmann-10 deferred to the reading of NA-27. It also has the support of the following

independent singularities: D06^c, D06¹, D06², pm^b, vg^{cl}, and it-t%. It has the greatest antiquity, the broadest distribution, and good persistence.

Figure 4.3
Distribution of 4:28,1



Variant 2 (“with the hands the good”) was first initiated in the sub-branch of the Western text tradition headed by second-generation Exemplar Ex-134, after which it persisted throughout the history of that branch. It also occurs independently in the following singularities: P⁴⁶*, P⁴⁹%, 01², B*, and Ambst% (mostly not shown). It lacks antiquity and distribution.

Variant 3 (“the good”) was first initiated in the sub-branch of the Antiochian text tradition headed by second-generation Exemplar Ex-143, after which it persisted throughout the history of that branch. It occurs independently in the following singularities: P025*⁵, 33*, and Spec% (mostly not shown). It lacks antiquity and distribution.

Variant 4 (“the good with the hands”) was first initiated in the branch of the Antiochian text tradition headed by second-generation Exemplar Ex-139, after which it persisted throughout the history of that branch, except for those in the sub-branch headed by fourth-generation Exemplar Ex-131. It occurs independently in the following singularities: L020*⁵, L020^c%, 044*, 614*, and 630% (mostly not shown). It lacks antiquity and distribution.

Variant 5 (“the good with his own hands”) was first initiated in the branch of the Antiochian text tradition headed by fourth-generation Exemplar Ex-131, after which it persisted throughout

the history of that branch. It also occurs independently in the following singularity: 1505*% (not shown). It lacks antiquity and distribution.

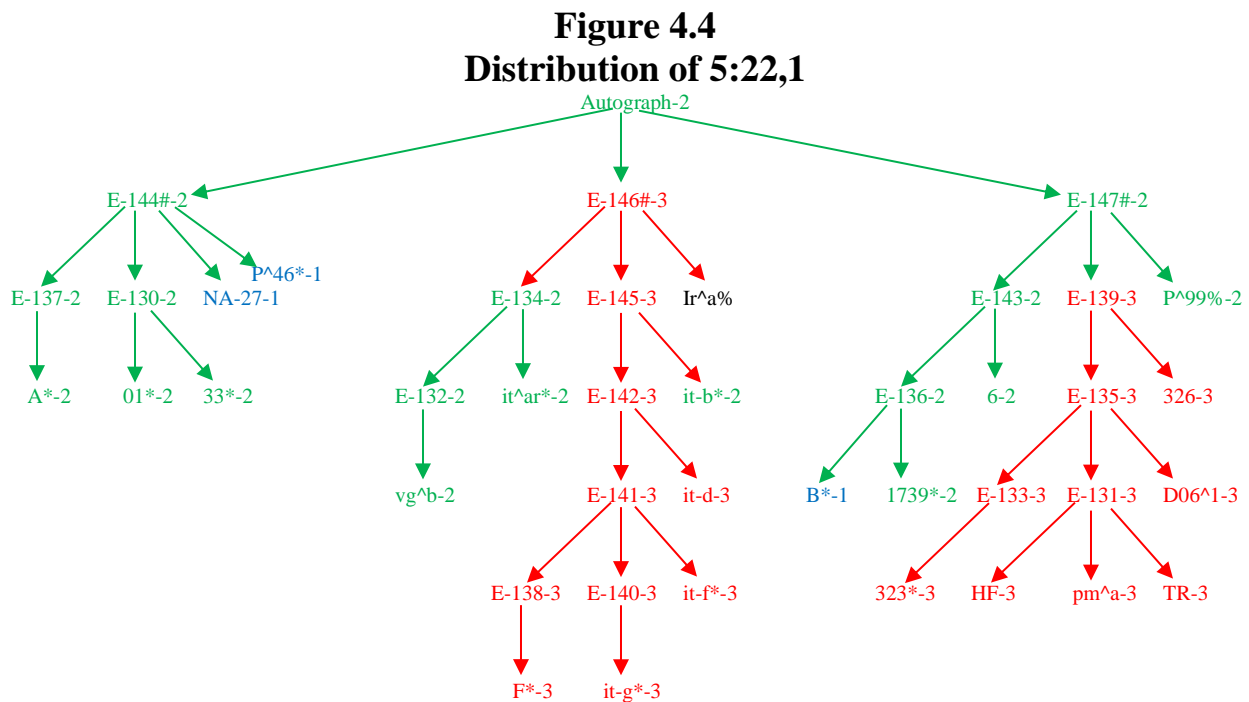
Variant 6 (“with his hands the good”) occurs independently as a singularity only in MS 629*. It has no possibility of being original.

Non-NA-27 in 5:22,1

Lachmann-10 found 22 places where the autographic reading differed from that of NA-27 (see Appendix E); one instance occurs in 5:22. Ephesians 5:22 reads: “Wives, submit to your own husbands, as to the Lord.” Some witnesses have the word “submit” and some do not. The variants are:

- (1) *ομιτ*—omit
- (2) *υποτασσεσθωσαν*—shall submit
- (3) *υποτασσεσθε*—submit

Figure 4.4 displays the genealogical distribution of these variants.



Variant 2 (“shall submit”) has the consensus of two of the first-generation recensions: Exemplar Ex-144#, the recension from which the Egyptian text tradition was derived, and Exemplar Ex-147#, the recension from which the Antiochian text tradition was derived; it was selected as the autographic reading on this basis with a probability of 67%. It has the support of all the

witnesses in the Egyptian text tradition except the following independent singularities: P46* and NA-27. It has the support of all the witnesses in the Antiochian text tradition except for those in the branch headed by second-generation Exemplars Ex-139. It occurs independently in the following singularities: 044* and it-b*. It has the greatest antiquity, the broadest distribution, and good persistence.

Variant 3 (“submit”) was first initiated in the Western text tradition headed by first-generation Exemplar Ex-146#, after which it persisted throughout the history of that branch, except for those in the sub-branch headed by second-generation Exemplar Ex-134. It was then initiated by mixture in the Antiochian text tradition in the second-generation Exemplar Ex-139. It lacks antiquity and sufficient distribution, but has good persistence once initiated.

Variant 3 (omit the word) occurs independently only in the following singularities: P⁴⁶*, B*, C1^a%, and Hier^b%. The NA-27 committee selected this reading on the basis of the antiquity of these singularities which stand alone against all other Egyptian witnesses. The reading has no chance genealogically of being original.

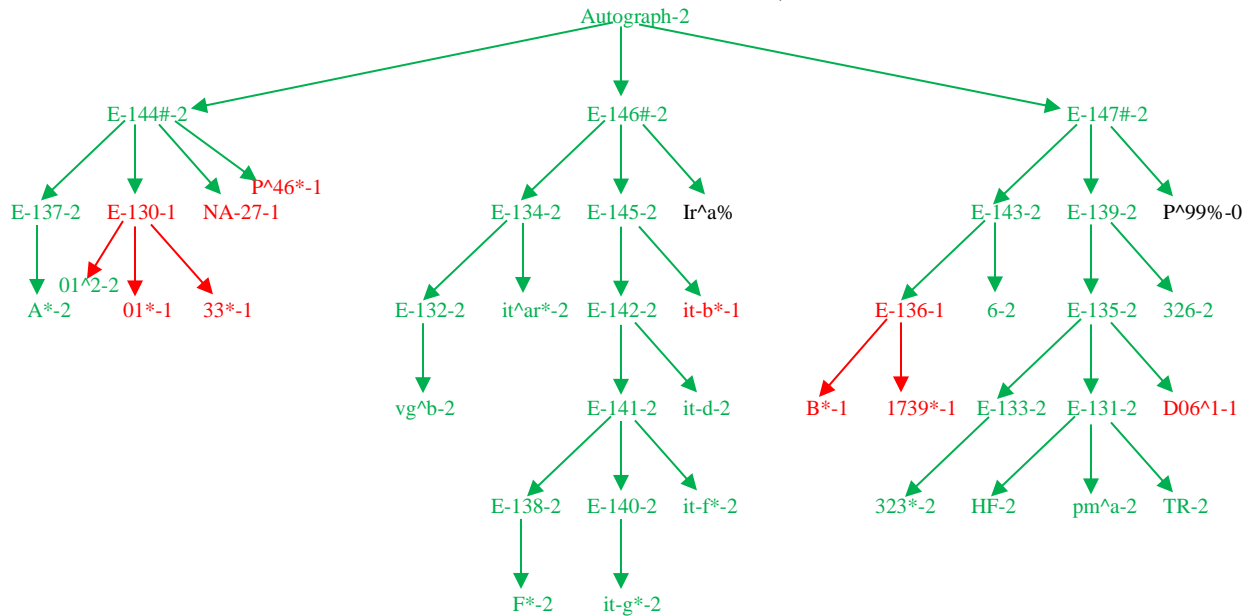
Non-NA-27 in 6:10,2

Another example of where Lachmann-10 found that the autographic reading differed from that of NA-27 occurs in 6:10. Ephesians 6:10 reads: “Finally, my brethren, be strong in the Lord and in the power of His might.” Some witnesses have the words “my brethren” and some do not. The variants are:

- (1) *ομιτ*—omit
- (2) *αδελφοι μου*—my brethren

Figure 4.5 displays the genealogical distribution of these variants. Variant 2 (“my brethren”) has the consensus of all three first-generation recensions: Exemplar Ex-144#, the recension from which the Egyptian text tradition was derived, and Exemplar Ex-147#, the recension from which the Antiochian text tradition was derived, and Exemplar Ex-146#, the recension from which the Western text tradition was derived; it was selected as the autographic reading on this basis with a probability of 100%. It has the support of all the witnesses in all three text traditions except for those in the branch of the Egyptian text tradition headed by second-generation Exemplar Ex-130, and those in the sub-branch of the Antiochian text tradition headed by third-generation Exemplar Ex-136. It also occurs independently in the singularity 01². It has the greatest antiquity, the broadest distribution, and excellent persistence.

Figure 4.5
Distribution of 6:10,2



Variant 1 (omit “my brethren”) was first initiated in the sub-branch of the Egyptian text tradition headed by second-generation Exemplar Ex-130, after which it persisted throughout the history of that branch. Then it was initiated by mixture in the sub-branch of the Antiochian text tradition headed by third-generation Exemplar Ex-136, after which it persisted throughout the history of that branch. It also occurs independently in the following singularities: P⁴⁶*, D06*, D06^c%, D06¹, D06², 81*, 1175*%, 1175^c%, it-b*, it-m*%, it-m^c%, sa^a%, sa^b%, Ambst%, Lcf%, and Spec% (mostly not shown). It lacks antiquity and adequate distribution.

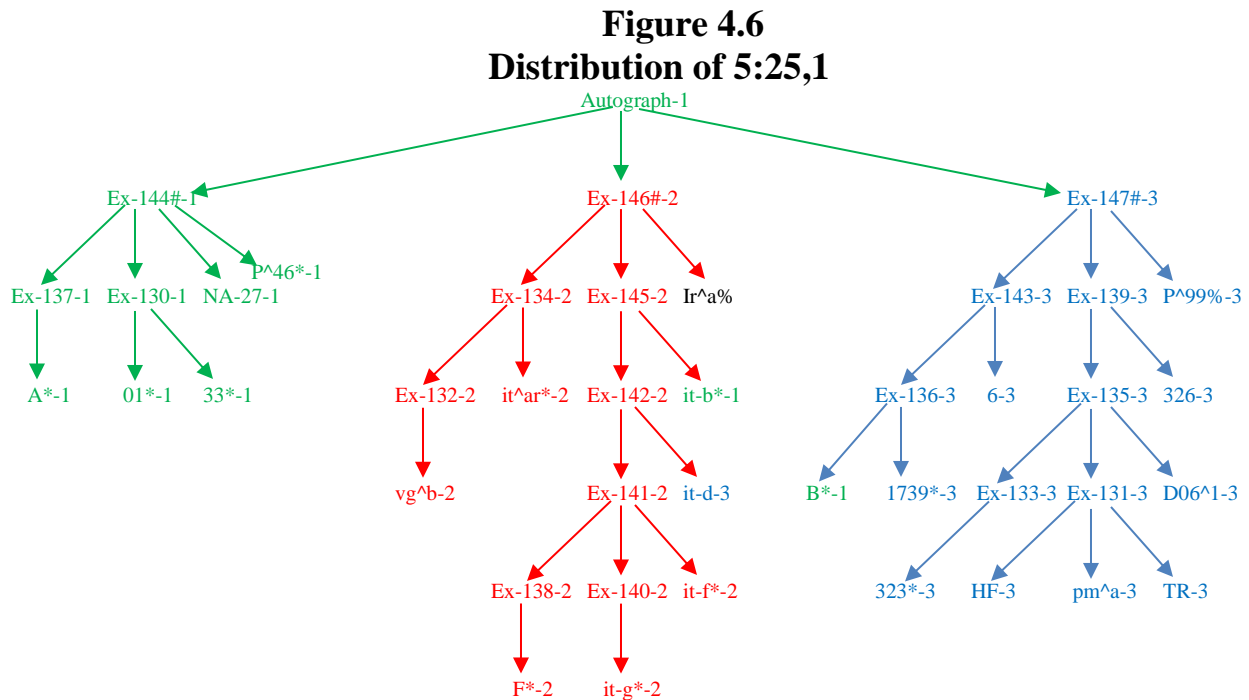
Ambiguity at 5:25,1

Lachmann-10 found two places of variation where no consensus existed for the autographic reading;⁴⁰ one occurs in 5:25. Ephesians 5:25 reads: “Husbands, love your wives, just as Christ also loved the church and gave Himself for her.” Some witnesses have the word “your,” some have “your own,” and some lack the word. The variants are:

- (1) *ομιτ*—omit
- (2) *υμων*—your
- (3) *εαυτων*—his own

⁴⁰ 1:15,1 and 5:25,1.

Figure 4.6 displays the distribution of the variants throughout genealogical history.



This is an instance where there is no consensus among the first-generation recensions, so Lachmann-10 defaulted to the reading of NA-27 on the assumption that it has the best internal evidence. But this leaves the probability of the autographic reading at only 33%. Variant 1 (omit the word), the reading of the Egyptian text tradition headed by Exemplar Ex-144#, lacks consensus with the other first-generation recensions. It has the support of only the witnesses in the Egyptian text tradition. It also occurs independently in the following singularities: B* and vg^{st} (some not shown). It has assumed antiquity, but it lacks distribution, and has only local persistence.

Variant 2 (“your”), the reading of the Western text tradition headed by Exemplar Ex-146#, lacks consensus with the other first-generation recensions. It has the support of only the witnesses in the Western text tradition. It also occurs independently in the following singularities: $sy^h\%$ and $sy^p\%$ (not shown). It lacks antiquity and distribution, and has only local persistence.

Variant 3 (“your own”), the reading of the Antiochian text tradition headed by Exemplar Ex-147#, lacks consensus with the other first-generation recensions. It has the support of only the witnesses in the Antiochian text tradition. It also occurs independently in the following singularities: D06*, P025%, 0278%, 2464%, and it-d (some not shown). It lacks antiquity and distribution, and has only local persistence.

Variants of Theological Interest

Although most textual variations have little or no practical theological significance, a number are found in theological discussions. For example, Bart D. Ehrman argued that the earliest form of the Greek New Testament was less “orthodox” than the canonical form that emerged at the end of the “proto-orthodox” debates that culminated in the dominance of the “orthodox” parties in the fourth century. He wrote:

It was within this milieu of controversy that scribes sometimes changed their scriptural texts to make them *say* what they were already known to *mean*. In the technical parlance of textual criticism—which I retain for its significant ironies—these scribes “corrupted” their texts for theological reasons.⁴¹

He is right about the ante-Nicene debates over the various heretical issues of the time and the emerging dominance of the orthodox parties, but his thesis that the doctrine of the apostles and first-century church, and the earliest form of the New Testament text were less “orthodox” is purely hypothetical. Of course, he provided what he regards as evidence. However, my own evaluation of the evidence he presented to establish his thesis indicates that the readings supported by the “consensus of ancient independent witnesses” are genuinely orthodox as normally interpreted, and that his “orthodox corruptions”—those intended to make orthodox doctrine more explicit—are found only in peripheral sources having little chance of being textually authoritative. The same may be said of any alleged “unorthodox” variants. So, I must conclude that what Ehrman really means is that the traditional canons of textual criticism are of no value for understanding the early text, that the “canonical text” of the New Testament is an “orthodox corruption,” and that the original text, if there ever was one original, is forever lost. The one thing he was sure of according to his “socio-historical” research is that the earliest text was not “orthodox” and the current form of the text (i.e., the NA-28 text) is a corruption of the original text, being altered by orthodox scribes for theological reasons.

Ehrman has a problem, however, because, by his own admission, he does not know what the original text was. So how can he know it was corrupted? Also, evidently, he does not know, or at least he rejects, the fact that each existing witness has within its variants the history of its genealogical descent from the original text, and the fact that genealogical principles reconstruct the original text back to the first century, the time of the apostles. So, the reconstructed text is a first

⁴¹ Bart D. Ehrman, *The Orthodox Corruption of Scripture* (New York: Oxford University Press, 1993), xii; italics his.

century event, not a fourth century one, and it is theologically orthodox, not a corruption. The following is some of the evidence he presented regarding doctrine in Ephesians:

“The head” in 4:15,2

Ehrman alleged that orthodox scribes altered the text to subordinate Christ to God within the divine economy (p. 268). Regarding Ephesians 4:15, he stated:

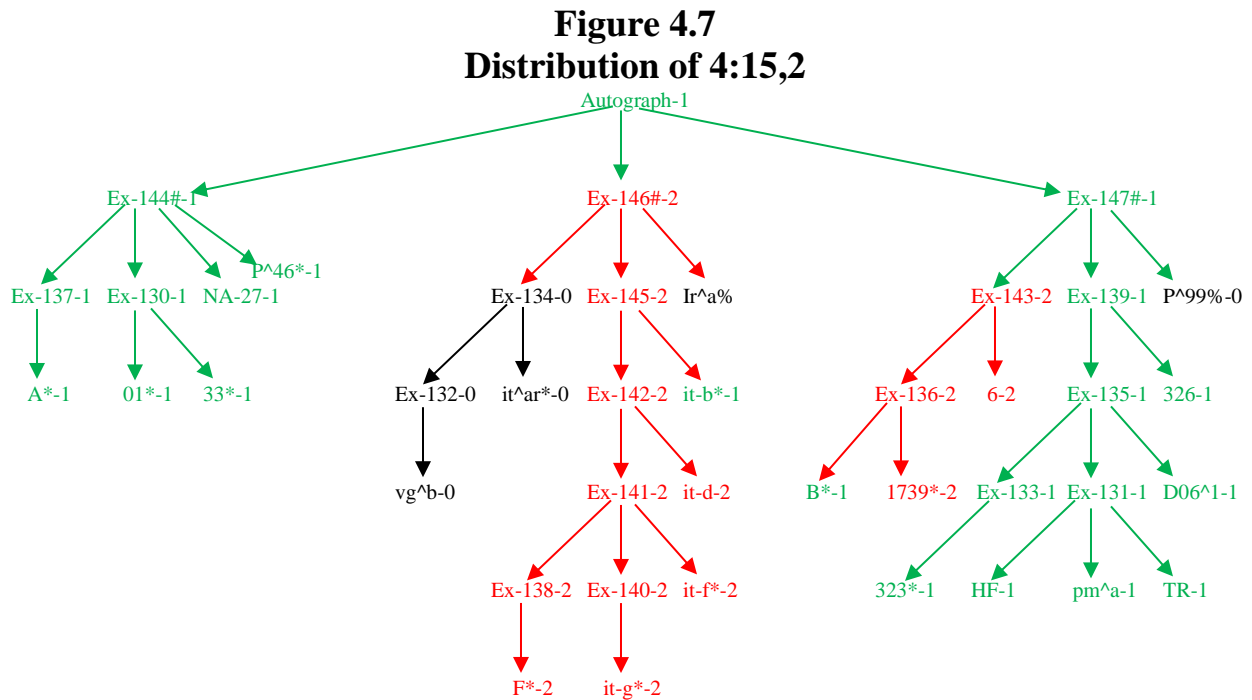
The priority of God the Father over Christ is also held up in an early modification of Ephesians 4:15, where the author speaks of “growing up in every way into him who is the head, Christ,” (ἀληθεύοντες δὲ ἐν ἀγάπῃ ἀυξήσωμεν εἰς αὐτὸν τὰ πάντα, ὃς ἐστὶν ἡ κεφαλή, Χριστός). Elsewhere in the New Testament Christ is spoken of as the “head” of the church (Eph 1:22; 5:23; Col 1:18) or of a “man/husband” (1 Cor 11:3a) or of every “rule and authority” (Col 2:10). For orthodox Christians, however, it was important to affirm the teaching of 1 Corinthians 11:3b as well, that Christ was not the absolute head over all things, because over him stood God, the “head” of all. Without a qualifier, Ephesians 4:15 is too readily construed as giving Christ the position that belongs to God the Father alone (he is “the” head), so that it comes as no surprise to find our earliest manuscript of the letter, penned already in the third century, modifying the statement to eliminate the possible misconstrual. In p⁴⁶ Christians are said to “grow up in every way into him who is the head of Christ” (i.e., God; ἡ κεφαλή του Χριστου). Other variants achieve a similar end, eliminating the absolute character of Christ's “headship” simply by deleting the article before κεφαλή.⁴²

Ephesians 4:15 reads: “but, speaking the truth in love, may grow up in all things into Him who is the head—Christ.” The NA-27 database provides two separate places of variation with respect to this matter. One deals with the presence or absence of a definite article before the word “head,” and the other deals with the various renderings of the word “Christ.” Regarding the definite article, there are two variants here:

- (1) ἡ—the
- (2) ομιτ—omit

Figure 4.7 displays the genealogical distribution of these variants. Variant 1 (“the”) has the consensus of two of the first-generation recensions: Exemplar Ex-144#, the recension from which the Egyptian text tradition was derived, and Exemplar Ex-147#, the recension from which the Antiochian text tradition was derived; it was selected as the autographic reading on this basis with a probability of 67%. It has the support of all the witnesses in the Egyptian text tradition headed by first-generation Exemplar Ex-144#. It also has the support of all the witnesses in the Antiochian text tradition headed by first-generation Exemplar Ex-147#, except for those in the sub-branch headed by second-generation Exemplar Ex-143. It also occurs independently as a singularity in MS B*. It has the greatest antiquity, the broadest distribution, and excellent persistence.

⁴² Ehrman, pp. 268-69.



Variant 2 (omit “the”) was first initiated in the branch of the Western text tradition headed by first-generation Exemplar Ex-146#, after which it persisted throughout the history of that branch, except for those in the sub-branch headed by second-generation Exemplar Ex-134 which have lacunae here. It was then introduced by mixture into the sub-branches of the Antiochian text tradition headed by second-generation Exemplar Ex-143, after which it persisted throughout the history of that branch, except for MS B*. This reading lacks antiquity and adequate distribution, but it has good persistence once introduced. Ehrman was right, some scribes omitted the definite article here, but it did not affect the canonical text.

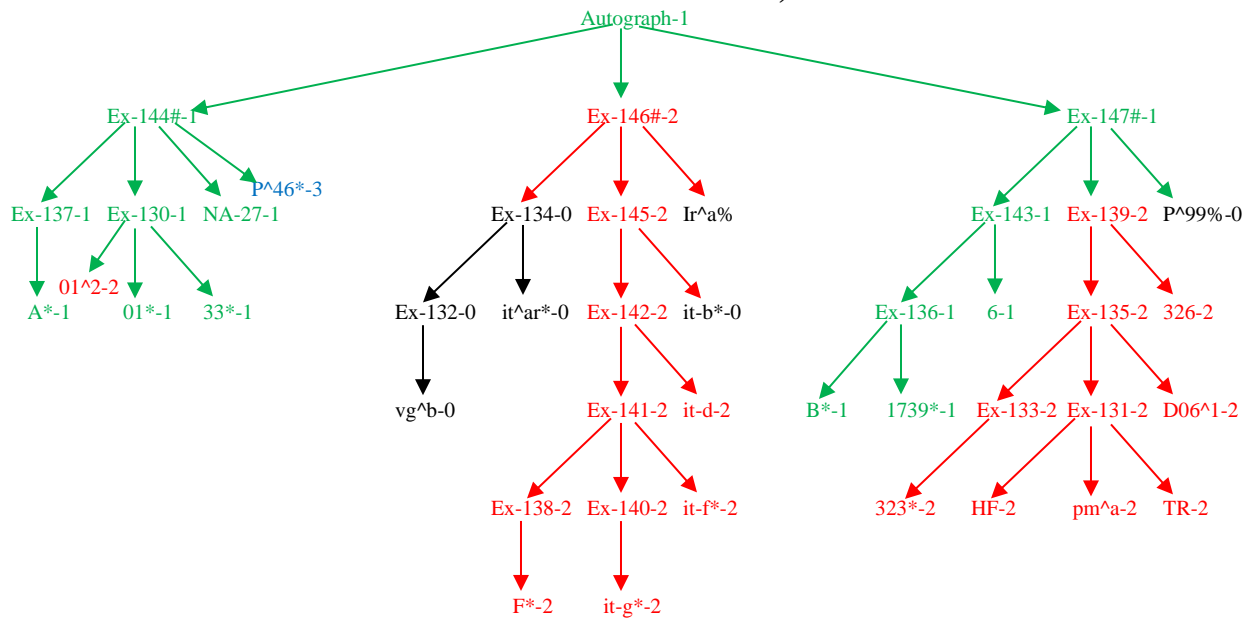
“Of Christ” in 4:15,3

Regarding the variations of the word “Christ” mentioned above, there are three variants:

- (1) *Χριστος*—Christ
- (2) *ο Χριστος*—the Christ
- (3) *του Χριστου*—of the Christ

Figure 4.8 displays the genealogical distribution of these variants.

Figure 4.8
Distribution of 4:15,3



Variant 1 (“Christ”) has the consensus of two of the first-generation recensions: Exemplar Ex-144#, the recension from which the Egyptian text tradition was derived, and Exemplar Ex-147#, the recension from which the Antiochian text tradition was derived; it was selected as the autographic reading on this basis with a probability of 67%. It has the support of all the witnesses in the Egyptian text tradition headed by first-generation Exemplar Ex-144#, except for MSS P⁴⁶* and 01². It also has the support of all the witnesses in the Antiochian text tradition headed by first-generation Exemplar Ex-147#, except for those in the branch headed by second-generation Exemplar Ex-139. It has the greatest antiquity, the broadest distribution, and good persistence.

Variant 2 (“the Christ”) was first initiated in the branch of the Western text tradition headed by first-generation Exemplar Ex-146#, after which it persisted throughout the history of that branch, except for those in the sub-branch headed by second-generation Exemplar Ex-134 which have lacunae here. It was then introduced by mixture into the branches of the Antiochian text tradition headed by second-generation Exemplar Ex-139, after which it persisted throughout the history of that branch. This reading lacks antiquity and adequate distribution, but it has good persistence once introduced.

Variant 3 (“of the Christ”) occurs independently as a singularity only in MS P⁴⁶*. The reading has no chance genealogically of being original. Ehrman was right, the scribe of P⁴⁶*

altered the phrase to read “of the Christ,” but its lone influence failed to affect the orthodoxy of the canonical text.

The Kingdom of Christ in 5:5,2

Ehrman further stated:

The issue of God's priority over Christ may also be responsible for the changes attested in the next chapter of Ephesians, where the author speaks of “the inheritance in the Kingdom of Christ and God” (βασιλεία τοῦ Χριστοῦ καὶ θεοῦ, v. 5). The wording of this unusual phrase may itself have led scribes, at least as early as the early third century, to change it to the standard “Kingdom of God” (p⁴⁶ Tertullian), or to the sequence more to be expected, the “Kingdom of God and of Christ” (F G al).⁴³

Ephesians 5:5 reads: “For this you know, that no fornicator, unclean person, nor covetous man, who is an idolater, has any inheritance in the kingdom of Christ and God.” There are four variants of the phrase “of Christ and God” here:

- (1) *του Χριστου και θεου*—of Christ and God
- (2) *του θεου*—of God
- (3) *του θεου και Χριστου*—of God and Christ
- (4) *Χριστου του θεου*—Christ of God

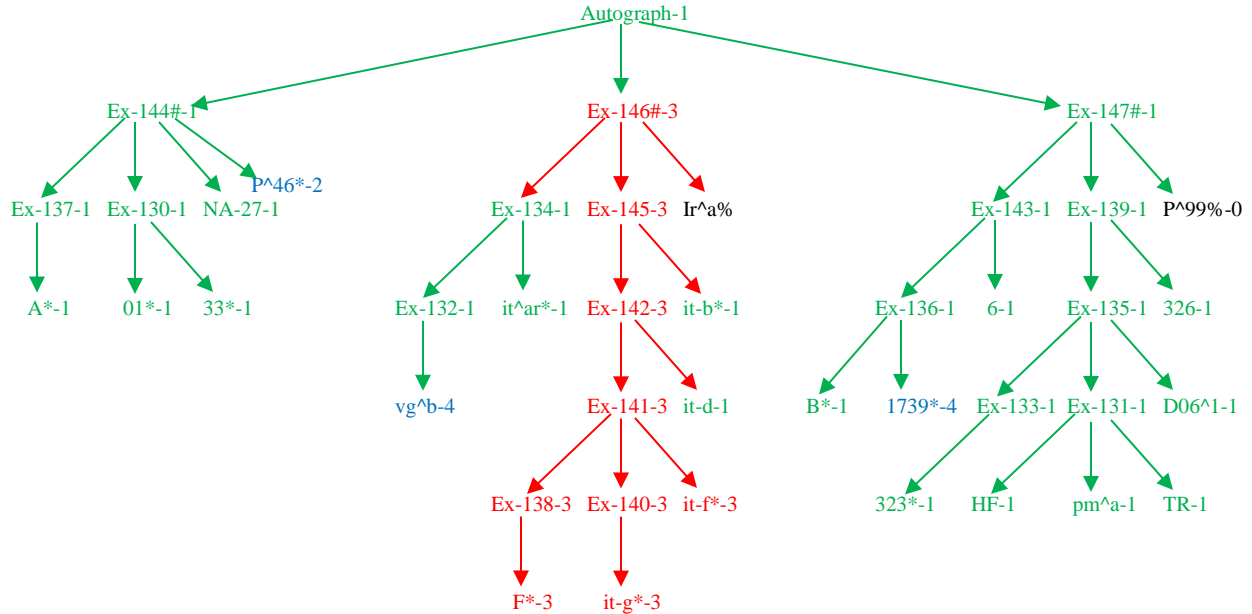
Figure 4.9 displays the genealogical distribution of these variants. Variant 1 (“of Christ and God”) has the consensus of two of the first-generation recensions: Exemplar Ex-144#, the recension from which the Egyptian text tradition was derived, and Exemplar Ex-147#, the recension from which the Antiochian text tradition was derived; it was selected as the autographic reading on this basis with a probability of 67%. It has the support of all the witnesses in the Egyptian text tradition headed by first-generation Exemplar Ex-144#, except for MSS P⁴⁶*. It also has the support of all the witnesses in the Antiochian text tradition headed by first-generation Exemplar Ex-147#, except for MS 1739*. It also has the support of all the witnesses in the sub-branch of the Western text tradition headed by second-generation Exemplar Ex-134, except for MS vg^ab*. It has the greatest antiquity, the broadest distribution, and good persistence.

Variant 3 (“of God and Christ”) was first initiated in the Western text tradition headed by first-generation Exemplar Ex-146#, after which it persisted throughout the history of that branch, except for those in the sub-branch headed by second-generation Exemplar Ex-134. It also occurs

⁴³ Ehrman, p. 269.

independently as a singularity in MS $\text{bo}^{\wedge}\text{b}^{\%}$. This reading lacks antiquity and adequate distribution, but it has good persistence once introduced.

Figure 4.9
Distribution of 5:5,2



Variant 2 (“of God”) occurs independently as a singularity only in MS $\text{P}^{\wedge}46^*$. The reading has no chance genealogically of being original.

Variant 4 (“Christ of God”) occurs independently as singularities only in MSS 1739* and $\text{vg}^{\wedge}\text{b}$. The reading has no chance genealogically of being original. Ehrman was right, some scribes altered the phrase “of Christ and God,” but local alterations failed to affect the orthodoxy of the canonical text.

Of His Flesh and Bone in 5:30,1

Ehrman further stated:

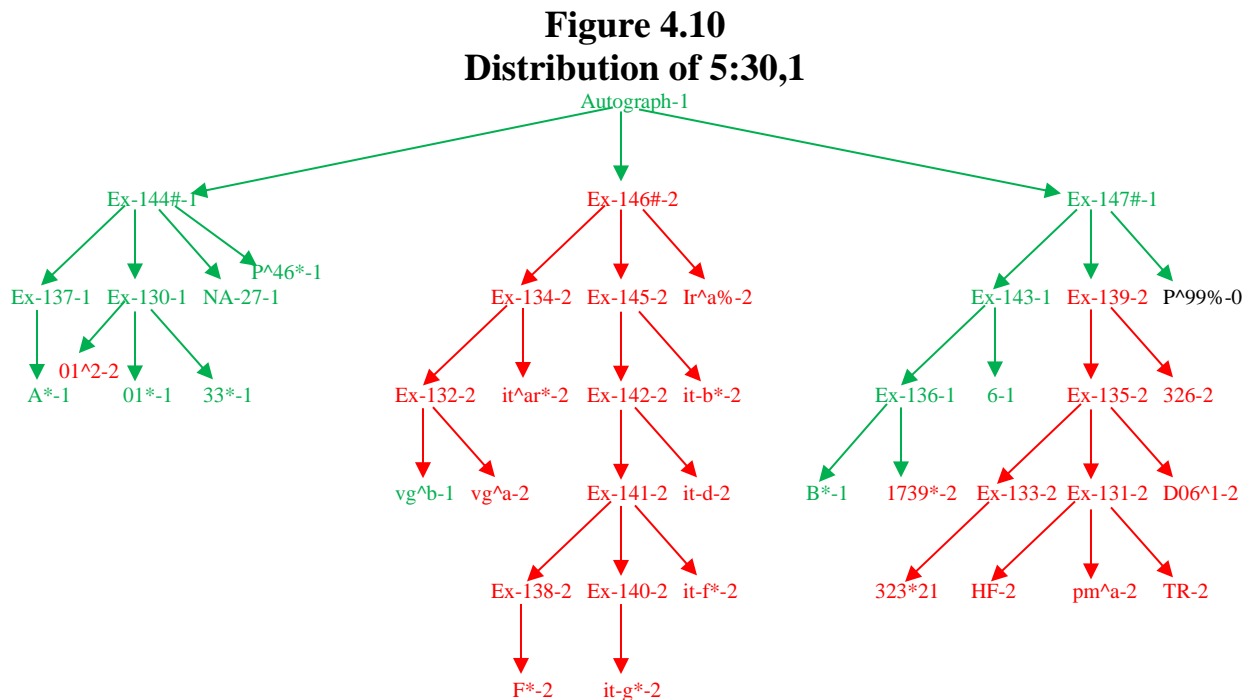
A final example of a variant generated by such polemical concerns is the widely attested addition to Ephesians 5:30. The variant is intriguing in part because of its context: the passage as a whole is parenetic rather than christological. Nonetheless, in the midst of his discussion of marital relations, the author draws an analogy for a husband's treatment of his wife from Christ's treatment of the church. A husband should love his wife as his own body, in imitation of Christ, "for no one hates his own flesh, but feeds and nourishes it, just as Christ does for the Church, for we are members of his body" (vv. 29—30). The author then cites Genesis 2:24 to support his argument: "For this reason, a man will leave his father and mother and cleave to his wife, and the two shall become one flesh." There can be little doubt that this scriptural citation was to some degree responsible for the modification of verse 30 (“we are members of his body”) in the vast majority of manuscripts, some of which can be dated all the way back into the second century. In these witnesses the text affirms

that “we are members of his body, of his flesh and of his bones.” The addition, of course, echoes Genesis 2:23: “The man said, ‘This at last is flesh of my flesh and bone of my bones.’” But the Change could scarcely have been made simply because Genesis 2:24 is quoted subsequently. It should not be overlooked, in this connection, that with the addition the church is said not only to be the body of Christ, but also to consist of his own flesh and bones. Does this not suggest something of Christ's own body, that it comprised flesh and bones?⁴⁴

Ephesians 5:30 reads: “For we are members of His body, of His flesh and of His bones.” Some witnesses have the phrase “of His flesh and of His bones” and some do not. There are two variants here:

- (1) *omit*—omit
- (2) *ἐκ τῆς σαρκὸς αὐτοῦ καὶ ἐκ τῶν ὀστέων αὐτοῦ*—of His flesh and of His bones

Figure 4.10 displays the genealogical distribution of these variants.



Variant 1 (omit the phrase) has the consensus of two of the first-generation recensions: Exemplar Ex-144#, the recension from which the Egyptian text tradition was derived, and Exemplar Ex-147#, the recension from which the Antiochian text tradition was derived; it was selected as the autographic reading on this basis with a probability of 67%. It has the support of all the witnesses in the Egyptian text tradition headed by first-generation Exemplar Ex-144#, except for MS 01^2. It also has the support of all the witnesses in the Antiochian text tradition headed by

⁴⁴ Ehrman, p. 236.

first-generation Exemplar Ex-147#, except for those in the branch headed by second-generation Exemplar Ex-139. It also occurs as an independent singularity in MS vg^b*. It has the greatest antiquity, the broadest distribution, and good persistence.

Variant 2 (“of His flesh and of His bones”) was first initiated in the Western text tradition headed by first-generation Exemplar Ex-146#, after which it persisted throughout the history of that branch, except for MS vg^b. It was then introduced by mixture into the branch of the Antiochian text tradition headed by second-generation Exemplar Ex-139, after which it persisted throughout the history of that branch. It also occurs as an independent singularity in MSS 01² and 1739^c. This reading lacks antiquity and adequate distribution, but it has good persistence once introduced.

Ehrman was right, some scribes did add the phrase; and it did affect the text underlying some English and Latin translations. But it did not affect the canonical text.

Other Variants of Theological Interest

The following is a discussion of some other passages in Ephesians where doctrinal issues may seem significant to some readers.

Omit a Phrase in 3:14,1

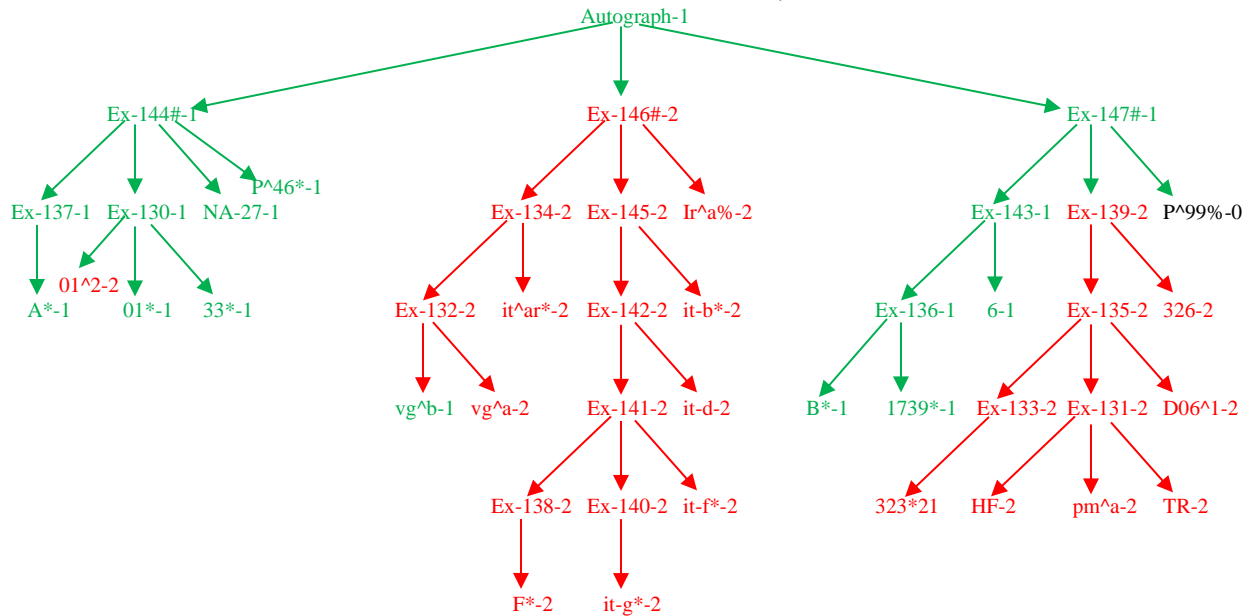
Ephesians 3:14 reads: “For this reason I bow my knees to the Father of our Lord Jesus Christ.” Some witnesses have the phrase “of our Lord Jesus Christ,” and some do not. The variants are:

(1) ομιτ—omit

(2) του κυριου ημων Ιησου Χριστου—of our Lord Jesus Christ

Figure 4.11 displays the distribution of the variants throughout genealogical history. Variant 1 (omit the phrase) has the consensus of two of the first-generation recensions: Exemplar Ex-144#, the recension from which the Egyptian text tradition was derived, and Exemplar Ex-147#, the recension from which the Antiochian text tradition was derived; it was selected as the autographic reading on this basis with a probability of 67%. It has the support of all the witnesses in the Egyptian text tradition headed by first-generation Exemplar Ex-144#, except for MS 01². It also has the support of all the witnesses in the Antiochian text tradition headed by first-generation Exemplar Ex-147#, except for those in the branch headed by second-generation Exemplar Ex-139. It also occurs as an independent singularity in MSS vg^b* and Or^b%. It has the greatest antiquity, the broadest distribution, and good persistence.

Figure 4.11
Distribution of 3:14,1



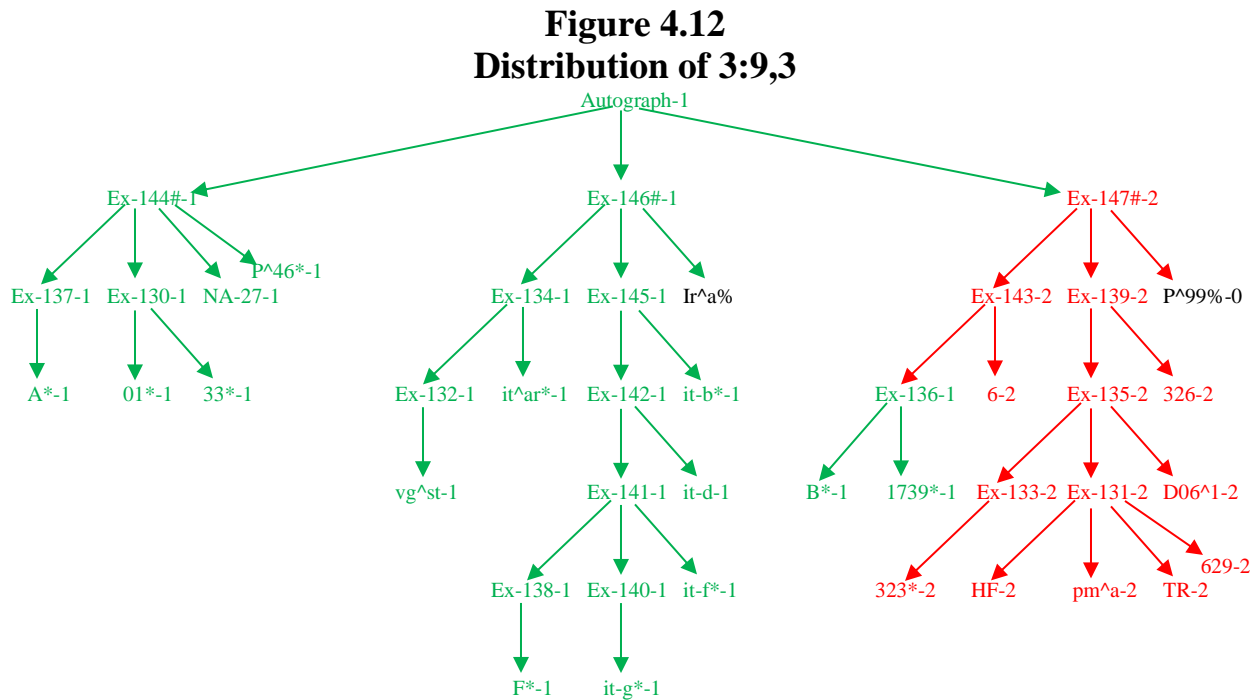
Variant 2 (“of our Lord Jesus Christ”) was first initiated in the Western text tradition headed by first-generation Exemplar Ex-146#, after which it persisted throughout the history of that branch, except for MS vg^b . It was then introduced by mixture into the branch of the Antiochian text tradition headed by second-generation Exemplar Ex-139, after which it persisted throughout the history of that branch. It also occurs as an independent singularity in MSS $O1^2$ and 1881^* . This reading lacks antiquity and adequate distribution, but it has good persistence once introduced.

Omit “Jesus Christ” at 3:9,3

Ephesians 3:9 reads: “and to make all see what is the fellowship of the mystery, which from the beginning of the ages has been hidden in God who created all things through Jesus Christ.” Some witnesses have the words “through Jesus Christ” and some do not. The variants are:

- (1) $\omicron\mu\iota\tau$ —omit
- (2) $\delta\iota\alpha$ Ἰησοῦ Χριστοῦ —through Jesus Christ

Figure 4.12 displays the distribution of the variants throughout genealogical history.



Variant 1 (omit the phrase) has the consensus of two of the first-generation recensions: Exemplar Ex-144#, the recension from which the Egyptian text tradition was derived, and Exemplar Ex-146#, the recension from which the Western text tradition was derived; it was selected as the autographic reading on this basis with a probability of 67%. It has the support of all the witnesses in the Egyptian text tradition headed by first-generation Exemplar Ex-144#. It also has the support of all the witnesses in the Western text tradition headed by first-generation Exemplar Ex-146#, except for MS 0278%. It also has the support, by mixture, of all the witnesses in the sub-branch of the Antiochian text tradition headed by third-generation Exemplar Ex-136. It also occurs as independent singularities in MSS 044* and sy^{ap}%. It has the greatest antiquity, the broadest distribution, and good persistence.

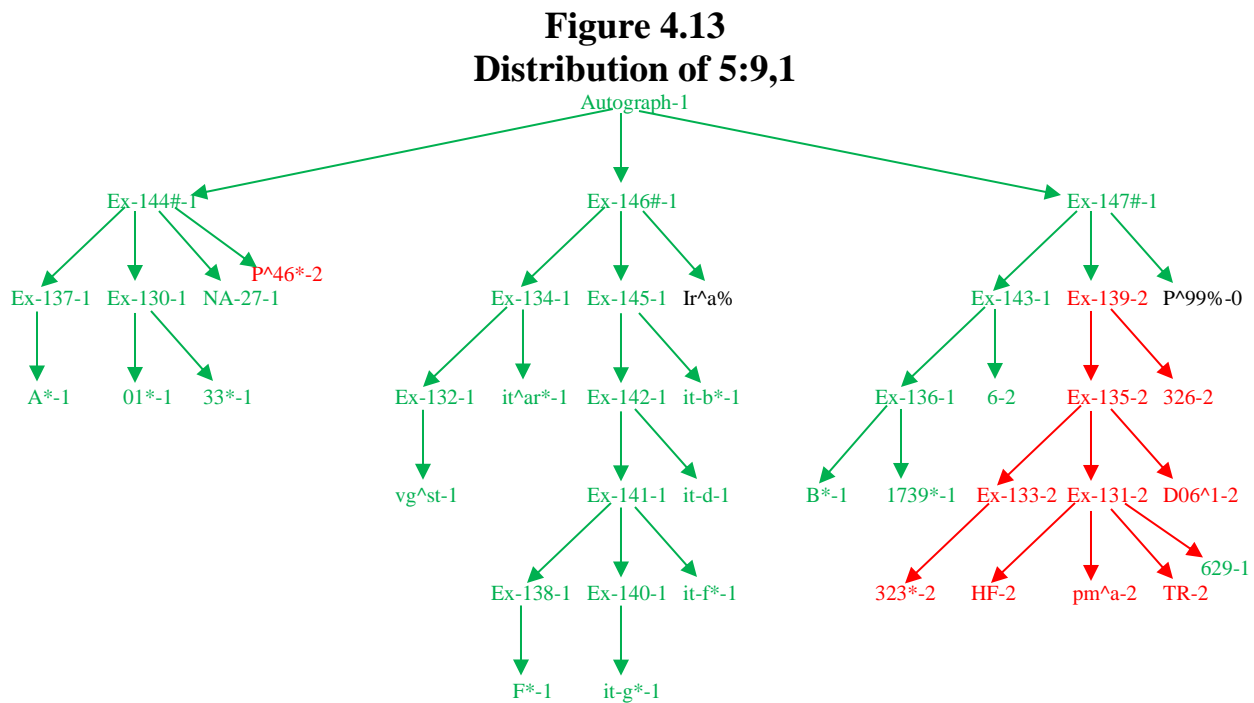
Variant 2 (“through Jesus Christ”) was first initiated in the Antiochian text tradition headed by first-generation Exemplar Ex-147#, after which it persisted throughout the history of that branch, except for those in the sub-branch headed by third-generation Exemplar Ex-136. It also occurs as independent singularities in MSS 0278% and 1881*. This reading lacks antiquity and adequate distribution, but it has good persistence once introduced.

Light or Spirit in 5:9,1

Ephesians 5:9 reads: “for the fruit of the Spirit is in all goodness, righteousness, and truth.” Some witnesses have the word “Spirit” and some have “light.” The variants are:

- (1) *φωτος*—light
 (2) *πνευματος*—Spirit

Figure 4.13 displays the distribution of the variants throughout genealogical history. Variant 1 (“light”) has the consensus of all three of the first-generation recensions: Exemplar Ex-144#, the recension from which the Egyptian text tradition was derived, and Exemplar Ex-147#, the recension from which the Antiochian text tradition was derived, and Exemplar Ex-146#, the recension from which the Western text tradition was derived; it was selected as the autographic reading on this basis with a probability of 100%. It has the support of all the witnesses in the Egyptian text tradition, except for MS P⁴⁶*, and all the witnesses in the Western text tradition, and all the witnesses in the Antiochian text tradition except for those in the branch headed by second-generation Exemplars Ex-139. It also has the support of the following independent singularities: 629* and sy^hp% (not shown). It has the greatest antiquity, the broadest distribution, and excellent persistence.



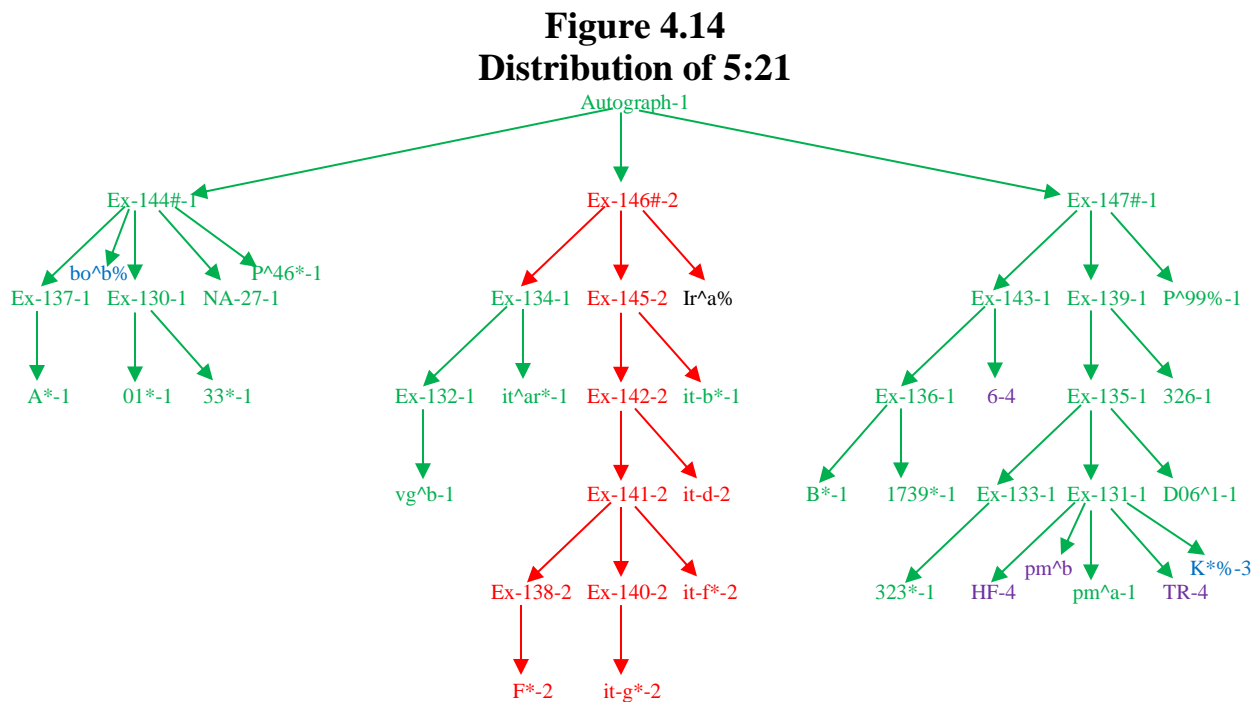
Variant 2 (“Spirit”) was first initiated in the branch of the Antiochian text tradition headed by second-generation Exemplar Ex-139, after which it persisted throughout the history of that branch. It also occurs as an independent singularity in MS P⁴⁶*. This reading lacks antiquity and adequate distribution, but it has good persistence once introduced.

Jesus, Christ, or God in 5:21

Ephesians 5:21 reads: “submitting to one another in the fear of God.” There are four variants of the word translated “God” here:

- (1) *Χριστου*—Christ
- (2) *Ιησου Χριστου*—Jesus Christ
- (3) *κυριου*—the Lord
- (4) *θεου*—God

Figure 4.14 displays the genealogical distribution of these variants.



Variant 1 (“Christ”) has the consensus of two of the first-generation recensions: Exemplar Ex-144#, the recension from which the Egyptian text tradition was derived, and Exemplar Ex-147#, the recension from which the Antiochian text tradition was derived; it was selected as the autographic reading on this basis with a probability of 67%. It has the support of all the witnesses in the Egyptian text tradition headed by first-generation Exemplar Ex-144#, except for MSS 81*% and 630%. It also has the support of all the witnesses in the Antiochian text tradition headed by first-generation Exemplar Ex-147#, except for MSS 6, Cl^a%, D06^c%, D06^1, D06^2, 044*, 614*, pm^b, K*%, TR, HF, and RP. It also has the support of all the witnesses in the sub-branch of the Western text tradition headed by second-generation Exemplar Ex-134. It also occurs as

independent singularities in MSS it-b*, it^m*, and it-m^c (some not shown). It has the greatest antiquity, the broadest distribution, and excellent persistence.

Variant 2 (“Jesus Christ”) was first initiated in the branch of the Western text tradition headed by first-generation Exemplar Ex-146#, after which it persisted throughout the history of that branch, except for the witnesses in the sub-branch headed by second-generation Exemplar Ex-134. It also occurs as independent singularities in MSS D06^c, D06¹, and D06² (not shown). This reading lacks antiquity and adequate distribution, but it has good persistence once introduced.

Variant 3 (“the Lord”) occurs independently as singularities only in MSS K* and bo^b. The reading has no chance genealogically of being original.

Variant 4 (“God”) occurs independently as singularities only in MSS 6, 81*, 614*, 630*, 1881*, pm^b, TR, HF, RP, Ambst, and Cl^a (some not shown). Interestingly, TR, HF, and RP follow pm^b, which stands against pm^a and most of the other Byzantine/Antiochian witnesses. The reading has no chance genealogically of being original.

Tracing Any Variant

The above studies trace the history of variants of particular interest using the computer program Lachmann-10. But one may trace the history of any other desired variant using the information in Appendices D, F, and H. Take for example the variants at variation unit 32 at reference 2:5,1:

Ephesians 2:5 reads: “even when we were dead in trespasses, made us alive together with Christ (by grace you have been saved),” There are five variations of the word “trespasses” in this verse. To trace the genealogical distribution of these variants, walk through the following steps:

Step 1: Using Appendices D and F, find the variant readings.

Appendix D reads:

32.1	2:5,1.1	τοις παραπτωμασιν	0.67
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That is, the autographic reading is the first variant (32.1), *τοις παραπτωμασιν* “in trespasses” and that its probability is 0.67 (67%).

Appendix F reads:

32.2	2:5,1.2	P ⁴⁶ *	τ. σωμασιν
32.3	2:5,1.3	Ex-146#	ταις αμαρτιαις
32.4	2:5,1.4	Ex-149\$	τοις παρ. και ταις αμ.
32.5	2:5,1.5	Ex-150\$	εν τοις παρ. και ταις επιθυμιαις

Variant 2 is *τοις σωμασιν* “in the bodies” initiated in MS P⁴⁶*.

Variant 3 is *ταις αμαρτιαις* “in sins” initiated in virtual Exemplar Ex-146#.

Variant 4 is *τοις παραπτωμασιν και ταις αμαρτιαις* “in trespasses and sins” initiated in virtual Exemplar Ex-149\$.

Variant 5 is *εν ταις παραπτωμασιν και ταις επιθυμιαις* “in trespasses and lusts” initiated in virtual Exemplar Ex-150\$.

Step 2: Using Appendix H, find where these variants were initiated in the history of the text.

Appendix H reads:

32.1	2:5,1.1	[0278*%]<4>; Autograph;
32.2	2:5,1.2	P ⁴⁶ *<2>;
32.3	2:5,1.3	Ex-146#<1>;
32.4	2:5,1.4	[044*]<5>; [Or ^{lat^a} %]<2>; Ex-149\$<1>;
32.5	2:5,1.5	[B*]<4>; [Ex-134]<2>; Ex-150\$<1>;

That is, the first variant was initiated in the Autograph, and by mixture it was subsequently introduced in 0278*%. The second variant was initiated only in P⁴⁶*. The third variant was initiated only in Exemplar Ex-146#. The fourth variant was initiated in Exemplar Ex-149\$, and by mixture it was subsequently introduced in 044* and Or^{lat^a}%. The fifth variant was initiated in Exemplar Ex-150\$, and by mixture it was subsequently introduced in Exemplar Ex-134 and MS B*.

Step 3: copy figure 3.2 from chapter 3 on a separate sheet of paper, as on the next page, and write the variant numbers at the places on diagram where each variant was initiated; use green for the autographic reading (1), red for the first variant (2), blue for the second variant (3), purple for the third variant (\$), and brown for the fourth variant (5), as illustrated in figure 4.15.

Step 4: Using its designated color, let each initiated variant extend by inheritance to all its descendants down to its extant terminal witnesses, or until changed by a new initiation, as shown in figure 4.16. Witnesses marked with % are fragmentary; their readings are often lacking; they may be ignored in this step.

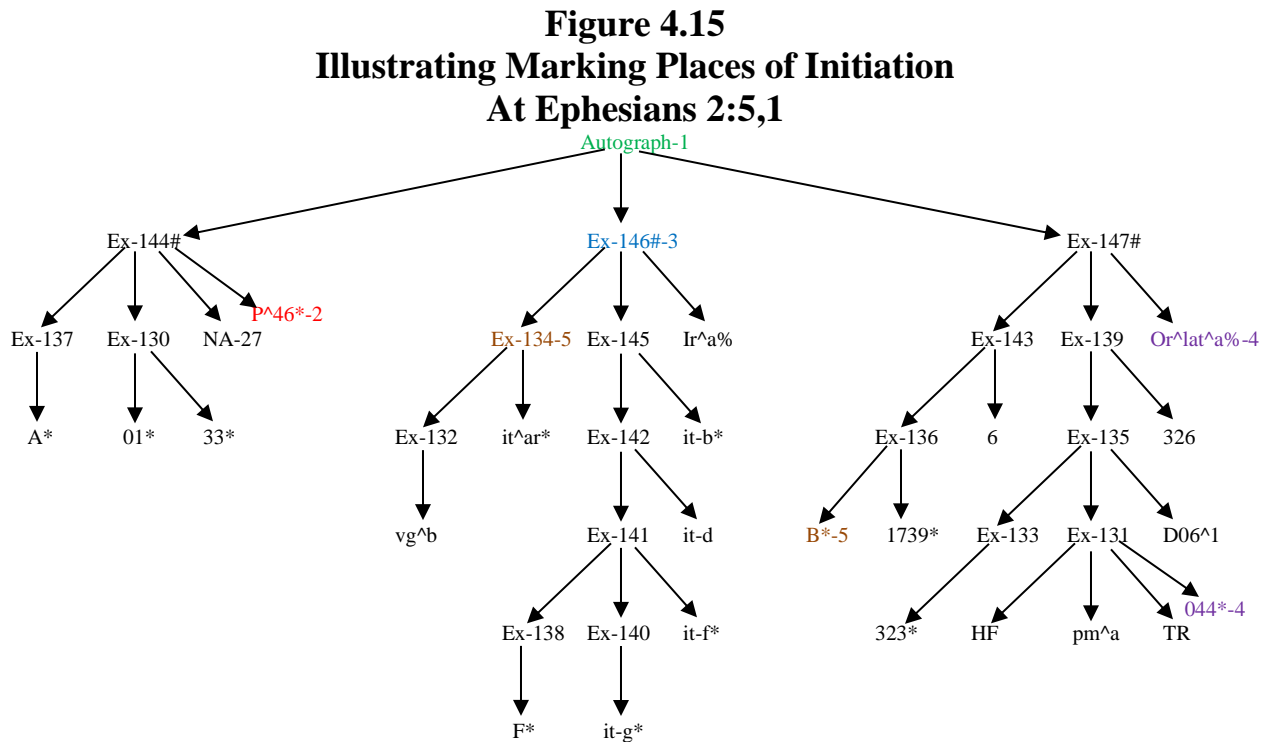
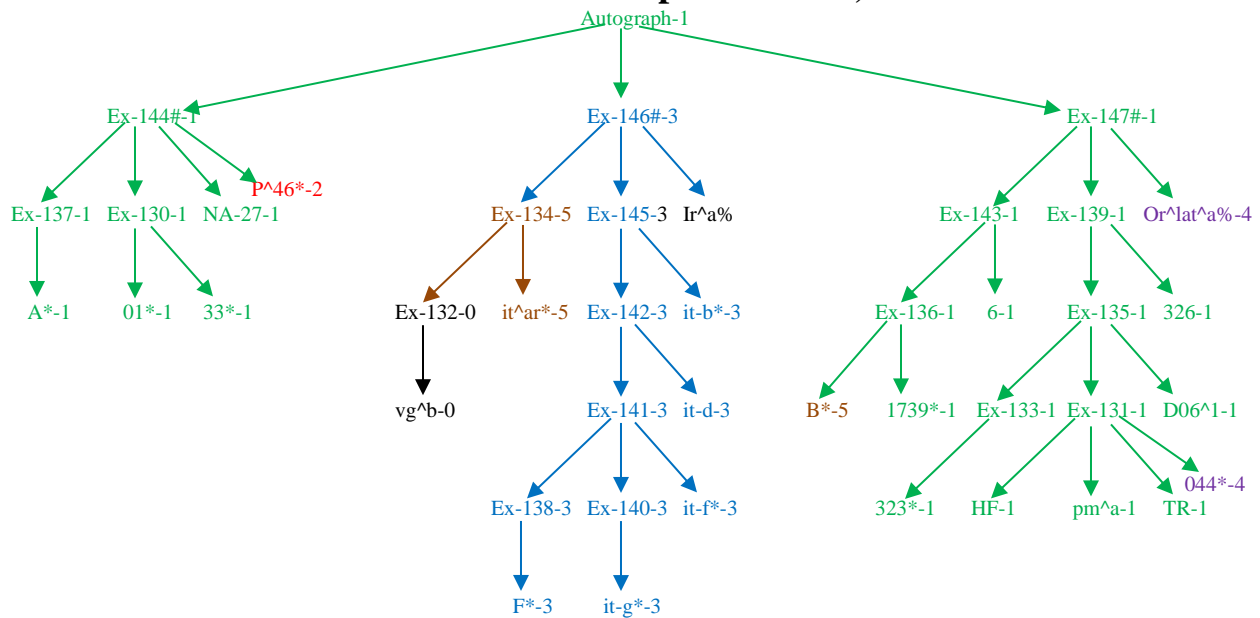


Figure 4.16 displays the distribution of the variants throughout genealogical history. Variant 1 (“in trespasses”) has the consensus of two of the first-generation recensions: Exemplar Ex-144#, the recension from which the Egyptian text tradition was derived, and Exemplar Ex-147#, the recension from which the Antiochian text tradition was derived; it was selected as the autographic reading on this basis with a probability of 67%. It has the support of all the witnesses in the Egyptian text tradition headed by first-generation Exemplar Ex-144#, except for MS P⁴⁶*. It also has the support of all the witnesses in the Antiochian text tradition headed by first-generation Exemplar Ex-147#, except for MSS 044* and Or^{lat^a}%. It also occurs as an independent singularity in MS 0278*% (not shown). It has the greatest antiquity, the broadest distribution, and excellent persistence.

Variant 2 (“in the bodies”) occurs independently as a singularity only in MS P⁴⁶*. The reading has no chance genealogically of being original.

Variant 3 (“in sins”) was first initiated in the branch of the Western text tradition headed by first-generation Exemplar Ex-146#, after which it persisted throughout the history of that branch, except for the witnesses in the sub-branch headed by second-generation Exemplar Ex-134. This reading lacks antiquity and adequate distribution, but it has good persistence once introduced.

Figure 4.16
Distribution of Ephesians 2:5,1



Variant 4 (“in trespasses and sins”) only occurs as independent singularities in MSS 044* and Or^{lat}a%. This reading has no possibility of being original.

Variant 5 (“in trespasses and lusts”) was first initiated in the sub-branch of the Western text tradition headed by second-generation Exemplar Ex-134, after which it persisted throughout the history of that branch. It also occurs as an independent singularity in MS B*. This reading lacks antiquity and distribution.

Conclusion

This chapter identifies the autographic readings of the Greek text of the Book of Ephesians and how they were determined. It provides the genealogical history of each variant reading, locating where each reading originated, and describing how each reading was distributed by inheritance throughout that history. It discusses the principal recensions, locating their origin in history, and identifying their characteristic readings.

CHAPTER 5

SUMMARY AND CONCLUSIONS

The genealogical software, and the theory it emulates, were successful in reconstructing a genealogical history of the Greek text of the Epistle to the Ephesians. The software made use of a modified version of the textual apparatus in the 27th edition of the Nestle-Aland Greek New Testament. Using index numbers to represent the variant readings in the witnesses to the text, the computer constructed a kind of genetic code for each witness based on its unique combination of variant readings. Then employing the basic principles of heredity, a relatively simple tree diagram was constructed representing the genealogical history of the text.

Heredity is the underlying principle of genealogical relationships. Because manuscripts of a text were copied from exemplars of earlier generations of the text, of necessity they have genealogical relationships. For manuscripts, quantitative affinity (consensus of variant readings) and a sibling gene, coupled with historical directionality constitute the variables for computing genealogical heredity. For variant readings, on the other hand, the domain of heredity is limited to their place of variation. There, heredity is determined by consensus among sibling sister witnesses and by what I call evidence of variant inheritance.¹ The software uses the heredity of manuscripts and the heredity of variant readings to guide the reconstruction of a historical genealogical tree diagram.

Mixture occurred when a scribe copied from more than one exemplar—a primary parent exemplar and one or more secondary exemplars. The readings of a manuscript were inherited from its primary parent exemplar or borrowed by mixture from its secondary parent exemplars; otherwise, a variant was newly introduced by scribal error (either accidentally or intentionally) thus initiating a new line of heredity. A good number of witnesses had no mixture, but considerable mixture occurred in others. As it turned out, the presence of mixture does not affect the

¹ At any place in the genealogical history of a text, the evidence of a variant's inheritance is its presence in other witnesses of the same or earlier generations.

reconstruction of the genealogical tree, but it is very useful in identifying the places in genealogical history where variants were initiated, in tracing the genealogical history of variants, and in identifying recensions.

The Effect of Recensions

The genealogical theory and associated software were designed to reconstruct the genealogical history of texts where the copying process was simple, without any radical discontinuities. It was anticipated that the initiation and transmission of textual variants would be gradual and that the tree would develop three or four main branches corresponding to the commonly accepted text types. However, the theory and software also made provision for radical dislocations if they perchance had occurred. As it turned out radical dislocations did occur in the form of some major and minor recensions.² Furthermore, the most radical recensions took place in the earliest generation that genealogical relationships could be reasonably determined. This information indicates that in the earliest days of New Testament history its text was in flux and its genealogical history for that time period cannot be confidently reconstructed. These details could have resulted in disappointment except that the earliest recensions, though diverse from one another, nevertheless had sufficient consensus to identify the autographic readings.

Binary Branches

The genealogical tree diagram reconstructed by the software is often binary, that is, there are only two branches where the tree divides. Table 3.3 in Chapter 3 indicates that 13 out of 19 branches were binary. Critics of the genealogical theory claim that the methodology fails whenever there are only two branches, because no consensus can exist where there are only two alternatives. That would be true except for the principle of deferred ambiguity. In such cases, where ambiguity exists in one witness, its sister has the inherited reading.

A reading has evidence of variant inheritance when it is also found in witnesses of earlier generations. A reading will not be found in any witness dating in a generation prior to the one in which the reading first originated. Autographic readings have continual evidence of variant inheritance; all others acquire that evidence in the generation of their origin subsequent to the autograph. The evidence of variant inheritance usually decides between two equally probable readings; but where even that fails, a final appeal can be made indirectly to internal evidence. So, a binary construction does not turn out to be a crucial weakness. Still, some may be concerned that the earliest

² A recension is recognized by the introduction of a larger number of variants than normal in a witness, usually also accompanied by a larger number of secondary parent exemplars—mixture.

history of the text is determined by such diverse witnesses. However, Table 4.4 of Chapter 4 indicates that 95.89% of the textual decisions made in the reconstruction of the historical tree diagram were made on the basis consensus and deferred ambiguity; so, diversity was not a significant deterrent. Furthermore, Table 4.5 of Chapter 4 indicates that 100 percent of the autographic readings were decided on the basis of consensus.

So What!

Someone may ask: “After all those painstaking computations, what is now known that was not already known by means of traditional textual critical methodology?” The answer should be self-evident, but for the sake of review, here is a list of the more prominent bits of knowledge the computations provide:

(1) A rigorous construction of the genealogical history of the witnesses to the text, something that did not previously exist.

(2) A precise account of the genealogical history of each variant reading, including its place of origin and subsequent distribution, something that did not previously exist.

(3) The identity of the autographic readings based on an unbiased implementation of the laws of heredity, together with the mathematical probability of each one, instead of educated estimates.

(4) An accurate description of the content and structure of the traditional text types, and their internal and external genealogical relationships, instead of educated estimates.

(5) Hopefully a better understanding of the laws of heredity as they apply to manuscripts.

The laws of heredity have been applied to the factual evidence derived from the existing witnesses to the text of Ephesians. They have been applied with mathematical precision apart for human intervention and bias. Hopefully the results provide a better understanding of the history of the text. In either case, no claim is made that the derived history and the text identified as autographic are free from uncertainty. The results are dependent on the validity of the underlying theory and its software implementation. Undoubtedly the future will bring forth improved theory and implementation.

James D. Price
May, 2021

APPENDIX A

List of Extant Witnesses to the Greek Text of the Epistle of Ephesians

This appendix contains a list of the extant witnesses to the Greek text of the Epistle of Ephesians. For each witness it lists its name, date, language, content (references where readings exist), number of readings, and percentage of completeness. In the content column, a verse is counted as long as it has at least one extant reading.

Witness	Date	Language	Content	No. of Readings	Percent Complete
P ⁴⁶ *	202	0	1:1-2:7; 2:11-20, 22-4:25; 4:28-5:24; 5:28-6:5; 6:10-17, 20-24	149	93.13%
P ⁴⁹ %	250	0	4:16-29, 32-5:10	21	13.13%
P ⁹² %	300	0	1:11-13, 19-20	6	3.75%
P ⁹⁹ %	400	0	1:4-9, 11-13, 17, 19-2:1; 2:4-5, 11-16, 19-20; 3:8-13, 15; 4:4-6, 8, 11-16, 19-25, 29-30; 5:2-5, 10-14, 17, 20, 23-24, 32; 6:2-7, 10-12, 17, 20, 23	71	44.38%
01*	350	0	1:1-6:24	159	99.38%
01 ^c	1150	0	1:1-9, 11-14, 16-2:5; 2:8-20, 22-3:13; 3:15-4:16; 4:18-25, 29-5:14; 5:17-29, 31-6:23	130	81.25%
01 ¹	550	0	1:1-9, 11-14, 16-2:5; 2:8-3:13; 3:15-4:16; 4:18-25, 29-5:14; 5:17-29, 31-6:23	134	83.75%
01 ²	650	0	1:1-2:5; 2:8-20, 22-6:24	155	96.88%
A*	450	0	1:1-6:24	160	100.00%
A ^c	550	0	1:1-6:24	160	100.00%
B*	350	0	1:1-6:24	159	99.38%
B ² %	600	0	1:1-9, 11-13, 17, 19-2:1; 2:4-5, 11-16, 19-20, 22-3:1; 3:5, 8-13, 15; 4:4-6, 8, 11-16, 19-25, 29-30; 5:2-5, 10-14, 17, 20, 23-24, 32; 6:2-7, 10-12, 17, 20, 23	76	47.50%
C*%	450	0	2:19-4:16	47	29.38%
C ² %	550	0	2:19-20, 22-3:1; 3:5, 8-13, 15; 4:4-6, 8, 11-16	23	14.38%
C ³ %	850	0	2:19-4:16	47	29.38%
D06*	550	0	1:1-6:24	160	100.00%
D06 ^c %	900	0	1:1-14, 17-2:1; 2:4-5, 11-3:5; 3:8-20; 4:4-6, 8-16, 18-5:5; 5:10-28, 30, 32; 6:2-7, 10-24	121	75.63%
D06 ¹	600	0	1:1-15, 17-2:7; 2:11-3:6; 3:8-20; 4:4-6, 8-5:5; 5:10-28, 30, 32-6:7; 6:10-24	134	83.75%
D06 ²	850	0	1:1-14, 16-2:1; 2:4-5, 8-3:5; 3:7-4:16; 4:18-5:32; 6:2-24	148	92.50%
F*	850	0	1:1-6:24	160	100.00%
G012*	850	0	1:1-6:24	160	100.00%
G012 ^c %	900	0	1:3-9, 11-13, 17, 19-2:1; 2:4-5, 11-16, 19-20, 22-3:1; 3:5, 8-13, 15; 4:4-6, 8, 11-16, 19-25, 29-30; 5:2-5, 10-14, 17, 20, 23-24, 32; 6:2-7, 10-12, 17, 20, 23	75	46.88%
I%	450	0	2:15-16; 3:7-8, 18, 20; 4:9-11, 18-19, 29-30; 5:10, 20-24, 32-6:1; 6:10-12, 19-21	32	20.00%
K*%	850	0	1:3-13, 17, 19-2:1; 2:4-5, 11-16, 19-20, 22-3:1; 3:5, 8-13, 15; 4:4-6, 8, 11-16, 19-25, 28-30; 5:2-5, 10-14, 17, 20, 23-24, 30, 32; 6:2-12, 17, 20, 23	81	50.63%
L020*%	850	0	1:3-14, 17, 19-2:5; 2:11-16, 19-20, 22-3:1; 3:5, 8-13, 15; 4:4-8, 11-16, 19-25, 28-30; 5:2-5, 10-14, 17, 20, 23-24, 32; 6:2-12, 17, 20, 23	82	51.25%
L020 ^c %	900	0	1:3-14, 17, 19-2:5; 2:11-16, 19-20, 22-3:1; 3:5, 8-13, 15; 4:4-8, 11-16, 19-25, 28-30; 5:2-5, 10-14, 17, 20, 23-24, 32; 6:2-12, 17, 20, 23	82	51.25%

P025*%	850	0	1:1-15, 17, 19-2:1; 2:4-5, 8-3:18; 4:4-8, 11-16, 19-25, 28-5:14; 5:17-29, 31-32; 6:2-17, 20-23	112	70.00%
044*	1000	0	1:1-6:24	159	99.38%
48%	450	0	5:10-14, 17, 20, 23-32; 6:2-7, 10-12, 17, 20, 23	25	15.63%
82%	550	0	4:4-18	14	8.75%
159%	550	0	4:22-24; 5:2	7	4.38%
0278*%	850	0	1:1-7, 17-2:13; 3:9-4:8; 4:30-5:5; 5:10-6:24	101	63.13%
0278^c%	900	0	1:3-7, 17, 19-2:1; 2:4-5, 11-13; 3:9-13, 15; 4:4-6, 8, 30; 5:2-5, 10-14, 17, 20, 23-24, 32; 6:2-7, 10-12, 17, 20, 23	46	28.75%
285%	550	0	3:13, 15-18, 20; 5:28-6:1	13	8.13%
6	1250	0	1:1-6:24	160	100.00%
33*	850	0	1:1-6:24	160	100.00%
51	1250	0	1:1-6:24	160	100.00%
81*%	1044	0	1:1-2:7; 2:11-16, 19-3:19; 3:21-4:6; 4:8-17, 19-25, 28-5:17; 5:20-25, 29-32; 6:2-12, 17, 20-24	123	76.88%
104*%	1087	0	1:3-15, 17-2:1; 2:4-5, 8-16, 19-20, 22-3:5; 3:7-13, 15, 21-4:6; 4:8, 11-16, 19-25, 28-5:5; 5:10-17, 20-24, 29, 32; 6:2-17, 20-23	100	62.50%
323*	1150	0	1:1-6:24	160	100.00%
326	950	0	1:1-6:24	160	100.00%
365%	1150	0	1:3-15, 17, 19-2:5; 2:11-20, 22-3:18; 3:21-4:6; 4:8, 11-17, 19-25, 28-5:5; 5:10-14, 17-24, 29, 32; 6:2-12, 17, 20-23	103	64.38%
614*	1250	0	1:1-6:24	160	100.00%
629*	1350	0	1:1-6:24	160	100.00%
630%	1300	0	1:3-13, 17, 19-2:1; 2:4-5, 11-16, 19-20, 22-3:1; 3:5, 8-13, 15; 4:4-6, 8, 11-16, 19-25, 28-30; 5:2-5, 10-14, 17, 20, 23-24, 32; 6:2-12, 17, 20-23	81	50.63%
945	1050	0	1:1-6:24	160	100.00%
1175*%	950	0	1:3-2:1; 2:4-20, 22-3:19; 3:21-4:6; 4:8, 11-17, 19-25, 28-5:5; 5:10-17, 20-24, 28-29, 32; 6:2-17, 20-24	120	75.00%
1175^c%	1000	0	1:3-2:1; 2:4-20, 22-3:19; 3:21-4:6; 4:8, 11-17, 19-25, 28-5:17; 5:20-24, 28-29, 32; 6:2-17, 20-24	121	75.63%
1241*%	1150	0	1:3-13, 17, 19-2:1; 2:4-5, 11-16, 19-20, 22-3:1; 3:5, 8-13, 15, 21-4:6; 4:8-25, 28-30; 5:2-5, 10-17, 20-25, 29, 31-32; 6:2-12, 17, 20-24	101	63.13%
1505*%	1150	0	1:1-14, 17, 19-2:1; 2:4-5, 8-16, 19-20, 22-3:5; 3:8-13, 15-18; 4:4-8, 11-16, 19-25, 28-30; 5:2-5, 10-14, 17, 20-24, 28-29, 32; 6:2-7, 10-12, 17, 20, 23	91	56.88%
1739*	900	0	1:1-6:24	160	100.00%
1739^c	950	0	1:1-6:24	160	100.00%
1881*	1350	0	1:1-6:24	160	100.00%
2464*%	850	0	1:1-13, 15, 17, 19-2:1; 2:4-20, 22-3:13; 3:15; 4:4-6, 8, 11-17, 19-25, 28-30; 5:2-14, 17, 20-25, 29-30, 32; 6:2-17, 20-23	110	68.75%
2495	1450	0	1:1-6:24	160	100.00%

pm ^a	850	0	1:1-6:24	160	100.00%
pm ^b	850	0	1:1-6:24	160	100.00%
TR	1892	0	1:1-6:24	160	100.00%
HF	1982	0	1:1-6:24	160	100.00%
RP	2005	0	1:1-6:24	160	100.00%
l ²⁴⁹	850	0	1:1-6:24	160	100.00%
l ⁸⁴⁶	850	0	1:1-6:24	160	100.00%
vg ^{a%}	400	1	1:1-9, 11-13, 15-2:5; 2:11-20, 22-3:5; 3:8-18, 20-4:6; 4:8-17, 19-25, 29-5:24; 5:28-6:7; 6:10-23	127	79.38%
vg ^b	400	1	1:1-9, 11-13, 15-2:5; 2:11-20, 22-3:5; 3:8-18, 20-4:6; 4:8-17, 19-25, 29-5:24; 5:28-6:23	128	80.00%
vg ^{cl}	1592	1	1:1-9, 11-13, 15-2:5; 2:11-20, 22-3:6; 3:8-18, 20-4:6; 4:8-17, 19-25, 28-6:7; 6:10-24	136	85.00%
vg ^{s%}	1590	1	1:1-9, 11-13, 15-2:5; 2:11-20, 22-3:5; 3:8-18, 20-4:6; 4:8-17, 19-25, 29-5:24; 5:28-6:7; 6:10-23	127	79.38%
vg st	1994	1	1:1-9, 11-13, 15-2:5; 2:11-20, 22-3:6; 3:8-18, 20-4:6; 4:8-17, 19-25, 28-6:7; 6:10-24	136	85.00%
vg ^{ww}	1889	1	1:1-9, 11-13, 15-2:5; 2:11-20, 22-3:6; 3:8-18, 20-4:6; 4:8-17, 19-25, 28-6:7; 6:10-24	136	85.00%
it-ar [*]	950	1	1:1-9, 11-13, 15-2:5; 2:11-20, 22-3:6; 3:8-18, 20; 4:4-6, 8-17, 19-25, 28-6:7; 6:10-24	135	84.38%
it-ar ^c	1000	1	1:1-9, 11-13, 15-2:5; 2:11-20, 22-3:6; 3:8-18, 20; 4:4-6, 8-17, 19-25, 28-6:7; 6:10-24	136	85.00%
it-b [*]	450	1	1:1-9, 11-2:5; 2:11-20, 22-3:6; 3:8-18, 20; 4:4-6, 8-17, 19-25, 28-6:7; 6:10-24	136	85.00%
it-d	450	1	1:1-6:24	160	100.00%
it-f [*]	550	1	1:1-6:24	160	100.00%
it-g [*]	800	1	1:1-6:24	160	100.00%
it-g ^c	800	1	1:1-6:24	160	100.00%
it-m [%]	950	1	4:4-6, 8-16, 19-25, 28-5:5; 5:10-17, 20, 23-25, 32; 6:2-7, 10-12, 17-24	52	32.50%
it-m ^{c%}	1000	1	4:4-6, 8-16, 19-25, 28-5:5; 5:10-17, 20, 23-25, 32; 6:2-7, 10-12, 17-24	52	32.50%
it-r [%]	700	1	1:1-9, 11-13, 16-2:3; 2:11-20, 22-3:5; 3:8-15; 6:24	52	32.50%
it-t [%]	1000	1	1:3-7, 16-20; 3:14-15; 4:4-6, 8-9, 13-15, 17, 19-25, 28-5:5	45	28.13%
sy ^{h%}	616	1	1:1-13, 15-2:5; 2:11-20, 22-3:6; 3:8-4:6; 4:8-17, 19-25, 29-5:29; 5:32-6:7; 6:10-12, 17-20, 23-24	120	75.00%
sy ^{p%}	425	1	1:1-9, 11-14, 16-2:5; 2:11-16, 19-20, 22-3:5; 3:8-15, 19-4:6; 4:8-17, 19-25, 29-5:30; 5:32-6:7; 6:10-12, 17-20, 23-24	118	73.75%
sa ^{a%}	250	1	1:1-9, 11-13, 15, 17, 19-2:5; 2:11-20, 22-3:1; 3:5-6, 8-20; 4:4-8, 11-16, 19-25, 29-5:24; 5:29-30, 32-6:7; 6:10-12, 17-20, 23-24	109	68.13%
sa ^{b%}	250	1	1:1-9, 11-13, 15, 17, 19-2:5; 2:11-20, 22-3:6; 3:8-4:16; 4:19-25, 29-5:24; 5:29-30, 32-6:7; 6:10-12, 17-20, 23-24	113	70.63%

bo^a%	250	1	1:1-9, 11-13, 15, 17, 19-2:5; 2:8-20, 22-3:6; 3:8-4:16; 4:19-25, 29-5:24; 5:29-30, 32-6:7; 6:10-12, 17-20, 23-24	116	72.50%
bo^b%	250	1	1:1-9, 11-13, 15, 17, 19-2:1; 2:4-5, 11-20, 22-3:1; 3:5-6, 8-18, 20-4:8; 4:11-16, 19-25, 29-5:14; 5:17-24, 29-30, 32-6:7; 6:10-12, 17-20, 23-24	107	66.88%
13	1250	0	1:1-6:24	160	100.00%
69	1450	0	1:1-6:24	160	100.00%
346	1150	0	1:1-6:24	160	100.00%
543	1150	0	1:1-6:24	160	100.00%
788	1050	0	1:1-6:24	160	100.00%
826	1150	0	1:1-6:24	160	100.00%
828	1150	0	1:1-6:24	160	100.00%
983	1150	0	1:1-6:24	160	100.00%
NA-27	1979	0	1:1-6:24	160	100.00%
Ambr%	397	1	1:10; 2:4	2	1.25%
Ambst%	366	1	1:1, 6, 11, 18-20; 2:4-5, 11; 3:3-6, 9; 4:9, 16, 19, 28-29, 32-5:2; 5:5, 10-14, 19-20, 24; 6:1, 7, 10-19, 21	38	23.75%
Aug^a%	430	1	2:4-5; 3:9; 4:6, 28; 5:17	6	3.75%
BasA%	374	1	3:14	1	0.63%
Cass%	580	1	3:21; 4:32; 5:17	3	1.88%
Chr^txt%	407	0	2:5; 5:14	2	1.25%
Cl^a%	215	0	2:4-5, 21; 3:3, 11; 4:15, 17-19, 24, 26-28, 32-5:5; 5:20-23, 25-28; 6:5, 12	26	16.25%
Cl^b%	215	0	4:11-13, 24; 5:2, 25	5	3.13%
Cl^ex-Thd%	1050	1	4:09	2	1.25%
Cyp^a%	258	1	2:17; 4:23-24, 29; 5:4, 31-6:1; 6:17	9	5.63%
Did^a%	398	0	2:17; 4:25; 5:28; 6:12	4	2.50%
Epiph^a%	403	0	2:15; 5:32	2	1.25%
Epiph^b%	403	0	2:15; 3:15; 5:32	3	1.88%
Eus^a%	339	0	1:20; 2:17; 4:9; 6:12	4	2.50%
Hier^a%	420	1	1:1, 15, 18; 2:4, 19; 3:14, 20; 4:6; 5:2-4, 17, 20, 30-31; 6:8, 16, 21	19	11.88%
Hier^b%	420	1	1:1, 15, 18; 2:4, 19; 3:14, 18, 20; 4:6, 8, 24; 5:2-4, 17, 20-22, 30-31; 6:8, 16, 21	23	14.38%
Hil%	367	1	1:16; 3:15	2	1.25%
Ir^a%	150	0	4:6; 5:30	2	1.25%
Ir^arm%	400	1	4:06	1	0.63%
Irlat^a%	395	1	1:13-14; 4:8-9, 16; 5:4	9	5.63%
Irlat^b%	395	1	1:7, 13-14; 4:8-9, 16; 5:4	10	6.25%
Lcf%	371	1	4:13, 16, 22, 24-25; 6:10-12	7	4.38%
Meth%	250	0	5:28, 30; 6:16	3	1.88%

McionE%	150	0	1:1; 4:6	2	1.25%
McionT%	150	0	1:1, 20; 2:15, 17; 3:9; 6:1	6	3.75%
MVict%	363	1	1:1, 9, 20; 2:5, 11; 3:1, 10; 4:8, 19, 32-5:2; 5:14-15, 20; 6:19	18	11.25%
Or^a%	254	0	2:21; 3:1, 14, 18; 5:31; 6:12	9	5.63%
Or^b%	254	0	2:20-21; 3:1, 14, 18; 5:31; 6:12	10	6.25%
Or^com%	254	0	2:21	1	0.63%
Or^lat^a%	254	1	2:5; 4:32	2	1.25%
Pel%	418	1	1:18	1	0.63%
Ptol^Ir%	180	0	5:32	1	0.63%
Spec%	450	0	4:28; 5:2; 6:10-12, 17	6	3.75%
Tert^a%	220	1	2:3; 3:9-10; 4:29, 32; 5:23, 32; 6:12	8	5.00%
Tyc%	390	1	2:17	1	0.63%

APPENDIX B

List of the References Associated

with Each Place of Variation

This appendix contains a list of the references associated with each place of variation. The number to the left of the hyphen is the index number of the place of variation, and the numbers to the right constitute the reference. The reference indicates the chapter, verse, and ordered rank of the place of variation in that verse. For example, 5-1:6,2 indicates that the 5th place of variation occurs in chapter 1, verse 6, and is the 2th place of variation in that verse.

Reference at Each Place of Variation

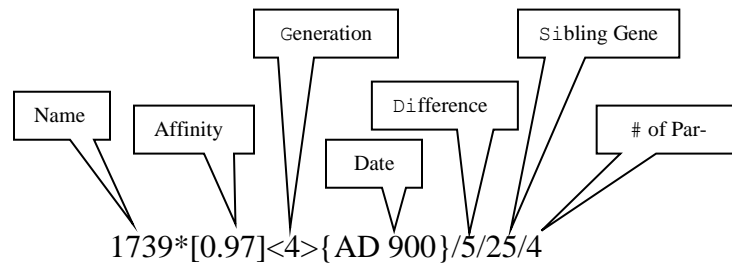
1- 1:1,1	2- 1:1,2	3- 1:1,3	4- 1:3,1	5- 1:4,1	6- 1:6,1	7- 1:6,2
8- 1:7,1	9- 1:7,2	10- 1:9,1	11- 1:9,2	12- 1:9,3	13- 1:10,1	14- 1:11,1
15- 1:11,2	16- 1:13,1	17- 1:13,2	18- 1:14,1	19- 1:15,1	20- 1:16,1	21- 1:17,1
22- 1:18,1	23- 1:18,2	24- 1:19,1	25- 1:20,1	26- 1:20,2	27- 1:20,3	28- 2:1,1
29- 2:3,1	30- 2:4,1	31- 2:4,2	32- 2:5,1	33- 2:5,2	34- 2:5,3	35- 2:7,1
36- 2:8,1	37- 2:11,1	38- 2:13,1	39- 2:15,1	40- 2:15,2	41- 2:15,3	42- 2:16,1
43- 2:17,1	44- 2:19,1	45- 2:19,2	46- 2:20,1	47- 2:21,1	48- 2:22,1	49- 3:1,1
50- 3:1,2	51- 3:3,1	52- 3:3,2	53- 3:5,1	54- 3:6,1	55- 3:7,1	56- 3:8,1
57- 3:8,2	58- 3:9,1	59- 3:9,2	60- 3:9,3	61- 3:10,1	62- 3:11,1	63- 3:12,1
64- 3:13,1	65- 3:13,2	66- 3:13,3	67- 3:14,1	68- 3:15,1	69- 3:18,1	70- 3:19,1
71- 3:19,2	72- 3:20,1	73- 3:21,1	74- 4:4,1	75- 4:6,1	76- 4:6,2	77- 4:7,1
78- 4:8,1	79- 4:8,2	80- 4:9,1	81- 4:9,2	82- 4:11,1	83- 4:13,1	84- 4:14,1
85- 4:15,1	86- 4:15,2	87- 4:15,3	88- 4:16,1	89- 4:16,2	90- 4:16,3	91- 4:17,1
92- 4:18,1	93- 4:19,1	94- 4:19,2	95- 4:22,1	96- 4:23,1	97- 4:23,2	98- 4:24,1
99- 4:24,2	100- 4:25,1	101- 4:26,1	102- 4:28,1	103- 4:29,1	104- 4:30,1	105- 4:32,1
106- 4:32,2	107- 5:2,1	108- 5:2,2	109- 5:4,1	110- 5:4,2	111- 5:4,3	112- 5:5,1
113- 5:5,2	114- 5:9,1	115- 5:10,1	116- 5:14,1	117- 5:15,1	118- 5:17,1	119- 5:17,2
120- 5:17,3	121- 5:19,1	122- 5:19,2	123- 5:19,3	124- 5:20,1	125- 5:20,2	126- 5:22,1
127- 5:23,1	128- 5:23,2	129- 5:24,1	130- 5:25,1	131- 5:28,1	132- 5:29,1	133- 5:30,1
134- 5:31,1	135- 5:31,2	136- 5:31,3	137- 5:32,1	138- 6:1,1	139- 6:2,1	140- 6:5,1
141- 6:5,2	142- 6:7,1	143- 6:8,1	144- 6:10,1	145- 6:10,2	146- 6:10,3	147- 6:12,1
148- 6:12,2	149- 6:12,3	150- 6:12,4	151- 6:16,1	152- 6:16,2	153- 6:17,1	154- 6:19,1
155- 6:20,1	156- 6:21,1	157- 6:21,2	158- 6:23,1	159- 6:23,2	160- 6:24,1	

Appendix C

*The Genealogical Tree Diagram of
The Textual History of Epistle to the
Ephesians*

This appendix contains the tree diagram of the genealogical history of the Greek text of the Epistle to the Ephesians. The tree is displayed vertically rather than horizontally. That is, the autograph in the upper left corner with succeeding generations indented from the left progressively downward. Sibling daughter descendants are linked by vertical lines. For example, the first-generation descendants of the autograph are Ex-144#,⁴⁷ Ex-146#, and Ex-147#. Only the primary exemplars are displayed, so no mixture connections are shown. The diagram spills over onto succeeding pages, but the lowercase letters at the page breaks show where the lines from one page connect to those of the next.

The format of the information on each line is as follows: (1) the name of the witness; (2) the genealogical affinity of the witness with its primary parent exemplar, enclosed in square brackets []; (3) generation from the autograph, enclosed in angular brackets <>; (4) date, enclosed in curly brackets {}; (5) the number of variants the witness differs from its primary parent, enclosed in slant marks //; (6) The number of variants in the sibling gene; and (7) the number of parents the witness has.



⁴⁷ The names of exemplars created by the software have the prefix “Ex-” followed by a number; extant witnesses have the names provided in NA-27 as modified for compatibility with the software (discussed in Chapter Two).

Genealogical Tree of Galatians

Autograph[0.00]<0>{AD 60}/0/0/0
 |-Ex-144#[0.94]<1>{AD 152}/9/9/2
 | |-P^46*[0.66]<2>{AD 202}/50/9/3
 | |-P^49%[0.81]<2>{AD 250}/4/9/3
 | |-C*%[0.89]<2>{AD 450}/5/9/4
 | |-C^2%[1.00]<2>{AD 550}/0/9/1
 | |-C^3%[0.87]<2>{AD 850}/6/9/5
 | |-P025*%[0.86]<2>{AD 850}/16/9/6
 | |-048%[0.96]<2>{AD 450}/1/9/2
 | |-81*%[0.86]<2>{AD 1044}/17/9/5
 | |-104*%[0.86]<2>{AD 1087}/14/9/4
 | |-365%[0.86]<2>{AD 1150}/14/9/4
 | |-630%[0.91]<2>{AD 1300}/7/9/5
 | |-1175*%[0.82]<2>{AD 950}/21/9/4
 | |-1175^c%[0.83]<2>{AD 1000}/21/9/4
 | |-1505*%[0.90]<2>{AD 1150}/9/9/4
 | |-sa^a%[0.87]<2>{AD 250}/14/9/4
 | |-sa^b%[0.88]<2>{AD 250}/14/9/4
 | |-bo^a%[0.91]<2>{AD 250}/10/9/3
 | |-bo^b%[0.83]<2>{AD 250}/18/9/5
 | |-NA-27[0.91]<2>{AD 1979}/14/9/4
 | |-Cl^b%[0.60]<2>{AD 215}/2/9/2
 | |-Did^a%[0.50]<2>{AD 398}/2/9/2
 | |-Eus^a%[0.75]<2>{AD 339}/1/9/2
 | |-Or^a%[0.78]<2>{AD 254}/2/9/3
 | |-Ex-137[0.87]<2>{AD 380}/21/9/4
 | | |-A*[0.99]<3>{AD 450}/1/21/2
 | | |-A^c[1.00]<3>{AD 550}/0/21/1
 | | |-0159%[1.00]<3>{AD 550}/0/21/1
 | | |-Aug^a%[0.67]<3>{AD 430}/2/21/2
 | |-Ex-130[0.96]<2>{AD 300}/6/9/4
 | | |-01^c[1.00]<3>{AD 1150}/0/6/1
 | | |-01*[0.93]<3>{AD 350}/11/6/3
 | | |-01^1[0.99]<3>{AD 550}/1/6/2
 | | |-01^2[0.86]<3>{AD 650}/21/6/4
 | | |-33*[0.88]<3>{AD 850}/20/6/7
 | | |-I%[0.97]<3>{AD 450}/1/6/2
 | | |-1241*%[0.89]<3>{AD 1150}/11/6/4
 | | |-2464*%[0.90]<3>{AD 850}/11/6/6
 |-Ex-147#[0.90]<1>{AD 80}/16/16/2
 | |-P^99%[0.99]<2>{AD 400}/1/16/2
 | |-B^2%[1.00]<2>{AD 600}/0/16/1

a b

a b

| |-G012^c%[1.00]<2>{AD 900}/0/16/1
 | |-L020*%[0.93]<2>{AD 850}/6/16/4
 | |-082%[1.00]<2>{AD 550}/0/16/1
 | |-0278^c%[0.98]<2>{AD 900}/1/16/2
 | |-BasA%[1.00]<2>{AD 374}/0/16/1
 | |-Hier^a%[0.79]<2>{AD 420}/4/16/3
 | |-Hier^b%[0.74]<2>{AD 420}/6/16/4
 | |-Hil%[0.50]<2>{AD 367}/1/16/2
 | |-Ir^arm%[0.00]<2>{AD 400}/1/16/2
 | |-Or^com%[1.00]<2>{AD 254}/0/16/1
 | |-Or^lat^a%[0.50]<2>{AD 254}/1/16/2
 | |-Ptol^Ir%[0.00]<2>{AD 180}/1/16/2
 | |-Tyc%[1.00]<2>{AD 390}/0/16/1
 | |-Ex-143[0.95]<2>{AD 100}/8/16/3
 | | |-6[0.96]<3>{AD 1250}/6/8/4
 | | |-L020^c%[0.94]<3>{AD 900}/5/8/5
 | | |-Cl^a%[0.58]<3>{AD 215}/11/8/4
 | | |-McionE%[1.00]<3>{AD 150}/0/8/1
 | | |-Ex-136[0.84]<3>{AD 200}/25/8/7
 | | | |-1739^c[0.97]<4>{AD 950}/4/25/3
 | | | |-1739*[0.97]<4>{AD 900}/5/25/4
 | | | |-1881*[0.93]<4>{AD 1350}/12/25/5
 | | | |-P^92%[1.00]<4>{AD 300}/0/25/1
 | | | |-B*[0.69]<4>{AD 350}/50/25/6
 | | | |-Meth%[1.00]<4>{AD 250}/0/25/1
 | | |-Ex-139[0.89]<2>{AD 325}/17/16/4
 | | | |-326[0.93]<3>{AD 950}/12/17/6
 | | | |-Ex-135[0.96]<3>{AD 375}/6/17/5
 | | | | |-D06^c%[0.84]<4>{AD 900}/19/6/7
 | | | | |-D06^1[0.84]<4>{AD 600}/21/6/8
 | | | | |-D06^2[0.86]<4>{AD 850}/21/6/7
 | | | | |-sy^h%[0.94]<4>{AD 616}/7/6/5
 | | | | |-sy^p%[0.86]<4>{AD 425}/17/6/5
 | | | | |-Cass%[0.67]<4>{AD 580}/1/6/2
 | | | | |-Ex-133[0.98]<4>{AD 1000}/3/6/4
 | | | | | |-323*[0.98]<5>{AD 1150}/3/3/3
 | | | | | |-945[0.99]<5>{AD 1050}/1/3/2
 | | | | |-Ex-131[0.99]<4>{AD 800}/1/6/2
 | | | | | |-pm^a[1.00]<5>{AD 850}/0/1/1
 | | | | | |-044*[0.89]<5>{AD 1000}/18/1/8
 | | | | | |-51[0.99]<5>{AD 1250}/1/1/2
 | | | | | |-614*[0.95]<5>{AD 1250}/8/1/5

a

b

a	b
	-629*[0.90]<5>{AD 1350}/16/1/6
	-2495[0.98]<5>{AD 1450}/3/1/3
	-pm^b[0.98]<5>{AD 850}/3/1/4
	-l^249[0.98]<5>{AD 850}/3/1/3
	-l^846[1.00]<5>{AD 850}/0/1/1
	-13[1.00]<5>{AD 1250}/0/1/1
	-69[1.00]<5>{AD 1450}/0/1/1
	-346[1.00]<5>{AD 1150}/0/1/1
	-543[1.00]<5>{AD 1150}/0/1/1
	-788[1.00]<5>{AD 1050}/0/1/1
	-826[1.00]<5>{AD 1150}/0/1/1
	-828[1.00]<5>{AD 1150}/0/1/1
	-983[1.00]<5>{AD 1150}/0/1/1
	-K*% [0.89]<5>{AD 850}/9/1/6
	-TR[0.97]<5>{AD 1892}/5/1/5
	-HF[0.98]<5>{AD 1982}/3/1/4
	-RP[0.99]<5>{AD 2005}/2/1/3
	-Ex-146#[0.59]<1>{AD 65}/65/65/2
	-Ambr% [0.50]<2>{AD 397}/1/65/2
	-Ambst% [0.61]<2>{AD 366}/15/65/4
	-Cl^exThd% [1.00]<2>{AD 1050}/0/65/1
	-Cyp^a% [0.67]<2>{AD 258}/3/65/2
	-Epiph^a% [0.50]<2>{AD 403}/1/65/2
	-Ir^a% [1.00]<2>{AD 150}/0/65/1
	-Lcf% [0.57]<2>{AD 371}/3/65/2
	-Pel% [1.00]<2>{AD 418}/0/65/1
	-Spec% [0.50]<2>{AD 450}/3/65/3
	-Ex-134[0.73]<2>{AD 170}/37/65/4
	-it-ar^c[1.00]<3>{AD 1000}/0/37/1
	-it-ar*[1.00]<3>{AD 950}/0/37/1
	-0285% [0.91]<3>{AD 550}/1/37/2
	-vg^cl[0.89]<3>{AD 1592}/15/37/4
	-it-r% [0.92]<3>{AD 700}/4/37/4
	-it-t% [0.91]<3>{AD 1000}/4/37/4
	-Epiph^b% [0.67]<3>{AD 403}/1/37/2
	-Irlat^a% [1.00]<3>{AD 395}/0/37/1
	-Irlat^b% [0.88]<3>{AD 395}/1/37/2
	-Or^b% [0.71]<3>{AD 254}/2/37/3
	-Tert^a% [0.75]<3>{AD 220}/2/37/3
	-Ex-132[0.88]<3>{AD 350}/17/37/4
	-vg^ww[0.96]<4>{AD 1889}/5/17/3
	-vg^b[0.91]<4>{AD 400}/11/17/5
a	b

a b
| |-0278*% [0.80] <4> {AD 850}/18/17/6
| |-vg^a% [0.96] <4> {AD 400}/5/17/3
| |-vg^s% [0.96] <4> {AD 1590}/5/17/3
| |-vg^st [0.95] <4> {AD 1994}/7/17/4
|-Ex-145 [1.00] <2> {AD 70}/0/65/1
| |-it-b* [0.79] <3> {AD 450}/29/0/6
|-Ex-142 [1.00] <3> {AD 75}/0/0/1
| |-it-d [0.84] <4> {AD 450}/26/0/7
|-Ex-141 [1.00] <4> {AD 80}/0/0/1
| |-it-f* [0.96] <5> {AD 550}/7/0/3
|-Ex-138 [0.96] <5> {AD 500}/6/0/4
| |-F* [0.99] <6> {AD 850}/1/6/2
| |-G012* [1.00] <6> {AD 850}/0/6/1
| |-D06* [0.80] <6> {AD 550}/32/6/7
| |-it-m*% [0.77] <6> {AD 950}/12/6/5
| |-it-m^c% [0.75] <6> {AD 1000}/13/6/6
|-Ex-140 [0.99] <5> {AD 100}/2/0/3
| |-it-g* [0.99] <6> {AD 800}/1/2/2
| |-it-g^c [1.00] <6> {AD 800}/0/2/1
|-Chr^txt% [0.50] <6> {AD 407}/1/2/2
|-McionT% [0.50] <6> {AD 150}/3/2/3
|-MVict% [0.72] <6> {AD 363}/5/2/3

Appendix D

List of Autographic Readings

For Ephesians

This appendix contains the list of autographic readings for the Greek text of the Epistle to the Ephesians as determined by the genealogical method described in this book. The list contains the index of each place of variation (variation unit), the associated reference, the Greek reading at that place, and the probability that the reading is autographic.

Place of Variation	Reference	Autographic Reading	Probability
1.2	1:1,1.2	2 1	1
2.1	1:1,2.1	τοις	1
3.1	1:1,3.1	ἐν Ἐφεσω	1
4.1	1:3,1.1	και πατηρ	1
5.1	1:4,1.1	ἐν αὐτω	0.67
6.1	1:6,1.1	ης	0.67
7.1	1:6,2.1	ομιτ	0.67
8.1	1:7,1.1	εχομεν	1
9.1	1:7,2.1	χαριτος	1
10.1	1:9,1.1	γνωρισας	0.67
11.1	1:9,2.1	αὐτου	0.67
12.1	1:9,3.1	αὐτω	1
13.2	1:10,1.2	ειν	1
14.1	1:11,1.1	ἐκκληρωθημεν	0.67
15.1	1:11,2.1	ομιτ	0.67
16.1	1:13,1.1	υμεις	1
17.1	1:13,2.1	υμων	1
18.1	1:14,1.1	ο	1
19.2	1:15,1.2	3-7	0.33
20.1	1:16,1.1	ομιτ	0.67
21.1	1:17,1.1	δωη	1
22.1	1:18,1.1	υμων	1
23.1	1:18,2.1	ομιτ	0.67
24.1	1:19,1.1	ημας	0.67
25.1	1:20,1.1	ἐνηργησεν	1
26.2	1:20,2.2	εκαθισεν	0.67
27.1	1:20,3.1	ἐπουρανιοις	1
28.1	2:1,1.1	αμαρτιαις	1
29.1	2:3,1.1	και ημεις	0.67
30.1	2:4,1.1	αὐτου	0.67
31.1	2:4,2.1	ην ἡγαπησεν	1
32.1	2:5,1.1	τοις παραπτωμασιν	0.67
33.1	2:5,2.1	ομιτ	1
34.1	2:5,3.1	ομιτ	0.67
35.1	2:7,1.1	το υπερβαλλον πλουτος	1
36.1	2:8,1.1	ομιτ	1
37.1	2:11,1.1	Διο	0.67
38.1	2:13,1.1	του	1

39.1	2:15,1.1	ἐν δογμασιν	1
40.1	2:15,2.1	αὐτῶ	0.67
41.1	2:15,3.1	καινον	0.67
42.1	2:16,1.1	αὐτῶ	0.67
43.1	2:17,1.1	εἰρηνην	0.67
44.1	2:19,1.1	ουν	0.67
45.1	2:19,2.1	ἐστε	0.67
46.1	2:20,1.1	ομιτ	0.67
47.1	2:21,1.1	ομιτ	0.67
48.1	2:22,1.1	θεου	1
49.1	3:1,1.1	Ιησου	0.67
50.1	3:1,2.1	ομιτ	1
51.1	3:3,1.1	οτι	0.67
52.1	3:3,2.1	ἐγνωρισθη	0.67
53.1	3:5,1.1	ἀποστολοις	1
54.2	3:6,1.2	αυτου	0.67
55.1	3:7,1.1	της δοθεισης	0.67
56.1	3:8,1.1	αγιων	1
57.2	3:8,2.2	εν	0.67
58.1	3:9,1.1	παντας	1
59.1	3:9,2.1	ἐν	1
60.1	3:9,3.1	ομιτ	0.67
61.1	3:10,1.1	νυν	0.67
62.1	3:11,1.1	προθεσιν	1
63.1	3:12,1.1	πεποιθησει	1
64.2	3:13,1.2	εκκ •	0.67
65.1	3:13,2.1	υμων	1
66.1	3:13,3.1	ητις	1
67.1	3:14,1.1	ομιτ	0.67
68.1	3:15,1.1	οὐρανοις	1
69.2	3:18,1.2	2 1	0.67
70.1	3:19,1.1	πληρωθητε εις	1
71.1	3:19,2.1	ομιτ	1
72.1	3:20,1.1	υπερ	0.67
73.1	3:21,1.1	και	1
74.1	4:4,1.1	και	0.67
75.1	4:6,1.1	και	1
76.1	4:6,2.1	ομιτ	0.67
77.2	4:7,1.2	• ομιτ	0.67

78.1	4:8,1.1	ομιτ	0.67
79.1	4:8,2.1	τοις	0.67
80.1	4:9,1.1	ομιτ	1
81.1	4:9,2.1	μερη	0.67
82.1	4:11,1.1	εδωκεν	1
83.1	4:13,1.1	του υιου	0.67
84.1	4:14,1.1	ομιτ	1
85.1	4:15,1.1	αληθευοντες δε	0.67
86.1	4:15,2.1	η	0.67
87.1	4:15,3.1	Χριστος	0.67
88.1	4:16,1.1	κατ' ενεργειαν	0.67
89.1	4:16,2.1	μερους	1
90.1	4:16,3.1	εαυτου	0.67
91.1	4:17,1.1	ομιτ	1
92.2	4:18,1.2	ρισμενοι	0.67
93.1	4:19,1.1	απηληγοτες	0.67
94.1	4:19,2.1	εν πλεονεξια	0.67
95.1	4:22,1.1	τας επιθυμιας	1
96.1	4:23,1.1	ανανεουσθαι	0.67
97.1	4:23,2.1	ομιτ	1
98.1	4:24,1.1	ενδυσασθαι	0.67
99.1	4:24,2.1	της αληθειας	0.67
100.1	4:25,1.1	Διο	1
101.1	4:26,1.1	τω	1
102.1	4:28,1.1	ταις ιδιαις χερσιν το αγαθον	1
103.1	4:29,1.1	χρειας	0.67
104.1	4:30,1.1	μη	1
105.1	4:32,1.1	δε	0.67
106.1	4:32,2.1	υμιν	1
107.1	5:2,1.1	ημας	0.67
108.1	5:2,2.1	ημων προσφοραν	1
109.1	5:4,1.1	και	0.67
110.1	5:4,2.1	και	0.67
111.1	5:4,3.1	η	1
112.1	5:5,1.1	ο	0.67
113.1	5:5,2.1	του Χριστου και θεου	0.67
114.1	5:9,1.1	φωτος	1
115.1	5:10,1.1	κυριω	0.67
116.1	5:14,1.1	επιφανσει σοι ο Χριστος	1

117.2	5:15,1.2	2 1	0.67
118.1	5:17,1.1	συνιετε	0.67
119.1	5:17,2.1	θελημα	1
120.1	5:17,3.1	κυριου	1
121.2	5:19,1.2	• ομιτ	1
122.1	5:19,2.1	πνευματικαις	1
123.3	5:19,3.3	εν ταις καρδιαις	0.67
124.1	5:20,1.1	θεω και πατρι	0.67
125.1	5:20,2.1	Χριστου	0.67
126.2	5:22,1.2	υποτασσεσθωσαν	0.67
127.1	5:23,1.1	εστιν κεφαλη	0.67
128.1	5:23,2.1	αυτος	0.67
129.1	5:24,1.1	ως	1
130.1	5:25,1.1	ομιτ	0.33
131.2	5:28,1.2	1 3 4	0.67
132.1	5:29,1.1	Χριστος	0.67
133.1	5:30,1.1	ομιτ	0.67
134.1	5:31,1.1	τον	0.67
135.1	5:31,2.1	την	0.67
136.2	5:31,3.2	κ. προσκ. τη γυναικι αυ.	0.67
137.1	5:32,1.1	εις	1
138.1	6:1,1.1	εν κυριω	0.67
139.1	6:2,1.1	εστιν	1
140.2	6:5,1.2	2 1	0.67
141.1	6:5,2.1	της	1
142.1	6:7,1.1	ως	1
143.2	6:8,1.2	εκ. ο αν	1
144.2	6:10,1.2	το λοιπον	0.67
145.2	6:10,2.2	αδελφοι μου	1
146.1	6:10,3.1	ενδυναμουσθε	1
147.1	6:12,1.1	ημιν	0.67
148.1	6:12,2.1	αρχας προς τας εξουσιαις	1
149.1	6:12,3.1	ομιτ	0.67
150.1	6:12,4.1	εν τοις επουρανιοις	1
151.2	6:16,1.2	επι	1
152.1	6:16,2.1	τα	0.67
153.1	6:17,1.1	δεξασθε	0.67
154.1	6:19,1.1	του ειαγγελιου	0.67
155.1	6:20,1.1	εν αυτω	1

156.2	6:21,1.2	2 3 1	0.67
157.1	6:21,2.1	γνωρισει υμιν	1
158.1	6:23,1.1	ἀδελφοις	1
159.1	6:23,2.1	ἀγαπη	1
160.1	6:24,1.1	ομιτ	0.67

Appendix E

List of the Places the Lachmann-10 Text

Differs from the NA-27 Text

for the Epistle to the Ephesians

Ref.		NA-27 Reading		Lochmann Reading	Prob.
1:1,1.2	Transpose NA-27 =>	Χριστου Ἰησοῦ ^ο	to =>	2 1	[1.00]
1:10,1.2	Replace NA-27 =>	ἐπι	with =>	εν	[1.00]
1:15,1.2	Replace NA-27 =>	την ἀγαπην την εἰς πάντας τους αγιους	with =>	3-7	[0.33]
1:20,2.2	Replace NA-27 =>	καθισας	with =>	εκαθισεν	[0.67]
3:6,1.2	At NA-27 =>	ομιτ	insert =>	αυτου	[0.67]
3:8,2.2	At NA-27 =>	ομιτ	insert =>	εν	[0.67]
3:13,1.2	Replace NA-27 =>	ἐγκακειν	with =>	εκκ •	[0.67]
3:18,1.2	Transpose NA-27 =>	υψος και βαθος ^ο	to =>	2 1	[0.67]
4:7,1.2	Omit NA-27 =>	η			[0.67]
4:18,1.2	Replace NA-27 =>	ἐσκοτωμενοι	with =>	Πισμενοι	[0.67]
5:15,1.2	Replace NA-27 =>	ἀκριβως πως	with =>	2 1	[0.67]
5:19,1.2	Omit NA-27 =>	ἐν			[1.00]
5:19,3.3	Replace NA-27 =>	τη καρδια	with =>	εν ταις καρδιαις	[0.67]
5:22,1.2	At NA-27 =>	ομιτ	insert =>	υποτασσεσθωσαν	[0.67]
5:28,1.2	Replace NA-27 =>	οφειλουσιν και οι ανδρες	with =>	1 3 4	[0.67]
5:31,3.2	Replace NA-27 =>	και προσκολληθησεται προς την γυναικα αυτου	with =>	κ. προσκ. τη γυναικι αυ.	[0.67]
6:5,1.2	Transpose NA-27 =>	κατα σαρκα κυριοις ^ο	to =>	2 1	[0.67]
6:8,1.2	Replace NA-27 =>	εκαστος εαν τι	with =>	εκ. ο αν	[1.00]
6:10,1.2	Replace NA-27 =>	Του λοιπου	with =>	το λοιπον	[0.67]
6:10,2.2	At NA-27 =>	ομιτ	insert =>	αδελφοι μου	[1.00]
6:16,1.2	Replace NA-27 =>	ἐν	with =>	επι	[1.00]
6:21,1.2	Replace NA-27 =>	είδητε και υμεις	with =>	2 3 1	[0.67]

Appendix F

Places Where the Non-Autographic Variants Were Initiated

Only Once in the Textual History of Ephesians

Arranged in Order by Reference

This appendix lists the place in the genealogical history of the text of the Book of Ephesians where each non-original textual variant was first initiated, arranged in order by reference. For each variant, the table lists (1) the place of variation in the text where the variation occurred, (2) the associated reference, (3) the exemplar or extant witness in which the variant was initiated, and (4) the text of the variant. For example, the following line means:

15.2	1:11,2.2	Ex-146#	<i>του θεου</i>
------	----------	---------	-----------------

- (1) 15.2 refers to the second variant at variation unit 15.
- (2) 1:11,2.2 is the reference where this place of variation occurs: chapter 1, verse 11, the second place of variation in this verse, the second variant there.
- (3) This variant was initiated in Exemplar Ex-146#.
- (4) The variant reads: *του θεου* (of God)
- (5) Since the variant was first initiated in an exemplar, one can presume that the variant was inherited by all of the descendants of that exemplar (Ex-146#) unless otherwise altered in one of its subsequent branches.

The following line means:

4.2	1:3,1.2	B*	<i>ομιτ</i>
-----	---------	----	-------------

- (1) 4.2 refers to the second variant at variation unit 4.
- (2) 1:3,1.2 is the reference where this place of variation occurs: chapter 1, verse 3, the first place of variation in this verse, the second variant there.
- (3) This variant was initiated in fragmentary terminal witness MS B*
- (4) The variant reads: *ομιτ* (omit)

Since the variant was initiated in a terminal witness, it is a singularity with no inheritance.

The following line means:

27.2	1:20,3.2	Ex-149\$	<i>ουρανοις</i>
------	----------	----------	-----------------

- (1) 27.2 refers to the second variant at variation unit 27.
- (2) 1:20,3.2 is the reference where this place of variation occurs: chapter 1, verse 20, the third place of variation in this verse, the second variant there.
- (3) This variant was initiated in exemplar Ex-149\$, a virtual exemplar, a source of mixture.
- (4) The variant reads: *ουρανοις* (heaven).

VarUnit	Reference	Source	Reading
1.1	1:1,1.1	Ex-149\$	<i>Χριστου Ίησου</i>
2.2	1:1,2.2	Ex-149\$	<i>πασιν τ.</i>
2.3	1:1,2.3	P ⁴⁶ *	
3.2	1:1,3.2	Ex-149\$	<i>ομιτ</i>
4.2	1:3,1.2	B*	<i>ομιτ</i>
5.2	1:4,1.2	Ex-146#	<i>εαυτω</i>
6.2	1:6,1.2	Ex-154\$	<i>εν η</i>
7.2	1:6,2.2	Ex-146#	<i>υιω αυτου</i>
8.2	1:7,1.2	Ex-154\$	<i>εσχομεν</i>
9.2	1:7,2.2	Ex-149\$	<i>χρηστοτητος</i>
10.2	1:9,1.2	Ex-146#	<i>-σαι</i>
11.2	1:9,2.2	Ex-154\$	<i>ομιτ</i>
12.2	1:9,3.2	P025*%	<i>εαυτω</i>
13.1	1:10,1.1	Ex-149\$	<i>ἐπι</i>
13.3	1:10,1.3	Ex-154\$	<i>τε εν</i>
14.2	1:11,1.2	Ex-146#	<i>εκληθ</i>
15.2	1:11,2.2	Ex-146#	<i>του θεου</i>
16.2	1:13,1.2	Ex-149\$	<i>ημ</i>
17.2	1:13,2.2	Ex-149\$	<i>ημ</i>
18.2	1:14,1.2	Ex-149\$	<i>ος</i>
19.1	1:15,1.1	Ex-147#	<i>την αγαπην την εις παντας τους αγιους</i>
19.3	1:15,1.3	Ex-150\$	<i>3-7 2</i>
19.4	1:15,1.4	Ex-146#	<i>1 2 4-7</i>
20.2	1:16,1.2	Ex-146#	<i>υμων</i>
21.2	1:17,1.2	Ex-136	<i>δῶ</i>
22.2	1:18,1.2	Ex-149\$	<i>ομιτ</i>
23.2	1:18,2.2	Ex-147#	<i>και</i>
24.2	1:19,1.2	Ex-146#	<i>υμ</i>
25.2	1:20,1.2	Ex-149\$	<i>-ηκεν</i>
26.1	1:20,2.1	Ex-149\$	<i>καθισας</i>
26.3	1:20,2.3	Ex-154\$	<i>καθισας αυτον</i>
27.2	1:20,3.2	Ex-149\$	<i>ουρανοις</i>
28.2	2:1,1.2	B*	<i>επιθυμiais</i>
29.2	2:3,1.2	Ex-149\$	<i>κ. υμεις</i>
29.3	2:3,1.3	Ex-154\$	
30.2	2:4,1.2	Ex-154\$	<i>ομιτ</i>
31.2	2:4,2.2	Ex-149\$	<i>ηλεησεν</i>
32.2	2:5,1.2	P ⁴⁶ *	<i>τ. σωμασιν</i>
32.3	2:5,1.3	Ex-146#	<i>ταις αμαρτιαις</i>
32.4	2:5,1.4	Ex-149\$	<i>τοις παρ. και ταις αμ.</i>
32.5	2:5,1.5	Ex-150\$	<i>εν τοις παρ. και ταις επιθυμiais</i>
33.2	2:5,2.2	Ex-149\$	<i>εν</i>

34.2	2:5,3.2	Ex-146#	οὐ
35.2	2:7,1.2	Ex-139	τον -τα -ον
36.2	2:8,1.2	Ex-149\$	της
37.2	2:11,1.2	Ex-146#	δια τουτο
37.3	2:11,1.3	Ex-149\$	
38.2	2:13,1.2	Ex-149\$	ομιτ
39.2	2:15,1.2	Ex-149\$	ομιτ
40.2	2:15,2.2	Ex-146#	εαυ
41.2	2:15,3.2	Ex-154\$	κοινων
41.3	2:15,3.3	K*%	και μονον
42.2	2:16,1.2	Ex-146#	εαυ
43.2	2:17,1.2	Ex-147#	ομιτ
44.2	2:19,1.2	Ex-154\$	ομιτ
45.2	2:19,2.2	Ex-136	και
45.3	2:19,2.3	Ex-147#	
46.2	2:20,1.2	Ex-146#	λιθου
47.2	2:21,1.2	Ex-154\$	η
48.2	2:22,1.2	B*	Χριστου
49.2	3:1,1.2	Ex-154\$	ομιτ
50.2	3:1,2.2	Ex-149\$	προσβευω
50.3	3:1,2.3	2464*%	κεκαυχημαι
51.2	3:3,1.2	Ex-154\$	ομιτ
52.2	3:3,2.2	Ex-146#	γαρ εγν.
52.3	3:3,2.3	Ex-139	εγνωρισε
53.2	3:5,1.2	Ex-149\$	ομιτ
54.1	3:6,1.1	Ex-144#	ομιτ
55.2	3:7,1.2	Ex-147#	την Παν
56.2	3:8,1.2	P^46*	ομιτ
57.1	3:8,2.1	Ex-144#	ομιτ
58.2	3:9,1.2	Ex-149\$	ομιτ
59.2	3:9,2.2	Ex-154\$	ομιτ
60.2	3:9,3.2	Ex-154\$	δια Ιησου Χριστου
61.2	3:10,1.2	Ex-146#	ομιτ
62.2	3:11,1.2	Cl^a%	προγνωσιν
63.2	3:12,1.2	Ex-149\$	τω ελευθερωθηναι
64.1	3:13,1.1	Ex-144#	Υεγκακειν
65.2	3:13,2.2	Ex-149\$	ημων
66.2	3:13,3.2	Ex-149\$	ἢ τίς
67.2	3:14,1.2	Ex-146#	του κυριου ημων Ιησου Χριστου
68.2	3:15,1.2	Ex-150\$	Πω
69.1	3:18,1.1	Ex-154\$	υψος και βαθος
70.2	3:19,1.2	Ex-149\$	πληρωθη
71.2	3:19,2.2	33*	ις υμας

72.2	3:20,1.2	Ex-154\$	ομιτ
73.2	3:21,1.2	Ex-149\$	ομιτ
74.2	4:4,1.2	Ex-146#	ομιτ
75.2	4:6,1.2	Ex-154\$	ομιτ
76.2	4:6,2.2	Ex-146#	ημιν
77.1	4:7,1.1	Ex-154\$	η
78.2	4:8,1.2	Ex-154\$	και
79.2	4:8,2.2	Ex-154\$	εν
80.2	4:9,1.2	Ex-150\$	πρωτον
81.2	4:9,2.2	Ex-154\$	ομιτ
82.2	4:11,1.2	Ex-149\$	δεδ
83.2	4:13,1.2	Ex-154\$	ομιτ
84.2	4:14,1.2	Ex-137	του διαβολου
85.2	4:15,1.2	Ex-146#	αληθειαν δε ποιουντες
86.2	4:15,2.2	Ex-154\$	ομιτ
87.2	4:15,3.2	Ex-154\$	ο Χρ.
87.3	4:15,3.3	P^46*	του Χριστου
88.2	4:16,1.2	P^46*	και ενεργειας
88.3	4:16,1.3	Ex-146#	
89.2	4:16,2.2	Ex-149\$	μελους
90.2	4:16,3.2	Ex-154\$	αυ
91.2	4:17,1.2	Ex-149\$	λοιπα
92.1	4:18,1.1	Ex-144#	εσκοτωμενοι
93.2	4:19,1.2	Ex-154\$	απηλπικ
94.2	4:19,2.2	Ex-146#	και -ιας
95.2	4:22,1.2	Ex-149\$	την -ιαν
96.2	4:23,1.2	Ex-154\$	Πθε
97.2	4:23,2.2	Ex-149\$	εν
98.2	4:24,1.2	Ex-154\$	Πθε
99.2	4:24,2.2	Ex-146#	και αληθεια
100.2	4:25,1.2	Ex-149\$	ομιτ
101.2	4:26,1.2	Ex-149\$	ομιτ
102.2	4:28,1.2	Ex-150\$	1 3-5
102.3	4:28,1.3	Ex-151\$	4 5
102.4	4:28,1.4	Ex-154\$	4 5 1 3
102.5	4:28,1.5	Ex-153\$	4 5 1-3
102.6	4:28,1.6	629*	εν τ. χ. αυτου το αγ.
103.2	4:29,1.2	Ex-146#	πιστεως
104.2	4:30,1.2	P^46*	ομιτ
105.2	4:32,1.2	Ex-146#	ουν
105.3	4:32,1.3	Ex-149\$	
106.2	4:32,2.2	Ex-150\$	ημ
107.2	5:2,1.2	Ex-154\$	υμ

108.2	5:2,2.2	Ex-149\$	υμων πρ.
108.3	5:2,2.3	1241*%	ημεν φθορα
109.2	5:4,1.2	Ex-146#	η
110.2	5:4,2.2	Ex-154\$	ομιτ
111.2	5:4,3.2	Ex-149\$	και
112.2	5:5,1.2	Ex-154\$	ος
113.2	5:5,2.2	P^46*	1 4
113.3	5:5,2.3	Ex-146#	τ. θ. και Χρ.
113.4	5:5,2.4	Ex-149\$	Χρ. του θ.
114.2	5:9,1.2	Ex-150\$	πνευματος
115.2	5:10,1.2	Ex-146#	θεω
116.2	5:14,1.2	Ex-149\$	επιψαυσεις του Χριστου
117.1	5:15,1.1	Ex-154\$	ἀκριβως πως
117.3	5:15,1.3	Ex-149\$	αδελφοι π. ακρ.
118.2	5:17,1.2	Ex-146#	συνιεντες
119.2	5:17,2.2	01*	φρονημα
120.2	5:17,3.2	Ex-149\$	θεου
120.3	5:17,3.3	P^46*	Χριστου
121.1	5:19,1.1	Ex-149\$	έν
122.2	5:19,2.2	Ex-137	πν. εν χαριτι
122.3	5:19,2.3	Ex-149\$	
123.1	5:19,3.1	Ex-149\$	σπλη καρδια
123.2	5:19,3.2	Ex-147#	εν τη κ.
124.2	5:20,1.2	Ex-154\$	2 1
125.2	5:20,2.2	Ex-146#	Ιησου Χρ.
125.3	5:20,2.3	Ex-149\$	κυριου
125.4	5:20,2.4	Ex-154\$	θεου
126.1	5:22,1.1	Ex-149\$	ομιτ
126.3	5:22,1.3	Ex-146#	υποτασσεσθε
127.2	5:23,1.2	Ex-146#	2 1
128.2	5:23,2.2	Ex-147#	και αυ. εστιν
129.2	5:24,1.2	Ex-149\$	ομιτ
130.2	5:25,1.2	Ex-146#	υμων
130.3	5:25,1.3	Ex-154\$	εαυτων
131.1	5:28,1.1	Ex-149\$	ὀφειλουσιν και οι ανδρες
131.3	5:28,1.3	Ex-146#	2-4 1
132.2	5:29,1.2	Ex-147#	κυριος
133.2	5:30,1.2	Ex-146#	εκ της σαρκος αυτου και εκ των οστων αυτου
134.2	5:31,1.2	Ex-146#	ομιτ
135.2	5:31,2.2	Ex-146#	ομιτ
136.1	5:31,3.1	Ex-154\$	και προσκολληθησεται προς την γυναικα αυτου
136.3	5:31,3.3	Ex-149\$	
137.2	5:32,1.2	Ex-154\$	ομιτ

138.2	6:1,1.2	Ex-146#	ομιτ
139.2	6:2,1.2	B*	ομιτ
140.1	6:5,1.1	Ex-154\$	κατα σαρκα κυριοις ^ο
141.2	6:5,2.2	Ex-150\$	ομιτ
142.2	6:7,1.2	Ex-149\$	ομιτ
143.1	6:8,1.1	Ex-149\$	εκαστος εαν τι
143.3	6:8,1.3	Ex-150\$	ο εκ.
143.4	6:8,1.4	Ex-151\$	ο εαν τι εκ.
143.5	6:8,1.5	Ex-154\$	εαν τι εκ.
144.1	6:10,1.1	Ex-144#	του λοιπου
145.1	6:10,2.1	Ex-149\$	ομιτ
146.2	6:10,3.2	Ex-149\$	δυν
147.2	6:12,1.2	Ex-154\$	υμιν
148.2	6:12,2.2	P^46*	μεθοδιας
149.2	6:12,3.2	Ex-154\$	του αιωνος
150.2	6:12,4.2	Ex-149\$	ομιτ
151.1	6:16,1.1	Ex-149\$	υεν
152.2	6:16,2.2	Ex-154\$	ομιτ
153.2	6:17,1.2	Ex-146#	ομιτ
154.2	6:19,1.2	Ex-146#	ομιτ
155.2	6:20,1.2	Ex-149\$	αυτο
156.1	6:21,1.1	Ex-147#	ειδητε και υμεις
156.3	6:21,1.3	Ex-150\$	1
157.2	6:21,2.2	Ex-149\$	2 1
158.2	6:23,1.2	P^46*	αγιοις
159.2	6:23,2.2	Ex-137	ελεος
160.2	6:24,1.2	Ex-154\$	αμην

Appendix G

*Places Where the Non-Autographic Variants Were Initiated
in the Textual History of Ephesians
Arranged in Order by Witness*

**List of Places Where Non-Autographic Variants Were Initiated
in the Genealogical History, Arranged in Order by Witness
Total = 206**

Witness	Place of Variation	Reference	Variant Reading
P ⁴⁶ *	2.3	1:1,2,3	
P ⁴⁶ *	32.2	2:5,1.2	<i>τ. σωμασιν</i>
P ⁴⁶ *	56.2	3:8,1.2	<i>ομιτ</i>
P ⁴⁶ *	87.3	4:15,3.3	<i>του Χριστου</i>
P ⁴⁶ *	88.2	4:16,1.2	<i>και ενεργειας</i>
P ⁴⁶ *	104.2	4:30,1.2	<i>ομιτ</i>
P ⁴⁶ *	113.2	5:5,2.2	<i>1 4</i>
P ⁴⁶ *	120.3	5:17,3.3	<i>Χριστου</i>
P ⁴⁶ *	148.2	6:12,2.2	<i>μεθοδιας</i>
P ⁴⁶ *	158.2	6:23,1.2	<i>αγιοις</i>
Total for P ⁴⁶ * = 10			
01*	119.2	5:17,2.2	<i>φρονημα</i>
Total for 01* = 1			
B*	4.2	1:3,1.2	<i>ομιτ</i>
B*	28.2	2:1,1.2	<i>επιθυμιας</i>
B*	48.2	2:22,1.2	<i>Χριστου</i>
B*	139.2	6:2,1.2	<i>ομιτ</i>
Total for B* = 4			
K*%	41.3	2:15,3.3	<i>και μονον</i>
Total for K*% = 1			
P025*%	12.2	1:9,3.2	<i>εαυτω</i>
Total for P025*% = 1			
0278*%	35.2	2:7,1.2	<i>τον -τα -ον</i>
Total for 0278*% = 1			
285%	134.1	5:31,1.1	<i>του</i>
285%	135.1	5:31,2.1	<i>την</i>
Total for 0285% = 2			
33*	71.2	3:19,2.2	<i>ις υμας</i>

Total for 33* = 1			
629*	102.6	4:28,1.6	<i>εν τ. χ. αυτου το αγ.</i>
Total for 629* = 1			
1241*%	108.3	5:2,2.3	<i>ημεν φθορα</i>
Total for 1241*% = 1			
2464*%	50.3	3:1,2.3	<i>κεκαυχημαι</i>
Total for 2464*% = 1			
CI^a%	62.2	3:11,1.2	<i>προγνωσιν</i>
Total for CI^a% = 1			
Irlat^a%	18.1	1:14,1.1	<i>ο</i>
Irlat^a%	90.1	4:16,3.1	<i>εαυτου</i>
Total for Irlat^a% = 2			
Irlat^b%	18.1	1:14,1.1	<i>ο</i>
Irlat^b%	90.1	4:16,3.1	<i>εαυτου</i>
Total for Irlat^b% = 2			
Or^b%	47.1	2:21,1.1	<i>ομιτ</i>
Total for Or^b% = 1			
Ex-136	21.2	1:17,1.2	<i>δῶ</i>
Ex-136	45.2	2:19,2.2	<i>και</i>
Total for Ex-136 = 2			
Ex-137	84.2	4:14,1.2	<i>του διαβολου</i>
Ex-137	122.2	5:19,2.2	<i>πν. εν χαριτι</i>
Ex-137	159.2	6:23,2.2	<i>ελεος</i>
Total for Ex-137 = 3			
Ex-139	35.2	2:7,1.2	<i>τον -τα -ον</i>
Ex-139	52.3	3:3,2.3	<i>εγνωρισε</i>
Total for Ex-139 = 2			
Ex-144#	54.1	3:6,1.1	<i>ομιτ</i>

Ex-144#	57.1	3:8,2.1	ομιτ
Ex-144#	64.1	3:13,1.1	ἐγκακειν
Ex-144#	92.1	4:18,1.1	ἐσκοτωμενοι
Ex-144#	144.1	6:10,1.1	του λοιπου
Total for Ex-144# = 5			
Ex-146#	5.2	1:4,1.2	εαυτω
Ex-146#	7.2	1:6,2.2	υιω αυτου
Ex-146#	10.2	1:9,1.2	Πσαι
Ex-146#	14.2	1:11,1.2	εκκληθ
Ex-146#	15.2	1:11,2.2	του θεου
Ex-146#	19.4	1:15,1.4	1 2 4-7
Ex-146#	20.2	1:16,1.2	υμων
Ex-146#	24.2	1:19,1.2	υμ
Ex-146#	32.3	2:5,1.3	ταις αμαρτιαις
Ex-146#	34.2	2:5,3.2	οὔ
Ex-146#	37.2	2:11,1.2	δια τουτο
Ex-146#	40.2	2:15,2.2	εαυ
Ex-146#	42.2	2:16,1.2	εαυ
Ex-146#	46.2	2:20,1.2	λιθου
Ex-146#	52.2	3:3,2.2	γαρ εγν.
Ex-146#	61.2	3:10,1.2	ομιτ
Ex-146#	67.2	3:14,1.2	του κυριου ημων Ιησου Χριστου
Ex-146#	74.2	4:4,1.2	ομιτ
Ex-146#	76.2	4:6,2.2	ημιν
Ex-146#	85.2	4:15,1.2	αληθειαν δε ποιουντες
Ex-146#	88.3	4:16,1.3	
Ex-146#	94.2	4:19,2.2	και Πιας
Ex-146#	99.2	4:24,2.2	και αληθεια
Ex-146#	103.2	4:29,1.2	πιστεως
Ex-146#	105.2	4:32,1.2	ουν
Ex-146#	109.2	5:4,1.2	ἦ
Ex-146#	113.3	5:5,2.3	τ. θ. και Χρ.
Ex-146#	115.2	5:10,1.2	θεω
Ex-146#	118.2	5:17,1.2	συνιεντες
Ex-146#	125.2	5:20,2.2	Ιησου Χρ.
Ex-146#	126.3	5:22,1.3	υποτασσεσθε
Ex-146#	127.2	5:23,1.2	2 1
Ex-146#	130.2	5:25,1.2	υμων

Ex-146#	131.3	5:28,1.3	2-4 1
Ex-146#	133.2	5:30,1.2	εκ της σαρκος αυτου και εκ των οστων αυτου
Ex-146#	134.2	5:31,1.2	ομιτ
Ex-146#	135.2	5:31,2.2	ομιτ
Ex-146#	138.2	6:1,1.2	ομιτ
Ex-146#	153.2	6:17,1.2	ομιτ
Ex-146#	154.2	6:19,1.2	ομιτ
Total for Ex-146# = 40			
Ex-147#	19.1	1:15,1.1	την αγαπην την εις παντας τους αγιους
Ex-147#	23.2	1:18,2.2	και
Ex-147#	43.2	2:17,1.2	ομιτ
Ex-147#	45.3	2:19,2.3	
Ex-147#	55.2	3:7,1.2	την Παν
Ex-147#	123.2	5:19,3.2	εν τη κ.
Ex-147#	128.2	5:23,2.2	και αυ. εστιν
Ex-147#	132.2	5:29,1.2	κυριος
Ex-147#	156.1	6:21,1.1	ειδητε και υμεις
Total for Ex-147# = 9			
Ex-149\$	1.1	1:1,1.1	Χριστου Ίησου ^ο
Ex-149\$	2.2	1:1,2.2	πασιν τ.
Ex-149\$	3.2	1:1,3.2	ομιτ
Ex-149\$	9.2	1:7,2.2	χρηστοτητος
Ex-149\$	13.1	1:10,1.1	επι
Ex-149\$	16.2	1:13,1.2	ημ
Ex-149\$	17.2	1:13,2.2	ημ
Ex-149\$	18.2	1:14,1.2	ος
Ex-149\$	22.2	1:18,1.2	ομιτ
Ex-149\$	25.2	1:20,1.2	-ηκεν
Ex-149\$	26.1	1:20,2.1	καθισας
Ex-149\$	27.2	1:20,3.2	ουρανοις
Ex-149\$	29.2	2:3,1.2	κ. υμεις
Ex-149\$	31.2	2:4,2.2	ηλεησεν
Ex-149\$	32.4	2:5,1.4	τοις παρ. και ταις αμ.
Ex-149\$	33.2	2:5,2.2	εν
Ex-149\$	36.2	2:8,1.2	της
Ex-149\$	37.3	2:11,1.3	
Ex-149\$	38.2	2:13,1.2	ομιτ

Ex-149\$	39.2	2:15,1.2	ομιτ
Ex-149\$	50.2	3:1,2.2	πρεσβευω
Ex-149\$	53.2	3:5,1.2	ομιτ
Ex-149\$	58.2	3:9,1.2	ομιτ
Ex-149\$	63.2	3:12,1.2	τω ελευθερωθηται
Ex-149\$	65.2	3:13,2.2	ημων
Ex-149\$	66.2	3:13,3.2	ἡ τίς
Ex-149\$	70.2	3:19,1.2	πληρωθη
Ex-149\$	73.2	3:21,1.2	ομιτ
Ex-149\$	82.2	4:11,1.2	δεδ
Ex-149\$	89.2	4:16,2.2	μελους
Ex-149\$	91.2	4:17,1.2	λοιπα
Ex-149\$	95.2	4:22,1.2	την Πιαν
Ex-149\$	97.2	4:23,2.2	ειν
Ex-149\$	100.2	4:25,1.2	ομιτ
Ex-149\$	101.2	4:26,1.2	ομιτ
Ex-149\$	105.3	4:32,1.3	
Ex-149\$	108.2	5:2,2.2	υμων πρ.
Ex-149\$	111.2	5:4,3.2	και
Ex-149\$	113.4	5:5,2.4	Χρ. του θ.
Ex-149\$	116.2	5:14,1.2	επιψαυσεις του Χριστου
Ex-149\$	117.3	5:15,1.3	αδελφοι π. ακρ.
Ex-149\$	120.2	5:17,3.2	θεου
Ex-149\$	121.1	5:19,1.1	εν
Ex-149\$	122.3	5:19,2.3	
Ex-149\$	123.1	5:19,3.1	τη καρδια
Ex-149\$	125.3	5:20,2.3	κυριου
Ex-149\$	126.1	5:22,1.1	ομιτ
Ex-149\$	129.2	5:24,1.2	ομιτ
Ex-149\$	131.1	5:28,1.1	οφειλουσιν και οι ανδρες
Ex-149\$	136.3	5:31,3.3	
Ex-149\$	142.2	6:7,1.2	ομιτ
Ex-149\$	143.1	6:8,1.1	εκαστος εαν τι
Ex-149\$	145.1	6:10,2.1	ομιτ
Ex-149\$	146.2	6:10,3.2	δυν
Ex-149\$	150.2	6:12,4.2	ομιτ
Ex-149\$	151.1	6:16,1.1	εν
Ex-149\$	155.2	6:20,1.2	αυτο
Ex-149\$	157.2	6:21,2.2	2 I

Total for Ex-149\$ = 58			
Ex-150\$	19.3	1:15,1.3	3-7 2
Ex-150\$	32.5	2:5,1.5	εν τοις παρ. και ταις επιθυμιας
Ex-150\$	68.2	3:15,1.2	-ω
Ex-150\$	80.2	4:9,1.2	πρωτον
Ex-150\$	102.2	4:28,1.2	1 3-5
Ex-150\$	106.2	4:32,2.2	ημ
Ex-150\$	114.2	5:9,1.2	πνευματος
Ex-150\$	141.2	6:5,2.2	ομιτ
Ex-150\$	143.3	6:8,1.3	ο εκ.
Ex-150\$	156.3	6:21,1.3	1
Total for Ex-150\$ = 10			
Ex-151\$	102.3	4:28,1.3	4 5
Ex-151\$	143.4	6:8,1.4	ο εαν τι εκ.
Total for Ex-151\$ = 2			
Ex-153\$	102.5	4:28,1.5	4 5 1-3
Total for Ex-153\$ = 1			
Ex-154\$	6.2	1:6,1.2	εν η
Ex-154\$	8.2	1:7,1.2	εσχομεν
Ex-154\$	11.2	1:9,2.2	ομιτ
Ex-154\$	13.3	1:10,1.3	τε εν
Ex-154\$	26.3	1:20,2.3	καθισας αυτον
Ex-154\$	29.3	2:3,1.3	
Ex-154\$	30.2	2:4,1.2	ομιτ
Ex-154\$	41.2	2:15,3.2	κοινων
Ex-154\$	44.2	2:19,1.2	ομιτ
Ex-154\$	47.2	2:21,1.2	η
Ex-154\$	49.2	3:1,1.2	ομιτ
Ex-154\$	51.2	3:3,1.2	ομιτ
Ex-154\$	59.2	3:9,2.2	ομιτ
Ex-154\$	60.2	3:9,3.2	δια Ιησου Χριστου
Ex-154\$	69.1	3:18,1.1	υψος και βαθος
Ex-154\$	72.2	3:20,1.2	ομιτ
Ex-154\$	75.2	4:6,1.2	ομιτ
Ex-154\$	77.1	4:7,1.1	η

Ex-154\$	78.2	4:8,1.2	<i>και</i>
Ex-154\$	79.2	4:8,2.2	<i>ειν</i>
Ex-154\$	81.2	4:9,2.2	<i>ομιτ</i>
Ex-154\$	83.2	4:13,1.2	<i>ομιτ</i>
Ex-154\$	86.2	4:15,2.2	<i>ομιτ</i>
Ex-154\$	87.2	4:15,3.2	<i>ο Χρ.</i>
Ex-154\$	90.2	4:16,3.2	<i>αυ</i>
Ex-154\$	93.2	4:19,1.2	<i>απηλπικ</i>
Ex-154\$	96.2	4:23,1.2	<i>-θε</i>
Ex-154\$	98.2	4:24,1.2	<i>-θε</i>
Ex-154\$	102.4	4:28,1.4	<i>4 5 1 3</i>
Ex-154\$	107.2	5:2,1.2	<i>υμ</i>
Ex-154\$	110.2	5:4,2.2	<i>ομιτ</i>
Ex-154\$	112.2	5:5,1.2	<i>ος</i>
Ex-154\$	117.1	5:15,1.1	<i>ἀκριβως πως</i>
Ex-154\$	124.2	5:20,1.2	<i>2 1</i>
Ex-154\$	125.4	5:20,2.4	<i>θεου</i>
Ex-154\$	130.3	5:25,1.3	<i>εαυτων</i>
Ex-154\$	136.1	5:31,3.1	<i>και προσκολληθησεται προς την γυναικα αυτου</i>
Ex-154\$	137.2	5:32,1.2	<i>ομιτ</i>
Ex-154\$	140.1	6:5,1.1	<i>κατα σαρκα κυριοις^ο</i>
Ex-154\$	143.5	6:8,1.5	<i>εαν τι εκ.</i>
Ex-154\$	147.2	6:12,1.2	<i>υμιν</i>
Ex-154\$	149.2	6:12,3.2	<i>του αιωνος</i>
Ex-154\$	152.2	6:16,2.2	<i>ομιτ</i>
Ex-154\$	160.2	6:24,1.2	<i>αμην</i>
Total for Ex-154\$ = 44			

Appendix H

*Every Place Where a Variant is Initiated
in the Textual History of Ephesians
Arranged in Order by Reference*

This appendix lists every place a variant is introduced into the textual history of Ephesians either initially or later by mixture. The information is arranged in order by reference as follows: (1) place of variation, (2) reference, (3) witness(es) where variant was initiated. Those witnesses enclosed in square brackets [] are places where the variant was introduced by mixture; those not enclosed are where the variant first originated. The number enclosed in <> is the generation of the preceding witness. For example, the following line means:

7.1	1:6,2.1	[Ex-132]<3>; Autograph;
-----	---------	-------------------------

- (1) 7.1 refers to the first variant in variation unit 7.
- (2) 1:6,2.1 is the reference where this place of variation occurs: chapter 1, verse 6, the second place of variation in this verse, the first variant there.
- (3) *Autograph* means that the variant was initiated in the autograph and then by mixture in [Ex-132]<3>

Since the variant was first initiated in an exemplar, in this case the autograph, one can presume that the variant was inherited by all of the descendants of the autograph unless otherwise altered in one of its subsequent branches.

The following line means:

9.2	1:7,2.2	[365%]<2>; [bo^a%]<2>; [Ex-137]<2>; Ex-149\$<1>;
-----	---------	--

- (1) 9.2 refers to the second variant in variation unit 7.
- (2) 1:7,2.2 is the reference where this place of variation occurs: chapter 1, verse 7, the second place of variation in this verse, the second variant there.
- (3) The variant was first initiated in first-generation virtual exemplar Ex-149\$, and subsequently initiated by mixture from Ex-147\$ into [365%]<2>; [bo^a%]<2>; [Ex-137]<2>.

Since the variant was first initiated in a virtual exemplar, one may safely assume that the variant randomly happened by scribal accident and not by actual mixture in a context of actual genealogical descent.

The following line means:

2.3	1:1,2.3	P^46*<2>;
-----	---------	-----------

- (1) 2.3 refers to the third variant in variation unit 2.
- (2) 1:1,2.3 is the reference where this place of variation occurs: chapter 1, verse 1, the second place of variation in this verse, the third variant there.
- (3) The variant was first initiated only in second-generation extant papyrus P^51%. This is a singularity; it has no heredity.

Place of Variation	Reference	Places Variant is Introduced
1.1	1:1,1.1	[P^46*]<2>; [B*]<4>; [D06*]<6>; [D06^c%]<4>; [D06^1]<4>; [D06^2]<4>; [P025*%]<2>; [33*]<3>; [1505*%]<2>; [it-b*]<3>; [sy^h%]<4>; [NA-27]<2>; [Ambst%]<2>; [Ex-132]<3>; Ex-149\$<1>;
1.2	1:1,1.2	Autograph;
2.1	1:1,2.1	[0278*%]<4>; Autograph;
2.2	1:1,2.2	[01^2]<3>; [P025*%]<2>; [81*%]<2>; [326]<3>; [629*]<5>; [2464*%]<3>; [vg^cl]<3>; [it-b*]<3>; [it-f*]<5>; [bo^a%]<2>; [Ex-132]<3>; [Ex-137]<2>; Ex-149\$<1>;
2.3	1:1,2.3	P^46* <2>;
3.1	1:1,3.1	[1881*]<4>; Autograph;
3.2	1:1,3.2	[P^46*]<2>; [01*]<3>; [McionT%]<6>; [Ex-143]<2>; Ex-149\$<1>;
4.1	1:3,1.1	Autograph;
4.2	1:3,1.2	B* <4>;
5.1	1:4,1.1	[D06*]<6>; [it-b*]<3>; [it-d]<4>; [Ex-134]<2>; Autograph;
5.2	1:4,1.2	Ex-146#<1>;
6.1	1:6,1.1	[0278*%]<4>; Autograph;
6.2	1:6,1.2	[01^2]<3>; [Ex-139]<2>; [Ex-146#]<1>; [Ex-149\$]<1>; Ex-154\$<1>;
7.1	1:6,2.1	[Ex-132]<3>; Autograph;
7.2	1:6,2.2	[629*]<5>; [sa^a%]<2>; [sa^b%]<2>; Ex-146#<1>;
8.1	1:7,1.1	Autograph;
8.2	1:7,1.2	[01*]<3>; [D06*]<6>; [044*]<5>; [104*%]<2>; [1505*%]<2>; [it-d]<4>; [sa^a%]<2>; [sa^b%]<2>; [bo^a%]<2>; [bo^b%]<2>; [Irlat^b%]<3>; [Ex-149\$]<1>; Ex-154\$<1>;
9.1	1:7,2.1	Autograph;
9.2	1:7,2.2	[365%]<2>; [bo^a%]<2>; [Ex-137]<2>; Ex-149\$<1>;
10.1	1:9,1.1	[D06*]<6>; Autograph;
10.2	1:9,1.2	Ex-146#<1>;
11.1	1:9,2.1	[Ex-134]<2>; Autograph;
11.2	1:9,2.2	[D06^c%]<4>; [D06^1]<4>; [D06^2]<4>; [vg^b]<4>; [Ex-146#]<1>; [Ex-149\$]<1>; Ex-154\$<1>;
12.1	1:9,3.1	Autograph;
12.2	1:9,3.2	P025*% <2>;
13.1	1:10,1.1	[P^46*]<2>; [01*]<3>; [B*]<4>; [D06*]<6>; [D06^c%]<4>; [D06^1]<4>; [D06^2]<4>; [L020*%]<2>; [L020^c%]<3>; [6]<3>; [629*]<5>; [630%]<2>; [1241*%]<3>; [1505*%]<2>; [pm^b]<5>; [HF]<5>; [RP]<5>; [it-d]<4>; [NA-27]<2>; Ex-149\$<1>;
13.2	1:10,1.2	Autograph;
13.3	1:10,1.3	[01^2]<3>; [TR]<5>; [Ambr%]<2>; [Ex-133]<4>; [Ex-150\$]<1>; Ex-154\$<1>;
14.1	1:11,1.1	[it-b*]<3>; [it-f*]<5>; [Ex-134]<2>; Autograph;
14.2	1:11,1.2	[D06^c%]<4>; [D06^1]<4>; [D06^2]<4>; [Ex-137]<2>; Ex-146#<1>;
15.1	1:11,2.1	[vg^a%]<4>; [vg^cl]<3>; [vg^s%]<4>; [vg^st]<4>; [vg^ww]<4>; [it-b*]<3>; [it-r%]<3>; Autograph;
15.2	1:11,2.2	[D06^c%]<4>; [D06^1]<4>; [D06^2]<4>; [81*%]<2>; [104*%]<2>; [365%]<2>; [1175*%]<2>; [1175^c%]<2>; [sa^a%]<2>; [sa^b%]<2>; [bo^b%]<2>; Ex-146#<1>;
16.1	1:13,1.1	Autograph;

16.2	1:13,1.2	[01^2]<3>; [K*%]<5>; [L020*%]<2>; [L020^c%]<3>; [044*]<5>; [326]<3>; [629*]<5>; [630%]<2>; [1241*%]<3>; [2464*%]<3>; [Ex-137]<2>; Ex-149\$<1>;
17.1	1:13,2.1	Autograph;
17.2	1:13,2.2	[K*%]<5>; [044*]<5>; [630%]<2>; [1505*%]<2>; [2464*%]<3>; [Ex-133]<4>; Ex-149\$<1>;
18.1	1:14,1.1	[sy^p%]<4>; Irlat^a%<3>; Irlat^b%<3>; Autograph;
18.2	1:14,1.2	[D06*]<6>; [Ex-130]<2>; [Ex-139]<2>; Ex-149\$<1>;
19.1	1:15,1.1	[01^2]<3>; [it-b*]<3>; [sa^a%]<2>; [sa^b%]<2>; [bo^b%]<2>; [NA-27]<2>; [Ex-134]<2>; Ex-147#<1>;
19.2	1:15,1.2	[Hier^a%]<2>; [Hier^b%]<2>; [Ex-136]<3>; Autograph;
19.3	1:15,1.3	[81*%]<2>; [104*%]<2>; [326]<3>; [365%]<2>; [1175*%]<2>; [1175^c%]<2>; Ex-150\$<1>;
19.4	1:15,1.4	Ex-146#<1>;
20.1	1:16,1.1	[D06*]<6>; Autograph;
20.2	1:16,1.2	[6]<3>; [Ex-135]<3>; Ex-146#<1>;
21.1	1:17,1.1	Autograph;
21.2	1:17,1.2	Ex-136<3>;
22.1	1:18,1.1	Autograph;
22.2	1:18,1.2	[P^46*]<2>; [33*]<3>; [1175*%]<2>; [1175^c%]<2>; [Ex-143]<2>; Ex-149\$<1>;
23.1	1:18,2.1	[it-r%]<3>; [it-t%]<3>; [Ex-132]<3>; [Ex-136]<3>; Autograph;
23.2	1:18,2.2	[01^2]<3>; [Ex-134]<2>; Ex-147#<1>;
24.1	1:19,1.1	[vg^cl]<3>; [Ex-132]<3>; Autograph;
24.2	1:19,1.2	[P025*%]<2>; [33*]<3>; [104*%]<2>; [629*]<5>; [1175*%]<2>; [1175^c%]<2>; Ex-146#<1>;
25.1	1:20,1.1	[0278*%]<4>; Autograph;
25.2	1:20,1.2	[B*]<4>; [81*%]<2>; [Ex-137]<2>; Ex-149\$<1>;
26.1	1:20,2.1	[104*%]<2>; [365%]<2>; [1175*%]<2>; [1175^c%]<2>; [1505*%]<2>; [it-f*]<5>; [NA-27]<2>; [Ex-134]<2>; [Ex-136]<3>; Ex-149\$<1>;
26.2	1:20,2.2	[it-r%]<3>; Autograph;
26.3	1:20,2.3	[Ex-140]<5>; [Ex-144#]<1>; [Ex-150\$]<1>; Ex-154\$<1>;
27.1	1:20,3.1	Autograph;
27.2	1:20,3.2	[B*]<4>; [365%]<2>; [629*]<5>; [sy^p%]<4>; [MVict%]<6>; Ex-149\$<1>;
28.1	2:1,1.1	Autograph;
28.2	2:1,1.2	B*<4>;
29.1	2:3,1.1	[it-b*]<3>; [Ex-134]<2>; Autograph;
29.2	2:3,1.2	[A*]<3>; [D06*]<6>; [81*%]<2>; [326]<3>; [365%]<2>; [it-d]<4>; Ex-149\$<1>;
29.3	2:3,1.3	[L020*%]<2>; [L020^c%]<3>; [Ex-146#]<1>; [Ex-150\$]<1>; Ex-154\$<1>;
30.1	2:4,1.1	[it-f*]<5>; [Ex-134]<2>; Autograph;
30.2	2:4,1.2	[P^46*]<2>; [Aug^a%]<3>; [Ex-146#]<1>; [Ex-149\$]<1>; Ex-154\$<1>;
31.1	2:4,2.1	Autograph;
31.2	2:4,2.2	[P^46*]<2>; [it-b*]<3>; [it-d]<4>; [Ambst%]<2>; Ex-149\$<1>;
32.1	2:5,1.1	[0278*%]<4>; Autograph;
32.2	2:5,1.2	P^46*<2>;
32.3	2:5,1.3	Ex-146#<1>;

32.4	2:5,1.4	[044*]<5>; [Or^lat^a%]<2>; Ex-149\$<1>;
32.5	2:5,1.5	[B*]<4>; [Ex-134]<2>; Ex-150\$<1>;
33.1	2:5,2.1	[Ex-132]<3>; Autograph;
33.2	2:5,2.2	[P^46*]<2>; [B*]<4>; [33*]<3>; [Ambst%]<2>; [Ex-134]<2>; [Ex-140]<5>; Ex-149\$<1>;
34.1	2:5,3.1	[Ex-132]<3>; Autograph;
34.2	2:5,3.2	[sy^p%]<4>; [Aug^a%]<3>; Ex-146#<1>;
35.1	2:7,1.1	[l^249]<5>; Autograph;
35.2	2:7,1.2	0278*%<4>; Ex-139<2>;
36.1	2:8,1.1	[0278*%]<4>; Autograph;
36.2	2:8,1.2	[1881*]<4>; [Ex-137]<2>; [Ex-139]<2>; Ex-149\$<1>;
37.1	2:11,1.1	[D06*]<6>; [it-b*]<3>; [Ex-134]<2>; Autograph;
37.2	2:11,1.2	Ex-146#<1>;
37.3	2:11,1.3	[104*%]<2>; [it-d]<4>; [Ambst%]<2>; [MVict%]<6>; Ex-149\$<1>;
38.1	2:13,1.1	Autograph;
38.2	2:13,1.2	[P^46*]<2>; [B*]<4>; [0278*%]<4>; Ex-149\$<1>;
39.1	2:15,1.1	Autograph;
39.2	2:15,1.2	[P^46*]<2>; [vg^b]<4>; Ex-149\$<1>;
40.1	2:15,2.1	[F*]<6>; [l^249]<5>; Autograph;
40.2	2:15,2.2	[01^2]<3>; [6]<3>; [Ex-135]<3>; Ex-146#<1>;
41.1	2:15,3.1	[D06*]<6>; [it-b*]<3>; [it-d]<4>; [Ex-134]<2>; Autograph;
41.2	2:15,3.2	[P^46*]<2>; [Ex-146#]<1>; [Ex-149\$]<1>; Ex-154\$<1>;
41.3	2:15,3.3	K*%<5>;
42.1	2:16,1.1	[D06*]<6>; Autograph;
42.2	2:16,1.2	Ex-146#<1>;
43.1	2:17,1.1	[D06^c%]<4>; [D06^1]<4>; [D06^2]<4>; [l^249]<5>; [Ex-136]<3>; Autograph;
43.2	2:17,1.2	[McionT%]<6>; Ex-147#<1>;
44.1	2:19,1.1	[B*]<4>; [D06*]<6>; [it-b*]<3>; [it-d]<4>; [Ex-134]<2>; Autograph;
44.2	2:19,1.2	[P^46*]<2>; [044*]<5>; [sy^p%]<4>; [Ex-136]<3>; [Ex-146#]<1>; [Ex-149\$]<1>; Ex-154\$<1>;
45.1	2:19,2.1	[B*]<4>; Autograph;
45.2	2:19,2.2	Ex-136<3>;
45.3	2:19,2.3	Ex-147#<1>;
46.1	2:20,1.1	Autograph;
46.2	2:20,1.2	[629*]<5>; Ex-146#<1>;
47.1	2:21,1.1	[B*]<4>; [1739*]<4>; [Cl^a%]<3>; Or^b%<3>; [Ex-135]<3>; Autograph;
47.2	2:21,1.2	[01^1]<3>; [C*%]<2>; [C^3%]<2>; [P025*%]<2>; [81*%]<2>; [TR]<5>; [Ex-137]<2>; [Ex-147#]<1>; [Ex-149\$]<1>; Ex-154\$<1>;
48.1	2:22,1.1	Autograph;
48.2	2:22,1.2	B*<4>;
49.1	3:1,1.1	[it-b*]<3>; [Ex-134]<2>; Autograph;
49.2	3:1,1.2	[01*]<3>; [365%]<2>; [Ex-146#]<1>; [Ex-149\$]<1>; Ex-154\$<1>;
50.1	3:1,2.1	Autograph;

50.2	3:1,2.2	[D06*]<6>; [D06^c%]<4>; [D06^1]<4>; [D06^2]<4>; [104*%]<2>; [it-d]<4>; Ex-149\$<1>;
50.3	3:1,2.3	2464*%<3>;
51.1	3:3,1.1	[D06*]<6>; [Ex-134]<2>; Autograph;
51.2	3:3,1.2	[P^46*]<2>; [B*]<4>; [Ex-146#]<1>; [Ex-149\$]<1>; Ex-154\$<1>;
52.1	3:3,2.1	[D06*]<6>; [044*]<5>; [it-b*]<3>; [it-d]<4>; [sy^h%]<4>; [sy^p%]<4>; [Ex-134]<2>; Autograph;
52.2	3:3,2.2	Ex-146#<1>;
52.3	3:3,2.3	Ex-139<2>;
53.1	3:5,1.1	Autograph;
53.2	3:5,1.2	[B*]<4>; [it-b*]<3>; [Ambst%]<2>; Ex-149\$<1>;
54.1	3:6,1.1	[D06*]<6>; [it-b*]<3>; [it-d]<4>; [Ex-132]<3>; [Ex-136]<3>; Ex-144#<1>;
54.2	3:6,1.2	Autograph;
55.1	3:7,1.1	[B*]<4>; [326]<3>; Autograph;
55.2	3:7,1.2	Ex-147#<1>;
56.1	3:8,1.1	Autograph;
56.2	3:8,1.2	P^46*<2>;
57.1	3:8,2.1	[B*]<4>; Ex-144#<1>;
57.2	3:8,2.2	[33*]<3>; Autograph;
58.1	3:9,1.1	[B*]<4>; Autograph;
58.2	3:9,1.2	[01*]<3>; [Ambst%]<2>; [Ex-137]<2>; [Ex-143]<2>; Ex-149\$<1>;
59.1	3:9,2.1	Autograph;
59.2	3:9,2.2	[01*]<3>; [614*]<5>; [McionT%]<6>; [Ex-149\$]<1>; Ex-154\$<1>;
60.1	3:9,3.1	[044*]<5>; [sy^p%]<4>; [Ex-136]<3>; Autograph;
60.2	3:9,3.2	[0278*%]<4>; [1881*]<4>; [Ex-147#]<1>; [Ex-149\$]<1>; Ex-154\$<1>;
61.1	3:10,1.1	[D06*]<6>; [0278*%]<4>; Autograph;
61.2	3:10,1.2	[629*]<5>; [sy^p%]<4>; Ex-146#<1>;
62.1	3:11,1.1	Autograph;
62.2	3:11,1.2	Cl^a%<3>;
63.1	3:12,1.1	Autograph;
63.2	3:12,1.2	[D06*]<6>; [it-d]<4>; Ex-149\$<1>;
64.1	3:13,1.1	[B*]<4>; [D06*]<6>; [326]<3>; [it-d]<4>; Ex-144#<1>;
64.2	3:13,1.2	[C*%]<2>; [C^3%]<2>; [0278*%]<4>; Autograph;
65.1	3:13,2.1	Autograph;
65.2	3:13,2.2	[P^46*]<2>; [81*%]<2>; [bo^b%]<2>; Ex-149\$<1>;
66.1	3:13,3.1	Autograph;
66.2	3:13,3.2	[1175*%]<2>; [1175^c%]<2>; [1881*]<4>; Ex-149\$<1>;
67.1	3:14,1.1	[vg^b]<4>; [Or^b%]<3>; Autograph;
67.2	3:14,1.2	[01^2]<3>; [1881*]<4>; [Ex-139]<2>; Ex-146#<1>;
68.1	3:15,1.1	[0285%]<3>; [vg^a%]<4>; [vg^cl]<3>; [vg^s%]<4>; [vg^st]<4>; [vg^ww]<4>; [it-r%]<3>; [it-t%]<3>; Autograph;
68.2	3:15,1.2	[P025*%]<2>; [81*%]<2>; [104*%]<2>; [365%]<2>; [945]<5>; [1175*%]<2>; [1175^c%]<2>; [Hil%]<2>; [Ex-134]<2>; Ex-150\$<1>;

69.1	3:18,1.1	[P ^{46*}] _{<2>} ; [B*] _{<4>} ; [C*%] _{<2>} ; [C ^{3%}] _{<2>} ; [D06 ^{c%}] _{<4>} ; [D06 ¹] _{<4>} ; [D06 ²] _{<4>} ; [I%] _{<3>} ; [P025*%] _{<2>} ; [33*] _{<3>} ; [81*%] _{<2>} ; [326] _{<3>} ; [365%] _{<2>} ; [1175*%] _{<2>} ; [1175 ^{c%}] _{<2>} ; [sa ^{a%}] _{<2>} ; [sa ^{b%}] _{<2>} ; [bo ^{a%}] _{<2>} ; [bo ^{b%}] _{<2>} ; [NA-27] _{<2>} ; [Or ^{a%}] _{<2>} ; [Ex-146#] _{<1>} ; [Ex-149\$] _{<1>} ; Ex-154\$ _{<1>} ;
69.2	3:18,1.2	Autograph;
70.1	3:19,1.1	Autograph;
70.2	3:19,1.2	[P ^{46*}] _{<2>} ; [B*] _{<4>} ; [0278*%] _{<4>} ; [33*] _{<3>} ; [1175*%] _{<2>} ; [1175 ^{c%}] _{<2>} ; [sa ^{a%}] _{<2>} ; [sa ^{b%}] _{<2>} ; Ex-149\$ _{<1>} ;
71.1	3:19,2.1	Autograph;
71.2	3:19,2.2	33* _{<3>} ;
72.1	3:20,1.1	[0278*%] _{<4>} ; [Ex-134] _{<2>} ; Autograph;
72.2	3:20,1.2	[P ^{46*}] _{<2>} ; [D06 ^{c%}] _{<4>} ; [D06 ¹] _{<4>} ; [D06 ²] _{<4>} ; [vg ^{cl}] _{<3>} ; [Ex-132] _{<3>} ; [Ex-146#] _{<1>} ; [Ex-149\$] _{<1>} ; Ex-154\$ _{<1>} ;
73.1	3:21,1.1	[614*] _{<5>} ; Autograph;
73.2	3:21,1.2	[bo ^{b%}] _{<2>} ; [Ex-139] _{<2>} ; Ex-149\$ _{<1>} ;
74.1	4:4,1.1	[0278*%] _{<4>} ; [Ex-138] _{<5>} ; Autograph;
74.2	4:4,1.2	[B*] _{<4>} ; [323*] _{<5>} ; [326] _{<3>} ; [sy ^{p%}] _{<4>} ; [sa ^{a%}] _{<2>} ; [sa ^{b%}] _{<2>} ; [bo ^{b%}] _{<2>} ; Ex-146# _{<1>} ;
75.1	4:6,1.1	Autograph;
75.2	4:6,1.2	[51] _{<5>} ; [vg ^b] _{<4>} ; [sy ^{p%}] _{<4>} ; [sa ^{a%}] _{<2>} ; [sa ^{b%}] _{<2>} ; [bo ^{b%}] _{<2>} ; [Ir ^{arm%}] _{<2>} ; [Ex-149\$] _{<1>} ; Ex-154\$ _{<1>} ;
76.1	4:6,2.1	Autograph;
76.2	4:6,2.2	[1739 ^c] _{<4>} ; [Ex-139] _{<2>} ; Ex-146# _{<1>} ;
77.1	4:7,1.1	[0278*%] _{<4>} ; [Ex-135] _{<3>} ; [Ex-144#] _{<1>} ; [Ex-149\$] _{<1>} ; Ex-154\$ _{<1>} ;
77.2	4:7,1.2	[P025*%] _{<2>} ; [044*] _{<5>} ; [1505*%] _{<2>} ; [sa ^{a%}] _{<2>} ; [sa ^{b%}] _{<2>} ; [bo ^{a%}] _{<2>} ; [bo ^{b%}] _{<2>} ; Autograph;
78.1	4:8,1.1	Autograph;
78.2	4:8,1.2	[01 ²] _{<3>} ; [C*%] _{<2>} ; [C ^{3%}] _{<2>} ; [MVict%] _{<6>} ; [Ex-147#] _{<1>} ; [Ex-149\$] _{<1>} ; Ex-154\$ _{<1>} ;
79.1	4:8,2.1	[D06*] _{<6>} ; [it-b*] _{<3>} ; [it-d] _{<4>} ; [it-m*%] _{<6>} ; [it-m ^{c%}] _{<6>} ; [Ex-134] _{<2>} ; Autograph;
79.2	4:8,2.2	[614*] _{<5>} ; [630%] _{<2>} ; [2464*%] _{<3>} ; [vg ^b] _{<4>} ; [Hier ^{b%}] _{<2>} ; [Ex-146#] _{<1>} ; [Ex-149\$] _{<1>} ; Ex-154\$ _{<1>} ;
80.1	4:9,1.1	[D06 ^{c%}] _{<4>} ; [D06 ¹] _{<4>} ; [D06 ²] _{<4>} ; Autograph;
80.2	4:9,1.2	[01 ²] _{<3>} ; [B*] _{<4>} ; [C ^{3%}] _{<2>} ; [vg ^{cl}] _{<3>} ; [it-f*] _{<5>} ; [it-m ^{c%}] _{<6>} ; [Eus ^{a%}] _{<2>} ; [Ex-132] _{<3>} ; [Ex-139] _{<2>} ; Ex-150\$ _{<1>} ;
81.1	4:9,2.1	[vg ^{cl}] _{<3>} ; [it-f*] _{<5>} ; [Ex-132] _{<3>} ; Autograph;
81.2	4:9,2.2	[P ^{46*}] _{<2>} ; [Ex-146#] _{<1>} ; [Ex-149\$] _{<1>} ; Ex-154\$ _{<1>} ;
82.1	4:11,1.1	Autograph;
82.2	4:11,1.2	[P ^{46*}] _{<2>} ; [Cl ^{b%}] _{<2>} ; Ex-149\$ _{<1>} ;
83.1	4:13,1.1	[D06*] _{<6>} ; [it-d] _{<4>} ; [it-m*%] _{<6>} ; [it-m ^{c%}] _{<6>} ; [Ex-134] _{<2>} ; Autograph;
83.2	4:13,1.2	[Cl ^{b%}] _{<2>} ; [Ex-146#] _{<1>} ; [Ex-149\$] _{<1>} ; Ex-154\$ _{<1>} ;
84.1	4:14,1.1	Autograph;
84.2	4:14,1.2	Ex-137 _{<2>} ;
85.1	4:15,1.1	[D06*] _{<6>} ; [it-b*] _{<3>} ; [it-d] _{<4>} ; [it-m*%] _{<6>} ; [it-m ^{c%}] _{<6>} ; [Ex-134] _{<2>} ; Autograph;
85.2	4:15,1.2	Ex-146# _{<1>} ;

86.1	4:15,2.1	[B*]<4>; Autograph;
86.2	4:15,2.2	[Ex-143]<2>; [Ex-146#]<1>; [Ex-149\$]<1>; Ex-154\$<1>;
87.1	4:15,3.1	Autograph;
87.2	4:15,3.2	[01^2]<3>; [Ex-139]<2>; [Ex-146#]<1>; [Ex-149\$]<1>; Ex-154\$<1>;
87.3	4:15,3.3	P^46*<2>;
88.1	4:16,1.1	[D06*]<6>; [vg^cl]<3>; [Ex-132]<3>; Autograph;
88.2	4:16,1.2	P^46*<2>;
88.3	4:16,1.3	Ex-146#<1>;
89.1	4:16,2.1	Autograph;
89.2	4:16,2.2	[C*%]<2>; [C^3%]<2>; [044*]<5>; [365%]<2>; [sy^p%]<4>; [bo^a%]<2>; [Ex-134]<2>; [Ex-137]<2>; Ex-149\$<1>;
90.1	4:16,3.1	[33*]<3>; Irlat^a%<3>; Irlat^b%<3>; Autograph;
90.2	4:16,3.2	[1505*%]<2>; [Ex-130]<2>; [Ex-146#]<1>; [Ex-149\$]<1>; Ex-154\$<1>;
91.1	4:17,1.1	Autograph;
91.2	4:17,1.2	[01^2]<3>; [vg^b]<4>; [Ex-139]<2>; Ex-149\$<1>;
92.1	4:18,1.1	[B*]<4>; [044*]<5>; Ex-144#<1>;
92.2	4:18,1.2	Autograph;
93.1	4:19,1.1	[it-m*%]<6>; [it-m^c%]<6>; Autograph;
93.2	4:19,1.2	[P^99%]<2>; [D06^c%]<4>; [D06^1]<4>; [D06^2]<4>; [P025*%]<2>; [1241*%]<3>; [sy^p%]<4>; [Ex-146#]<1>; [Ex-149\$]<1>; Ex-154\$<1>;
94.1	4:19,2.1	[vg^a%]<4>; [vg^cl]<3>; [vg^s%]<4>; [vg^st]<4>; [vg^ww]<4>; Autograph;
94.2	4:19,2.2	[D06^c%]<4>; [D06^1]<4>; [D06^2]<4>; [1241*%]<3>; [Cl^a%]<3>; Ex-146#<1>;
95.1	4:22,1.1	Autograph;
95.2	4:22,1.2	[D06*]<6>; [D06^c%]<4>; [D06^1]<4>; [D06^2]<4>; [it-d]<4>; [bo^b%]<2>; [Lcf%]<2>; Ex-149\$<1>;
96.1	4:23,1.1	[Ex-138]<5>; Autograph;
96.2	4:23,1.2	[P^46*]<2>; [D06^1]<4>; [K*%]<5>; [33*]<3>; [323*]<5>; [1241*%]<3>; [Ex-146#]<1>; [Ex-149\$]<1>; Ex-154\$<1>;
97.1	4:23,2.1	Autograph;
97.2	4:23,2.2	[P^49%]<2>; [33*]<3>; [1175*%]<2>; [1175^c%]<2>; [Ex-136]<3>; Ex-149\$<1>;
98.1	4:24,1.1	[33*]<3>; [Ex-138]<5>; Autograph;
98.2	4:24,1.2	[P^46*]<2>; [B*]<4>; [D06^1]<4>; [K*%]<5>; [104*%]<2>; [323*]<5>; [1881*]<4>; [Cl^a%]<3>; [Ex-130]<2>; [Ex-146#]<1>; [Ex-149\$]<1>; Ex-154\$<1>;
99.1	4:24,2.1	[vg^a%]<4>; [vg^cl]<3>; [vg^s%]<4>; [vg^st]<4>; [vg^ww]<4>; Autograph;
99.2	4:24,2.2	Ex-146#<1>;
100.1	4:25,1.1	Autograph;
100.2	4:25,1.2	[P^46*]<2>; [it-b*]<3>; [it-m*%]<6>; [it-m^c%]<6>; [Did^a%]<2>; [Lcf%]<2>; Ex-149\$<1>;
101.1	4:26,1.1	Autograph;
101.2	4:26,1.2	[P^49%]<2>; [01*]<3>; [B*]<4>; [1739*]<4>; [Ex-137]<2>; Ex-149\$<1>;
102.1	4:28,1.1	[D06^c%]<4>; [D06^1]<4>; [D06^2]<4>; [pm^b]<5>; [vg^cl]<3>; [it-t%]<3>; Autograph;
102.2	4:28,1.2	[P^46*]<2>; [P^49%]<2>; [01^2]<3>; [B*]<4>; [Ambst%]<2>; [Ex-134]<2>; Ex-150\$<1>;
102.3	4:28,1.3	[P025*%]<2>; [33*]<3>; [Spec%]<2>; [Ex-143]<2>; Ex-151\$<1>;

102.4	4:28,1.4	[L020*%]<2>; [L020^c%]<3>; [044*]<5>; [614*]<5>; [630%]<2>; [Ex-139]<2>; [Ex-149\$]<1>; [Ex-152\$]<1>; Ex-154\$<1>;
102.5	4:28,1.5	[1505*%]<2>; [Ex-131]<4>; Ex-153\$<1>;
102.6	4:28,1.6	629* <5>;
103.1	4:29,1.1	[Ex-132]<3>; Autograph;
103.2	4:29,1.2	Ex-146#<1>;
104.1	4:30,1.1	Autograph;
104.2	4:30,1.2	P^46* <2>;
105.1	4:32,1.1	[1739^c]<4>; [Ex-134]<2>; Autograph;
105.2	4:32,1.2	[1175*%]<2>; [1175^c%]<2>; Ex-146#<1>;
105.3	4:32,1.3	[P^46*]<2>; [0278*%]<4>; [104*%]<2>; [vg^b]<4>; [it-t%]<3>; [Ex-143]<2>; Ex-149\$<1>;
106.1	4:32,2.1	[614*]<5>; [629*]<5>; [TR]<5>; Autograph;
106.2	4:32,2.2	[P^49%]<2>; [D06*]<6>; [33*]<3>; [it-d]<4>; [bo^b%]<2>; [Ex-132]<3>; [Ex-135]<3>; [Ex-136]<3>; Ex-150\$<1>;
107.1	5:2,1.1	[vg^cl]<3>; [Ex-132]<3>; [Ex-138]<5>; Autograph;
107.2	5:2,1.2	[01*]<3>; [B*]<4>; [P025*%]<2>; [81*%]<2>; [326]<3>; [1175*%]<2>; [1175^c%]<2>; [1241*%]<3>; [it-m*%]<6>; [it-m^c%]<6>; [sa^a%]<2>; [sa^b%]<2>; [bo^a%]<2>; [bo^b%]<2>; [Cl^a%]<3>; [Ex-137]<2>; [Ex-146#]<1>; [Ex-149\$]<1>; Ex-154\$<1>;
108.1	5:2,2.1	Autograph;
108.2	5:2,2.2	[B*]<4>; [0278^c%]<2>; [1175*%]<2>; [1175^c%]<2>; [it-b*]<3>; [it-m*%]<6>; [it-m^c%]<6>; [sa^a%]<2>; [sa^b%]<2>; [bo^a%]<2>; [bo^b%]<2>; [Ambst%]<2>; [MVict%]<6>; [Spec%]<2>; Ex-149\$<1>;
108.3	5:2,2.3	1241*% <3>;
109.1	5:4,1.1	[B*]<4>; [1881*]<4>; Autograph;
109.2	5:4,1.2	[044*]<5>; [81*%]<2>; [104*%]<2>; [365%]<2>; [1175*%]<2>; [1175^c%]<2>; [1241*%]<3>; [2464*%]<3>; [sy^h%]<4>; [sa^a%]<2>; [sa^b%]<2>; [bo^b%]<2>; [Ex-136]<3>; [Ex-137]<2>; Ex-146#<1>;
110.1	5:4,2.1	[B*]<4>; [1881*]<4>; Autograph;
110.2	5:4,2.2	[01*]<3>; [P025*%]<2>; [81*%]<2>; [104*%]<2>; [326]<3>; [365%]<2>; [1175*%]<2>; [1175^c%]<2>; [1241*%]<3>; [2464*%]<3>; [sy^h%]<4>; [sa^a%]<2>; [sa^b%]<2>; [bo^b%]<2>; [Ex-136]<3>; [Ex-137]<2>; [Ex-146#]<1>; [Ex-149\$]<1>; Ex-154\$<1>;
111.1	5:4,3.1	Autograph;
111.2	5:4,3.2	[P^46*]<2>; [629*]<5>; [Cyp^a%]<2>; Ex-149\$<1>;
112.1	5:5,1.1	[044*]<5>; [Ex-136]<3>; Autograph;
112.2	5:5,1.2	[D06*]<6>; [0278*%]<4>; [it-d]<4>; [Ex-137]<2>; [Ex-147#]<1>; [Ex-149\$]<1>; Ex-154\$<1>;
113.1	5:5,2.1	[D06*]<6>; [it-b*]<3>; [it-d]<4>; [it-m*%]<6>; [it-m^c%]<6>; [Ex-134]<2>; Autograph;
113.2	5:5,2.2	P^46* <2>;
113.3	5:5,2.3	[bo^b%]<2>; Ex-146#<1>;
113.4	5:5,2.4	[1739*]<4>; [vg^b]<4>; Ex-149\$<1>;
114.1	5:9,1.1	[629*]<5>; [sy^p%]<4>; Autograph;
114.2	5:9,1.2	[P^46*]<2>; [Ex-139]<2>; Ex-150\$<1>;
115.1	5:10,1.1	[0278*%]<4>; [it-m*%]<6>; [it-m^c%]<6>; Autograph;

115.2	5:10,1.2	[81*%]<2>; Ex-146#<1>;
116.1	5:14,1.1	Autograph;
116.2	5:14,1.2	[D06*%]<6>; [it-b*%]<3>; [it-d]<4>; [Ambst%]<2>; [Chr^txt%]<6>; [MVict%]<6>; Ex-149\$<1>;
117.1	5:15,1.1	[0278*%]<4>; [Ex-136]<3>; [Ex-144#]<1>; [Ex-150\$]<1>; Ex-154\$<1>;
117.2	5:15,1.2	[1881*%]<4>; Autograph;
117.3	5:15,1.3	[01^2]<3>; [629*%]<5>; [bo^a%]<2>; [Ex-134]<2>; [Ex-137]<2>; Ex-149\$<1>;
118.1	5:17,1.1	[0278*%]<4>; Autograph;
118.2	5:17,1.2	[1881*%]<4>; [Ex-139]<2>; Ex-146#<1>;
119.1	5:17,2.1	Autograph;
119.2	5:17,2.2	01*%<3>;
120.1	5:17,3.1	[Ex-132]<3>; Autograph;
120.2	5:17,3.2	[81*%]<2>; [365%]<2>; [614*%]<5>; [629*%]<5>; [2464*%]<3>; [it-d]<4>; [sy^p%]<4>; [bo^b%]<2>; [Cass%]<4>; [Hier^a%]<2>; [Hier^b%]<2>; [Ex-134]<2>; [Ex-137]<2>; Ex-149\$<1>;
120.3	5:17,3.3	P^46*%<2>;
121.1	5:19,1.1	[P^46*%]<2>; [P025*%]<2>; [33*%]<3>; [it-b*%]<3>; [NA-27]<2>; [Ex-134]<2>; [Ex-143]<2>; Ex-149\$<1>;
121.2	5:19,1.2	[1881*%]<4>; [vg^b]<4>; Autograph;
122.1	5:19,2.1	Autograph;
122.2	5:19,2.2	Ex-137<2>;
122.3	5:19,2.3	[P^46*%]<2>; [B*%]<4>; [it-b*%]<3>; [it-d]<4>; [Ambst%]<2>; Ex-149\$<1>;
123.1	5:19,3.1	[P^46*%]<2>; [01*%]<3>; [NA-27]<2>; [Ex-136]<3>; Ex-149\$<1>;
123.2	5:19,3.2	[0278*%]<4>; [33*%]<3>; Ex-147#<1>;
123.3	5:19,3.3	[D06^c%]<4>; [D06^1]<4>; [D06^2]<4>; Autograph;
124.1	5:20,1.1	[vg^cl]<3>; [it-f*%]<5>; [Ex-132]<3>; Autograph;
124.2	5:20,1.2	[P^46*%]<2>; [D06^2]<4>; [1175*%]<2>; [1175^c%]<2>; [2464*%]<3>; [Ex-146#]<1>; [Ex-149\$]<1>; Ex-154\$<1>;
125.1	5:20,2.1	[it-b*%]<3>; [it-m*%]<6>; [it-m^c%]<6>; [Ex-134]<2>; Autograph;
125.2	5:20,2.2	[D06^c%]<4>; [D06^1]<4>; [D06^2]<4>; Ex-146#<1>;
125.3	5:20,2.3	[K*%]<5>; [bo^b%]<2>; Ex-149\$<1>;
125.4	5:20,2.4	[6]<3>; [81*%]<2>; [614*%]<5>; [630%]<2>; [1881*%]<4>; [pm^b]<5>; [TR]<5>; [HF]<5>; [RP]<5>; [Ambst%]<2>; [CI^a%]<3>; [Ex-150\$]<1>; Ex-154\$<1>;
126.1	5:22,1.1	[P^46*%]<2>; [B*%]<4>; [NA-27]<2>; [CI^a%]<3>; [Hier^b%]<2>; Ex-149\$<1>;
126.2	5:22,1.2	[044*%]<5>; [it-b*%]<3>; [Ex-134]<2>; Autograph;
126.3	5:22,1.3	[Ex-139]<2>; Ex-146#<1>;
127.1	5:23,1.1	[Ex-138]<5>; Autograph;
127.2	5:23,1.2	[B*%]<4>; [104*%]<2>; [365%]<2>; [1175*%]<2>; [1175^c%]<2>; Ex-146#<1>;
128.1	5:23,2.1	[vg^a%]<4>; [vg^cl]<3>; [vg^s%]<4>; [vg^st]<4>; [vg^ww]<4>; [CI^a%]<3>; [Ex-136]<3>; Autograph;
128.2	5:23,2.2	[01^2]<3>; [it-b*%]<3>; [Ex-134]<2>; Ex-147#<1>;
129.1	5:24,1.1	Autograph;
129.2	5:24,1.2	[B*%]<4>; [044*%]<5>; [it-b*%]<3>; [Ambst%]<2>; Ex-149\$<1>;
130.1	5:25,1.1	[B*%]<4>; [vg^st]<4>; Autograph;

130.2	5:25,1.2	[sy ^h %]<4>; [sy ^p %]<4>; Ex-146#<1>;
130.3	5:25,1.3	[D06*]<6>; [P025*%]<2>; [0278*%]<4>; [2464*%]<3>; [it-d]<4>; [Ex-147#]<1>; [Ex-149\$]<1>; Ex-154\$<1>;
131.1	5:28,1.1	[P ⁴⁶ *]<2>; [B*]<4>; [33*]<3>; [1175*%]<2>; [1175 ^c %]<2>; [1505*%]<2>; [sy ^h %]<4>; [NA-27]<2>; Ex-149\$<1>;
131.2	5:28,1.2	[0278*%]<4>; Autograph;
131.3	5:28,1.3	[D06 ^c %]<4>; [D06 ¹]<4>; [D06 ²]<4>; [P025*%]<2>; [048%]<2>; [629*]<5>; [Cl ^a %]<3>; [Ex-137]<2>; Ex-146#<1>;
132.1	5:29,1.1	[044*]<5>; [sy ^h %]<4>; [sy ^p %]<4>; [Ex-136]<3>; Autograph;
132.2	5:29,1.2	Ex-147#<1>;
133.1	5:30,1.1	[vg ^b]<4>; Autograph;
133.2	5:30,1.2	[01 ²]<3>; [1739 ^c]<4>; [Ex-139]<2>; Ex-146#<1>;
134.1	5:31,1.1	[0278*%]<4>; 0285%<3>; [Or ^b %]<3>; Autograph;
134.2	5:31,1.2	[B*]<4>; Ex-146#<1>;
135.1	5:31,2.1	[0278*%]<4>; 0285%<3>; [Or ^b %]<3>; Autograph;
135.2	5:31,2.2	[B*]<4>; Ex-146#<1>;
136.1	5:31,3.1	[01 ²]<3>; [0278*%]<4>; [NA-27]<2>; [Or ^a %]<2>; [Or ^b %]<3>; [Ex-147#]<1>; [Ex-150\$]<1>; Ex-154\$<1>;
136.2	5:31,3.2	Autograph;
136.3	5:31,3.3	[6]<3>; [1739*]<4>; [Cyp ^a %]<2>; [Hier ^a %]<2>; [Hier ^b %]<2>; Ex-149\$<1>;
137.1	5:32,1.1	Autograph;
137.2	5:32,1.2	[B*]<4>; [K*%]<5>; [Cyp ^a %]<2>; [Epiph ^a %]<2>; [Epiph ^b %]<3>; [Ptol ^{Ir} %]<2>; [Tert ^a %]<3>; [Ex-149\$]<1>; Ex-154\$<1>;
138.1	6:1,1.1	[Ex-134]<2>; Autograph;
138.2	6:1,1.2	[B*]<4>; Ex-146#<1>;
139.1	6:2,1.1	Autograph;
139.2	6:2,1.2	B*<4>;
140.1	6:5,1.1	[0278*%]<4>; [Cl ^a %]<3>; [Ex-136]<3>; [Ex-144#]<1>; [Ex-149\$]<1>; Ex-154\$<1>;
140.2	6:5,1.2	[P ⁴⁶ *]<2>; Autograph;
141.1	6:5,2.1	[B*]<4>; [33*]<3>; [1241*%]<3>; [2464*%]<3>; Autograph;
141.2	6:5,2.2	[Ex-130]<2>; [Ex-133]<4>; [Ex-136]<3>; Ex-150\$<1>;
142.1	6:7,1.1	Autograph;
142.2	6:7,1.2	[D06 ²]<4>; [K*%]<5>; [L020*%]<2>; [L020 ^c %]<3>; [044*]<5>; [326]<3>; [614*]<5>; [629*]<5>; [1241*%]<3>; [2495]<5>; [TR]<5>; [Ambst%]<2>; Ex-149\$<1>;
143.1	6:8,1.1	[B*]<4>; [it-d]<4>; [NA-27]<2>; Ex-149\$<1>;
143.2	6:8,1.2	[0278*%]<4>; Autograph;
143.3	6:8,1.3	[K*%]<5>; [Hier ^a %]<2>; [Hier ^b %]<2>; [Ex-134]<2>; Ex-150\$<1>;
143.4	6:8,1.4	[Ex-135]<3>; [Ex-143]<2>; Ex-151\$<1>;
143.5	6:8,1.5	[L020*%]<2>; [630%]<2>; [2495]<5>; [HF]<5>; [Ex-136]<3>; [Ex-152\$]<1>; Ex-154\$<1>;
144.1	6:10,1.1	[0278*%]<4>; [Ex-136]<3>; Ex-144#<1>;
144.2	6:10,1.2	[01 ²]<3>; Autograph;
145.1	6:10,2.1	[P ⁴⁶ *]<2>; [D06*]<6>; [D06 ^c %]<4>; [D06 ¹]<4>; [D06 ²]<4>; [81*%]<2>; [1175*%]<2>; [1175 ^c %]<2>; [it-b*]<3>; [it-m*%]<6>; [it-m ^c %]<6>; [sa ^a %]<2>;

		[sa^b%]<2>; [NA-27]<2>; [Ambst%]<2>; [Lcf%]<2>; [Spec%]<2>; [Ex-130]<2>; [Ex-136]<3>; Ex-149\$<1>;
145.2	6:10,2.2	[01^2]<3>; Autograph;
146.1	6:10,3.1	Autograph;
146.2	6:10,3.2	[P^46*]<2>; [B*]<4>; [33*]<3>; Ex-149\$<1>;
147.1	6:12,1.1	[it-g*]<6>; [Ex-134]<2>; Autograph;
147.2	6:12,1.2	[P^46*]<2>; [B*]<4>; [044*]<5>; [81*%]<2>; [1175*%]<2>; [1175^c%]<2>; [sy^p%]<4>; [Ex-146#]<1>; [Ex-149\$]<1>; Ex-154\$<1>;
148.1	6:12,2.1	Autograph;
148.2	6:12,2.2	P^46*<2>;
149.1	6:12,3.1	[B*]<4>; [6]<3>; [1739*]<4>; [sy^p%]<4>; [Cl^a%]<3>; Autograph;
149.2	6:12,3.2	[01^2]<3>; [Tert^a%]<3>; [Ex-147#]<1>; [Ex-149\$]<1>; Ex-154\$<1>;
150.1	6:12,4.1	Autograph;
150.2	6:12,4.2	[P^46*]<2>; [Did^a%]<2>; Ex-149\$<1>;
151.1	6:16,1.1	[P^46*]<2>; [P025*%]<2>; [104*%]<2>; [1175*%]<2>; [1175^c%]<2>; [it-b*]<3>; [NA-27]<2>; [Ex-130]<2>; [Ex-134]<2>; [Ex-136]<3>; Ex-149\$<1>;
151.2	6:16,1.2	Autograph;
152.1	6:16,2.1	[0278*%]<4>; Autograph;
152.2	6:16,2.2	[P^46*]<2>; [B*]<4>; [Ex-146#]<1>; [Ex-149\$]<1>; Ex-154\$<1>;
153.1	6:17,1.1	[Ex-134]<2>; Autograph;
153.2	6:17,1.2	Ex-146#<1>;
154.1	6:19,1.1	[D06*]<6>; [it-d]<4>; [Ex-134]<2>; Autograph;
154.2	6:19,1.2	[B*]<4>; Ex-146#<1>;
155.1	6:20,1.1	Autograph;
155.2	6:20,1.2	[P^46*]<2>; [Ex-136]<3>; Ex-149\$<1>;
156.1	6:21,1.1	[0278*%]<4>; [vg^b]<4>; [NA-27]<2>; [Ambst%]<2>; Ex-147#<1>;
156.2	6:21,1.2	[D06^c%]<4>; [D06^1]<4>; [D06^2]<4>; [326]<3>; [2495]<5>; Autograph;
156.3	6:21,1.3	[P^46*]<2>; [33*]<3>; Ex-150\$<1>;
157.1	6:21,2.1	Autograph;
157.2	6:21,2.2	[vg^cl]<3>; [it-m*%]<6>; [it-m^c%]<6>; [Ex-137]<2>; Ex-149\$<1>;
158.1	6:23,1.1	Autograph;
158.2	6:23,1.2	P^46*<2>;
159.1	6:23,2.1	Autograph;
159.2	6:23,2.2	Ex-137<2>;
160.1	6:24,1.1	[0278*%]<4>; [vg^st]<4>; [Ex-138]<5>; Autograph;
160.2	6:24,1.2	[01^2]<3>; [D06*]<6>; [1739^c]<4>; [bo^a%]<2>; [Ex-139]<2>; [Ex-146#]<1>; [Ex-150\$]<1>; Ex-154\$<1>;

GLOSSARY OF TERMS

Boldfaced words in the following definitions refer to other terms defined in this glossary.

Affinity: the degree to which two **witnesses** to a text have the same readings. Affinity consists of two components: **Quantitative Affinity** and **Genetic Affinity**.

Antiquity: the characteristic of a **reading** being older than the **witness** in which it occurs. An inherited reading has antiquity, that is, it is older than the witness in which it occurs. See **inheritance**. A newly initiated reading lacks antiquity, that is, it is only as old as the witness in which it originated. A reading introduced by mixture is only as old as its age in its source of mixture. In the reconstruction process, the software recognizes the antiquity of a reading by its presence in other witnesses in the active database.

Autograph: The original document written by the hand of its author or by his secretary to whom he dictated its text.

Autographic Text: The words originally written in an original document.

Commonness: A measure of the degree to which **witnesses** to a given text share the same value of a genetic characteristic of the text. See Commonness of Place of Variation and Commonness of Reading.

Commonness of Place of Variation: The degree to which two **witnesses** to a given text have the same **places of variation** regardless of the **readings** at those places—that is, they share a common portion of the text. The Commonness of Place of Variation of A with B = the number of **places of variation** where both A and B have a **reading**, where A and B are **witnesses** to the same text. This measure is important for dealing with fragmentary **witnesses**. Two **witnesses** that both have a complete text have 100% Commonness of Place of Variation.

Commonness of Readings: A measure of the degree to which two **witnesses** to a text have the same **readings**. It is calculated as follows: The Commonness of Readings of A with B = the number of **places of variation** where both A and B have the same **reading**, where A and B are **witnesses** to the same text.

Completeness: A measure of how much of a text a particular **witness** contains. It is calculated as follows: The Completeness of A = (the number of **places of variation** A has of the text) ÷ (the total number of **places of variation** in the text), where A is a **witness** to the text. This measure is important for dealing with fragmentary **witnesses**.

Content: A list of the **places of variation** a **witness** contains, expressed in terms of references (chapter and verse)—that is, that portion of the text the **witness** contains.

Deferred Ambiguity: The principle of deferred ambiguity states that when consensus fails to recover a reading of an exemplar being reconstructed, the sister of that exemplar will have the inherited reading in the next prior generation.

Distribution: the characteristic of a **reading** occurring in more than one text tradition. An original reading occurs in more than one first-generation exemplar. An original reading is expected to have both first-generation distribution and antiquity.

Exemplar: A **witness** from which other **witnesses** have been copied. The software creates exemplars in the process of reconstructing the genealogical history of a text.

Fragment: A **witness** that is missing part of its text due to damage or deterioration.

Genetic Affinity: see **Quantitative Affinity**.

Genetic Dominance: A **reading** has genetic dominance as long as it is inherited by the **descendants** of the exemplar in which it first occurs. It loses genetic dominance at any place in the genetic history of the exemplar in which it occurs where an alternate reading replaces it.

Heredity: That characteristic of a **reading** correctly copied into a daughter **witness** of the **exemplar** in which the reading is found.

Inheritable Variant: A variant initiated by one of the ancestor exemplars of a witness.

Inheritance: That characteristic of a **reading** correctly copied from the parent **exemplar** of the **witness** in which the reading is found. An inherited reading is passed down from prior ancestor exemplars.

Inheritance Persistence: The inheritance persistence of a witness is the ratio of the number inheritable variants to the number of actually inherited ones.

Lectionary: A **manuscript** edited and arranged in sections assigned for reading in the Church at specified times in the liturgical calendar—something like a hymnbook.

Majuscule: A **manuscript** written in all capital letters.

Manuscript: A handwritten copy of a text made from an earlier copy (**exemplar**). The term is sometimes used as a synonym of *witness*.

Minimal Reading: The reading of a witness that occurs least often in the working database.

Minuscule: A **manuscript** written in lower case characters.

Papyri: Manuscripts copied on paper made from papyrus. They are usually rather early, but mostly fragmentary.

Parent Exemplar: The **manuscript** from which another **manuscript** was directly copied.

Place of Variation: A place in a text where the **witnesses** to the text have different **readings**. In the data base, each place of variation is assigned a sequential index number in order to distinguish them from one another; each one also has assigned to it the chapter and verse where it occurs in the text.

Primary Parent: The **parent exemplar** of a **witness** from which it derives most of its readings, and its place in the tree diagram that maps the genealogical history of the text. A witness has only one primary parent exemplar.

Quantitative Affinity: A measure of the degree to which **witnesses** to a given text are genetically related. The mutual quantitative affinity between two witnesses is the inverse ratio of the number of places the two witnesses have the same readings to the number of places their readings are different.

Reading: At each **place of variation** in a text, the **witnesses** have different words. The words contained in a given witness at a particular **place of variation** constitute the *reading* of that witness at that place. The reading may be a word, phrase, sentence, verse, etc., or nothing at all (an omission).

Recension: A recension is understood to be a **witness** derived from multiple sources and having a significant number of variations from its **primary parent exemplar**. A recension was a deliberate alteration of a text tradition for the purpose of correction or improvement. A recension occurred when a Christian community noted that their Bibles (**manuscripts**) had different **readings**, and there was an attempt to recover the readings of the **autograph**. This likely took place under the authority of the leadership of the community and was carried out by competent scribes. It is possible that in some recensions some of the corrections were made to strengthen the doctrines of the community.

Secondary Descendant: A descendant of a **secondary parent** functioning as a source of mixture for the given descendant.

Secondary Parent: A **parent exemplar** of a witness other than the **Primary Parent Exemplar**. Secondary parents are the sources of mixture for their **secondary descendants**.

Siblings: Sisters, first generation descendants (copies) of the same **exemplar**.

Sibling Gene: The collection of **minimal readings** a **witness** has that occur only in it and its **sibling** sisters. These are the readings where the text of the parent exemplar of the siblings differs from the text of its genealogical ancestors.

Singularity: A **reading** in an extant **witness** having no **heredity**; it differs from that of its **parent exemplar**.

Stemma: A tree diagram of the genealogical relationships of the witnesses to the text of an ancient literary composition.

Stematis: Stematis is the method used for recovering the original text of the ancient Greek and Latin classics, also known as the family-tree method.

Uncial: A **manuscript** written in all capital letters.

Variant Heredity: The characteristic of variant readings that provides a measure of the likelihood that a given reading in a particular witness A has been inherited from another witness B in an earlier generation. It is quantified as the **genetic distance** between witness A containing the given reading and another witness B in an earlier generation containing the same reading. The witness B having the least genetic distance from witness A is the closest near relative of A with respect to the given reading. A reading has

no variant heredity until after it is first initiated somewhere in the genealogical history of the text.

Variant Reading: See *Reading*.

Variation Unit: See *Place of Variation*.

Version: A translation of a document into a language other than that of the original document itself.

Virtual Exemplar: An **exemplar** created by the software to account for same-generation mixture. These exemplars do not contribute to the primary structure of the tree diagram.

Witness: A **manuscript** of a document in its original language, or a translation of that document into another language, or a quotation of the text of a **manuscript** or translation.

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