A Genealogical History of the Greek Text of the New Testament

Volume 11

A Genealogical History of the Greek Text of the Epistle to the Philippians

By

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Preface to the First Edition

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 *stematics*) 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 they also could be implemented for the genealogical analysis of textual criticism. Thus 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 diagraming 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.

James D. Price
Chattanooga, TN
December, 2013

Preface to the Revised Edition

In the first edition of this study it was decided to treat all recensions[1] the same. However, this decision turned out to be unwise, because extant witnesses having very weak inheritance[2] found no place in the genealogical stemma. As a result, they remained unattached in the reconstruction procedure, giving the appearance of a major recension, yet with no heredity. They may well have been just that, but in the overall genealogical considerations, they had nothing to contribute except confusion in the last stages of reconstruction. Consequently, it was decided to exclude them from the reconstruction data base, treating them instead like witnesses lacking sufficient completeness. All such witnesses were excluded and attached to the reconstructed stemma where they best fit after the reconstruction was complete.

James D. Price
Chattanooga, TN
September, 2019

[1] 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.

[2] That is, the witness lacked quantitative affinity and genetic affinity with any other witnesses in the data base.

Acknowledgments

This work would not have gone to press without family and friends who gave me continued encouragement and assistance. Those who gave encouragement and constant impetus are too numerous to name individually. But they know how much I appreciate them. Those who helped me with editing were Jeff Bennett, Gregory Stephens, and particularly Alan Macgregor who read the manuscript twice providing improvement in clarity and readability. Finally, I can never give thanks enough to Doris, my lovely wife of seventy-four years, for all her love, patience, and encouragement. The improvements to this work are all due to these friends and colleagues, and all the flaws are mine.

CHAPTER 1

INTRODUCTION

This book is the eleventh 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 Philippians. 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 literature[1] 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.

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

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[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.

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; 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,[3] 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,[4] 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 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,

[3] Quantitative affinity is a measure of how similar two manuscripts are to one another.

[4] The principle of delayed ambiguity says that the inherited variant will be a reading of an aunt exemplar when it develops.

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*[5] 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 witnesses[6] 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.[7] However, the database is now available in digital electronic form in the *Stuttgart Electronic Study Bible*.[8] That form of the database is capable of being expanded and unpacked electronically.

The expanded database consists of two separate files, on 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

[5] *Novum Testamentum Graece* (Stuttgart: Deutsche Bibelgesellschaft, 1997).

[6] The witnesses consist of individual manuscripts, translations, and patristic quotations.

[7] 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*.

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

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 Philippians.

CHAPTER 2

WITNESSES TO THE TEXT OF PHILIPPIANS

The witnesses[1] to the text of the Epistle to the Philippians 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 108 existing witness[3] of various types:

(1) Papyrus manuscripts	3
(2) Uncial manuscripts	28
(3) Minuscule manuscripts	31
(4) Lectionary manuscripts	2
(5) Printed editions	7
(6) Latin Versions	10
(7) Egyptian Versions	4
(8) Syriac Versions	2
(12) Greek Church Fathers	7
(13) Latin Church Fathers	14

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

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[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.

Philippians are discussed below and are shown to be suitable for a reasonable reconstruction of its textual history.

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.[4] This does not include the witnesses of the ancient translations and church fathers. This study makes use of the 108 witnesses to the Epistle to the Philippians 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 Epistle to the Philippians to reconstruct its genealogical history.

Date

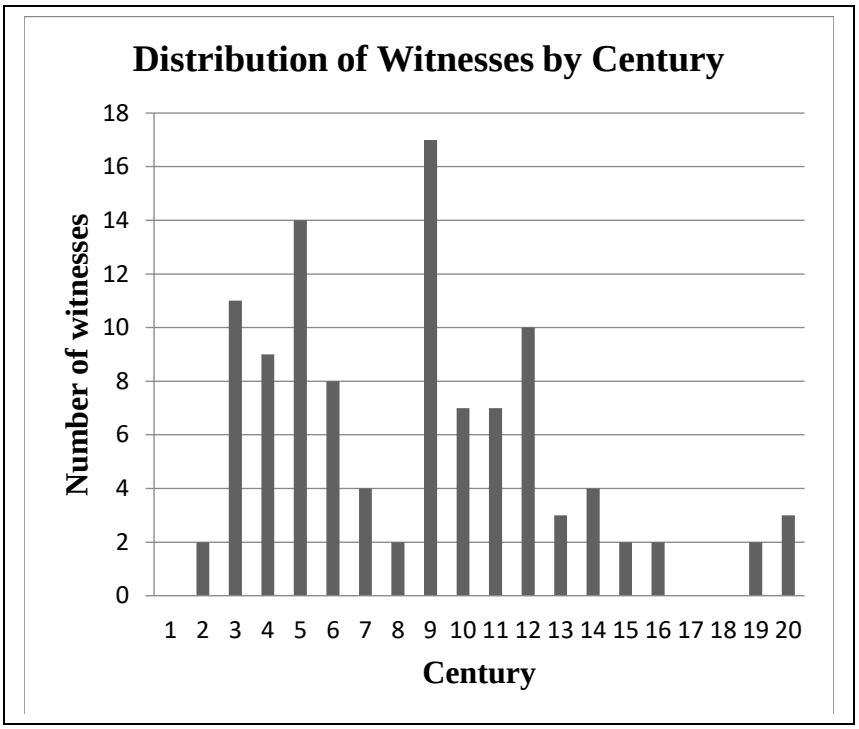
While it is possible to reconstruct the genealogical history of a text without the benefit of dates, dates are very helpful for accurately locating scribal activity in real history. The dates of the witnesses to Philippians range from the second to the twentieth centuries.[5] Table 2.1 and its associated graph display the reasonably good distribution of the witnesses by date.

[4] Aland and Aland, p. 83.

[5] The witnesses in the 19th and 20th centuries are printed editions that do not contribute to the reconstruction of the genealogical history.

Table 2.1:
Distribution of Extant Witnesses by Century:

Century	Number of Witnesses
2	2
3	11
4	9
5	14
6	8
7	4
8	2
9	17
10	7
11	7
12	10
13	3
14	4
15	2
16	2
17	0
18	0
19	2
20	3

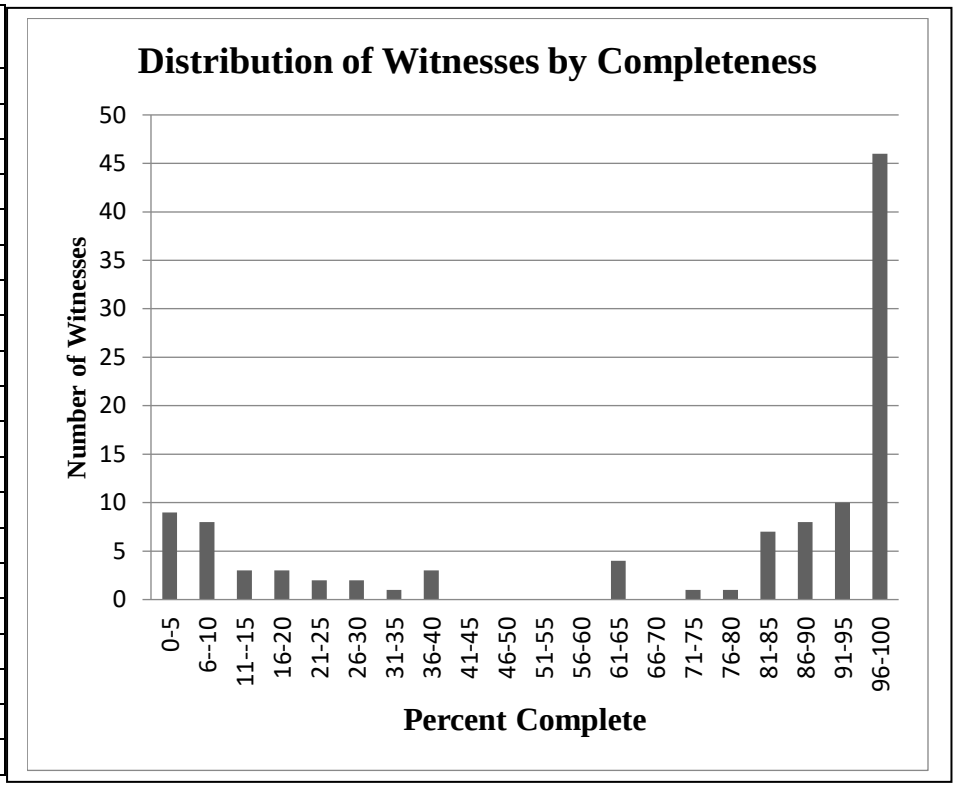


Completeness

Many of the witnesses are fragmentary, not all their text having survived the passage of time. Only 46 of the 108 witnesses have 95-100% of their text complete, and only 71 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. 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:

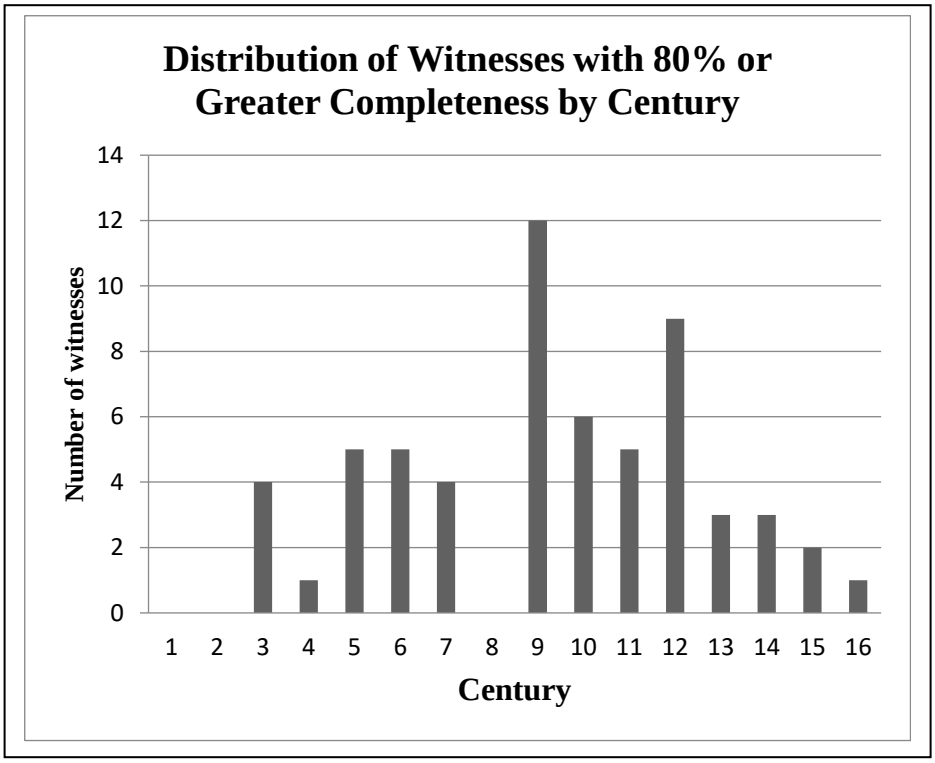
% Complete	Number of Witnesses
0-5	9
6-10	8
11-15	3
16-20	3
21-25	2
26-30	2
31-35	1
36-40	3
41-45	0
46-50	0
51-55	0
56-60	0
61-65	4
66-70	0
71-75	1
76-80	1
81-85	7
86-90	8
91-95	10
96-100	46



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 by century. It is evident that numerous contributing witnesses are from as early as the third century, so a reasonably good reconstruction can be expected.

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

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



Limited Diversity

The more diverse the text the more difficult the reconstruction of its textual history is. In the overall picture, all witnesses to Philippians 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. But modern technology has expanded that limit to where reconstruction is now possible for texts the size and diversity of Philippians. The NA-27 apparatus records 100 places of variation[6] for the Epistle to the Philippians with a total of 233 variant readings distributed among them.[7] This averages out to 2.33 variants per place of variation. In earlier decades this amount of information would have been impossible

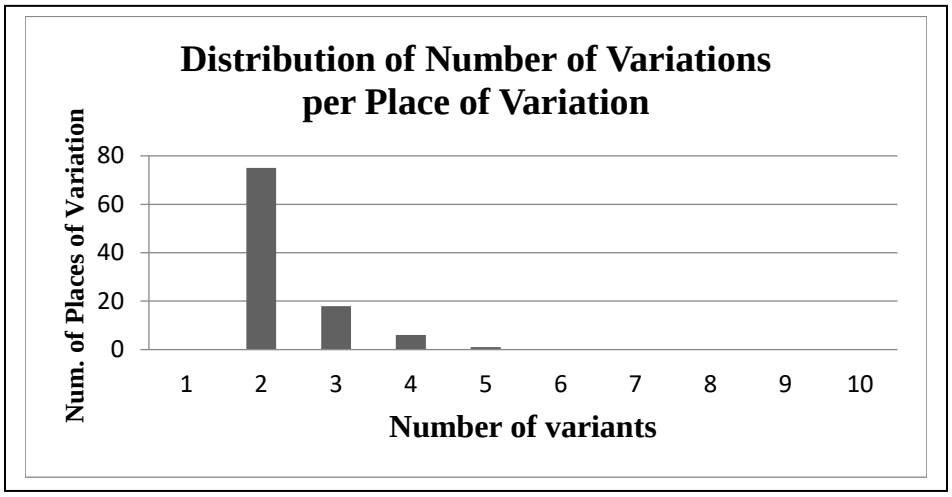
[6] Of course there are more places of variation than this, but the editors of the NA-27 text have weeded out those that are insignificant for reconstruction and meaning.

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

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, 75 places of variation have only two variations whereas only one place of variation has five variations.[8]

Table 2.4
Distribution of Number of Variations per Place of Variation

Number of variants	Number of Places of Variation
1	0
2	75
3	18
4	6
5	1
6	0
7	0
8	0
9	0
10	0
Total=	233



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 Epistle to the Philippians. 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	30
Omit a phrase	2
Alternate word	96
Alternate words	57
Transposed words	6
Added word or phrase	42
Total =	233

[8] 3:14,4.

Limited Diversity of Witness

Ordinarily, witnesses have sufficient mutual affinity to facilitate finding their siblings. But a few witnesses occur that have such a diverse text that no siblings for it can be found except its own correctors. I refer to these witnesses as *diversity mavericks*. Such diverse witnesses are problematic for the reconstruction procedure and must be excluded from that procedure; they are added to the genealogical tree where they best fit after the reconstruction procedure is complete. The following table lists the diversity mavericks in Philippians together with their quantitative affinity with the exemplar where they best fit.

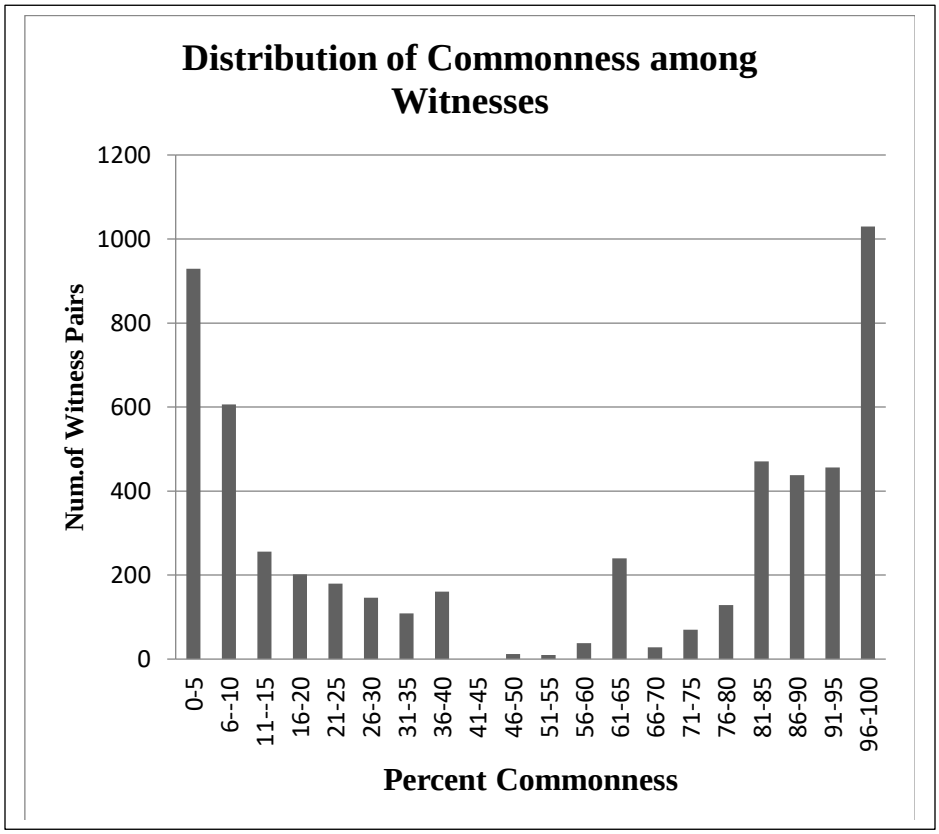
Witness	% Affinity	Witness	% Affinity
P^46*	62.07	B*	82.00
33*	84.00	vg^a	100.00

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 Epistle to the Philippians.

Table 2.6
Distribution of Commonness of Text among Witnesses

% Commonness	Number of witness pairs
0-5	929
6-10	606
11-15	256
16-20	202
21-25	180
26-30	146
31-35	109
36-40	161
41-45	0
46-50	12
51-55	10
56-60	38
61-65	240
66-70	28
71-75	70
76-80	129
81-85	471
86-90	438
91-95	456
96-100	1030



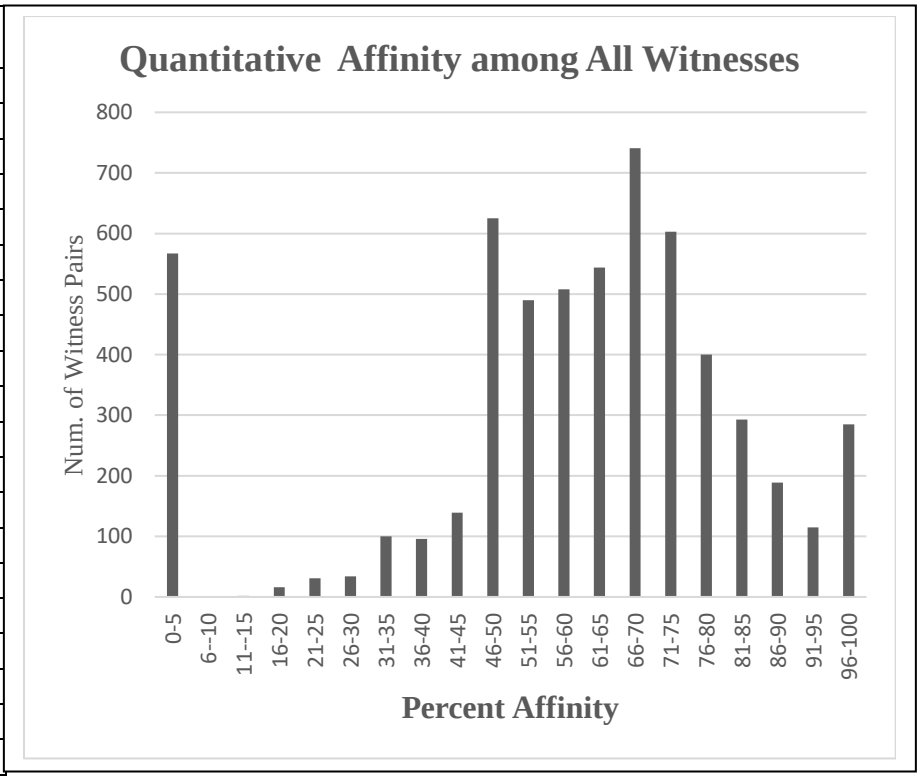
Quantitative Affinity

Quantitative affinity[9] 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 ÷ 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 Epistle to the Philippians. It is evident that many of the extant witnesses to Philippians have relatively strong quantitative affinity with one another. These data are skewed because of the many fragmentary witnesses.

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

Table 2.7
Distribution of Quantitative Affinity
Among all Witnesses

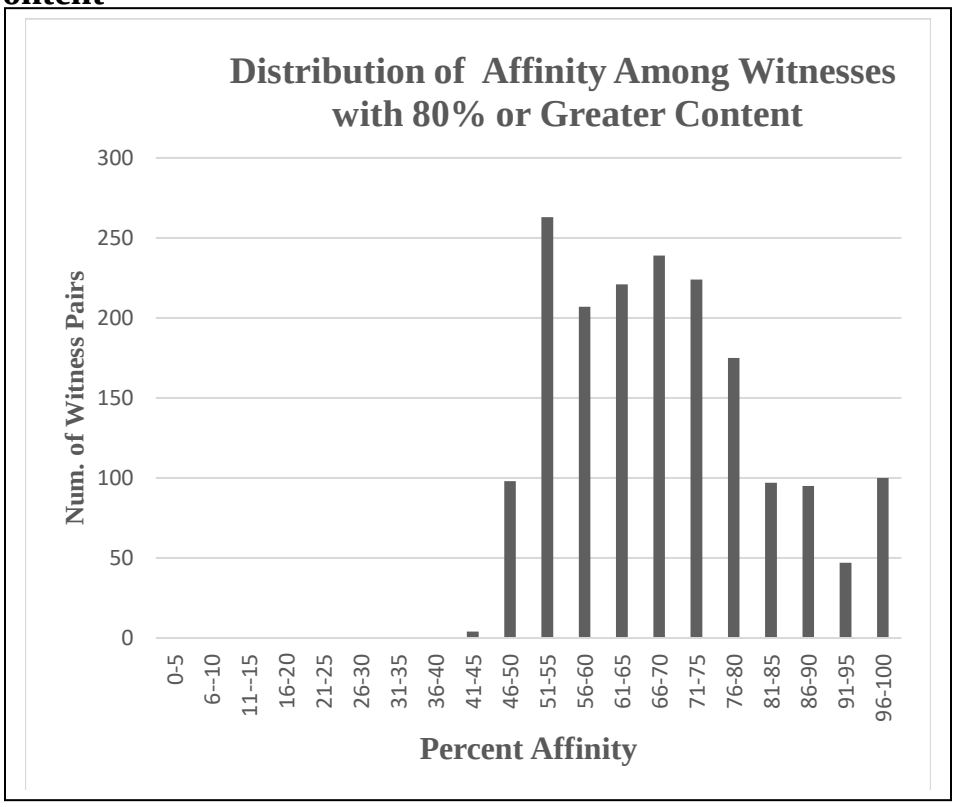
% Affinity	Number of Witnesses
0-5	567
6--10	0
11--15	2
16-20	16
21-25	31
26-30	34
31-35	100
36-40	96
41-45	139
46-50	625
51-55	490
56-60	508
61-65	544
66-70	741
71-75	603
76-80	400
81-85	293
86-90	189
91-95	115
96-100	285



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.

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	98
51-55	263
56-60	207
61-65	221
66-70	239
71-75	224
76-80	175
81-85	97
86-90	95
91-95	47
96-100	100



Conclusion

There are sufficient witnesses to the text of the Epistle to the Philippians 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.

CHAPTER 3

THE GENEALOGICAL HISTORY OF THE MANUSCRIPTS OF THE EPISTLE TO THE PHILIPPIANS

This chapter presents the genealogical history of the manuscripts[1] of the Greek text of the Epistle to the Philippians as reconstructed by computer program Lachmann-10.[2] Beginning with a data base of 108 existing witnesses, 100 places of variation, and 233 variants, the program reconstructed 29 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.[3] This condensed form portrays the genealogical interrelationship of all the reconstructed exemplars of the text of Philippians including most of the terminal (extant) 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 3.2 displays a second tree diagram in which the exemplars are shown with only one principal extant witness, usually the most prominent one; but one may assume that its sibling sisters usually have the same reading. Figure 3.3 displays the tree with all the technical data. All the 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-112#, the Western recension; Ex-136# the Egyptian recension; and Ex-132#, the Antiochan recension. These branches are relatively independent of one another, having mutual affinities ranging from 79% to 86%.[4] But they have affinities with the autograph ranging from 86% to 93%. In addition, the sibling gene of each uniquely distinguishes them from one another. The following table displays

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[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 about fifteen 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 technical information, leaving only the names of the extant witnesses. Likewise it omits exemplars that only account for same-generation mixture (those with a $ sign attached to their name).

[4] Ex-112# to Ex-132# (0.79); Ex-Ex-112# to Ex-136# (0.80); Ex-132# to Ex-136# (0.86).

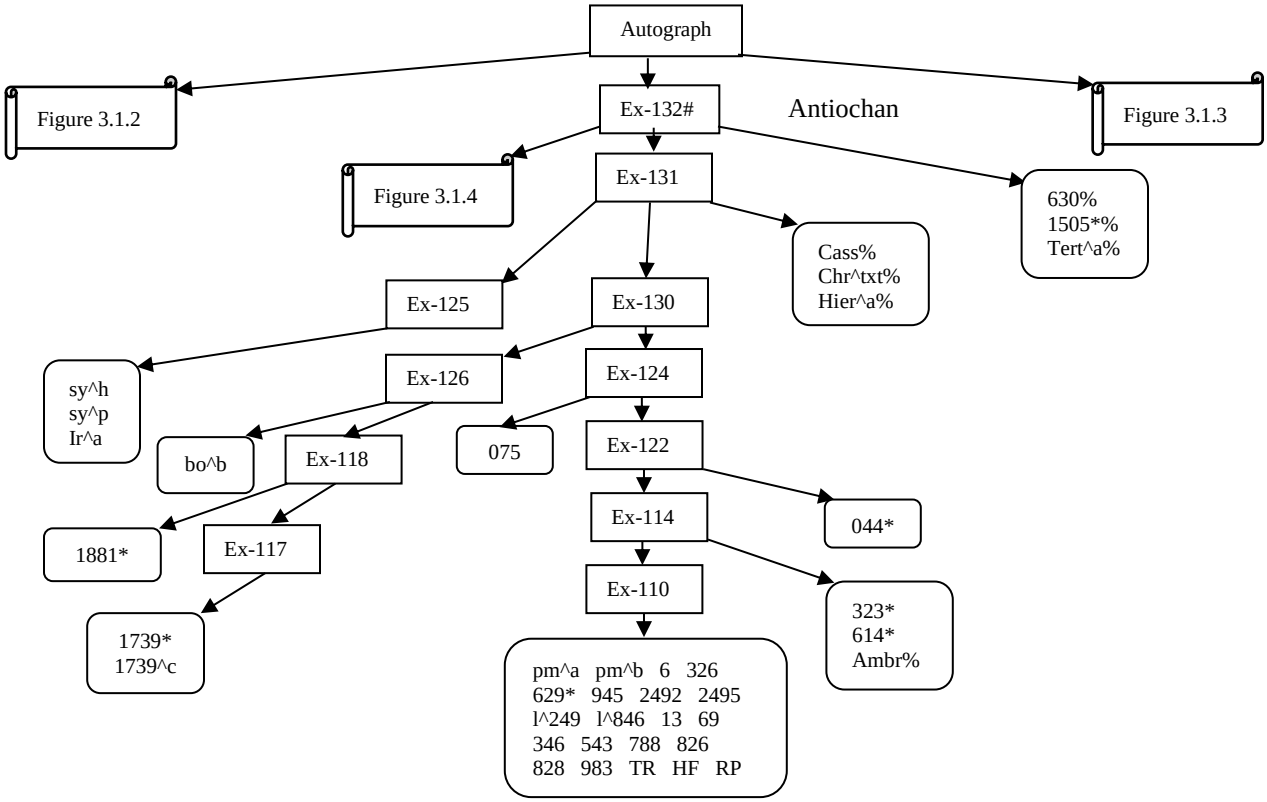
the number of places in the text where they differ, and their mutual affinities. For example, Ex-112# differs from Ex-132# by 19 variants and they have a mutual affinity of 79%. In every case they have a greater affinity with the autographic text than with one another.

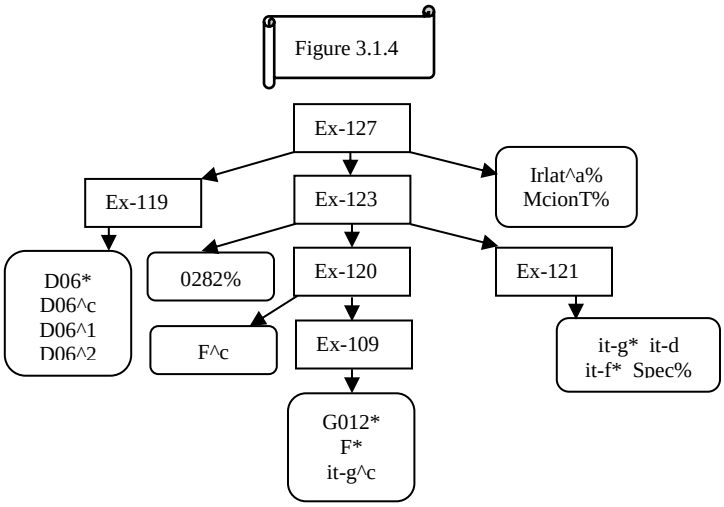
	Ex-112#	Ex-132#	Ex-136#	Autograph
Ex-112#		79%	80%	86%
Ex-132#	19		86%	93%
Ex-136#	18	14		93%
Autograph.	13	7	7	

Condensed Genealogical Stemma-1

Figure 3.1 displays the tree diagram (stemma) of the genealogical history of the text of Philippians. It includes the most prominent main branch headed by exemplar Ex-132#, the Antiochan recension.

Figure 3.1
Condensed Genealogical Stemma-1 of Philippians

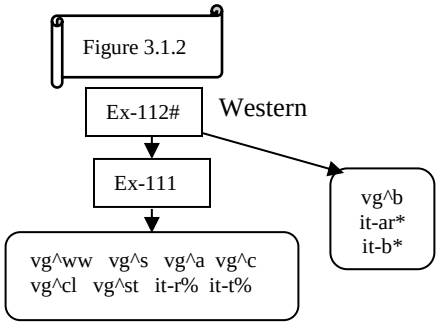




The other branches are displayed in sub-figures 3.1.2 through 3.1.4. This text tradition extends through eight generations of genealogical history. The Byzantine consensus witnesses pm^a and pm^b, together with the family-13 witnesses,[5] are descendants of seventh-generation exemplar Ex-100. The texts of Hodges and Farstad (HF), Robinson and Pierpont (RP), and Scrivener's Textus Receptus (TR) found their best fit as descendants there as well.

Figure 3.1.4 displays the sub-branch of the Antiochan text tradition headed by second-generation exemplar Ex-127. It contains the Greek-Latin diglot witnesses D06*, F* and G*, together with their correctors and their companion Old Latin translations it-d, it-f, and it-g. These witnesses have usually been found among in the Western text tradition, but for Philippians this group has an affinity of 90% with the Antiochan text tradition and only 72% with the Western text tradition.

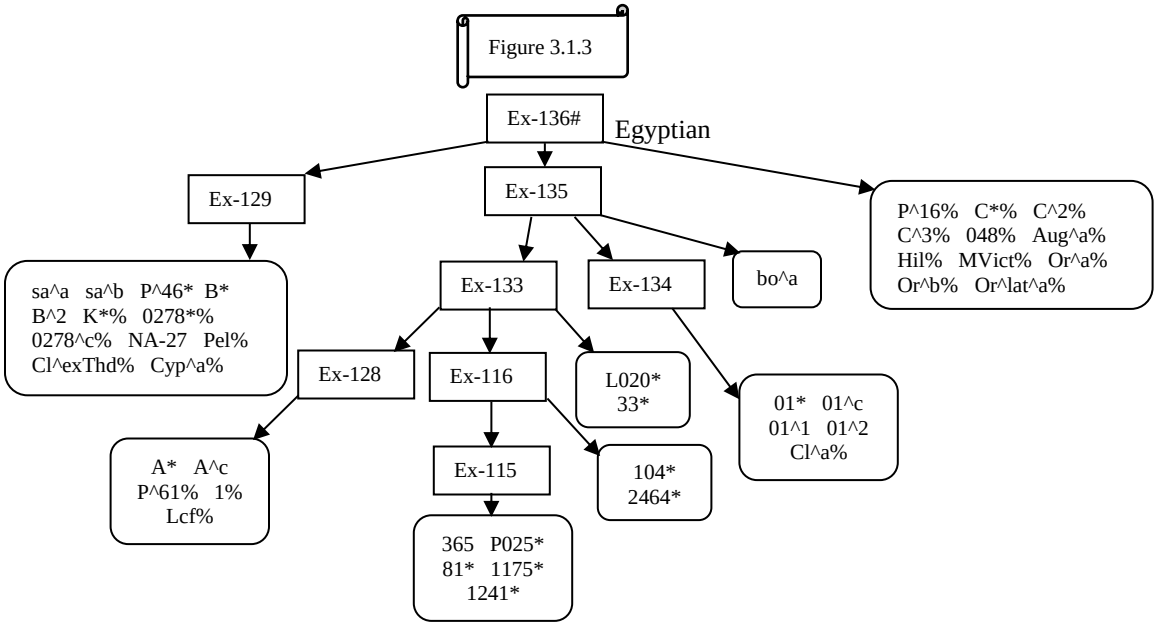
Figure 3.1.2 displays the genealogical history of the Western text tradition which was derived from exemplar Ex-112#, the Western recension.



[5] 13, 69, 346, 543, 788, 826, 828, 983.

It contains nearly all of the Latin translations except the Greek-Latin diglots mentioned above. The tradition extended through only three generations of genealogical history.

Figure 3.1.3 displays the genealogical history of the Egyptian text tradition which was derived from exemplar Ex-136#, the Egyptian recension. This branch extends in genealogical history for six generations. The principal witnesses in this tradition are Codex Sinaiticus (01*) and Codex Vaticanus (B*) together with their respective correctors, along with numerous related manuscripts and church fathers. These witnesses occur in different sub-branches which are genealogically related but are never-the-less quite diverse. B* differs from 01* by 29 variants with a mutual affinity of only 71%. The NA-27 text found its best fit as a descendant of second-generation exemplar Ex-129 alongside of Codex Vaticanus (B*) and Papyrus P^46*.



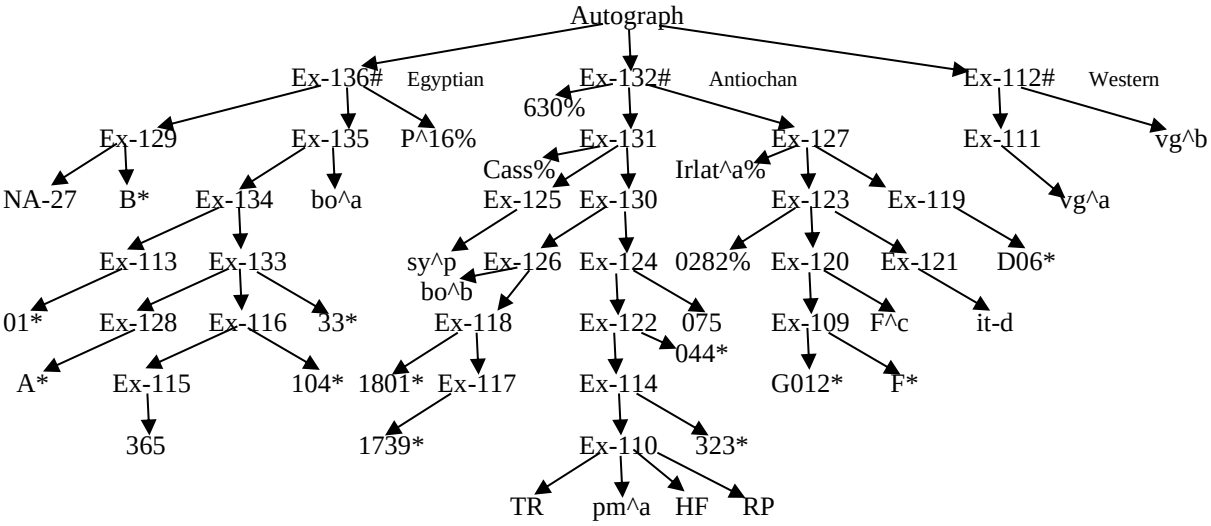
Condensed Genealogical Stemma-2

Figure 3.2 displays a second tree diagram in its most condensed form in which the principle line of descent from the autograph to the Byzantine text tradition appears in a straight line from which the other text traditions branch off. Only one extant descendant of each exemplar is displayed, usually the most significant one, but every exemplar has at least two descendants as Figure 3.1 indicates. This view best displays the overall structure of the diagram.

This form of the stemma enables one to best see the historical development of the tree, generation by generation, although the dates of the exemplars at the same generation level are not necessarily the same. For example, the date of first-generation exemplar Ex-132# is c. AD 75,

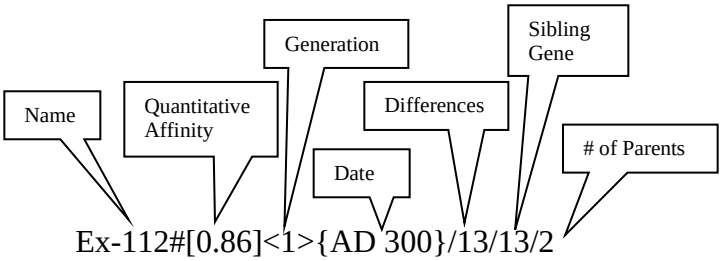
while that of first-generation exemplar Ex-136# is c. AD 90, and that of first-generation exemplar Ex-112# is c. AD 300.

Figure 3.2
Condensed Tree Diagram of Philippians



Expanded Genealogical Stemma

Figure 3.3 displays the tree diagram in its fullest form, but because of the limitations of space, it is more cluttered, making the visualization of the historical development of the tree more difficult. It is the same as that found in Appendix D, but arranged vertically rather than horizontally. In addition, the significant information of each witness is provided, such as (1) the name of the witness; (2) the quantitative 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 readings in the sibling gene, also enclosed in slant marks //; and (7) the number of parents the witness has.



The diagram below displays only the distribution of the first-generation exemplars: Ex-112#, the Western recension; Ex-136#, the Egyptian recension; and Ex-132#, the Antiochan recension.

Figure 3.3
Expanded First Generation

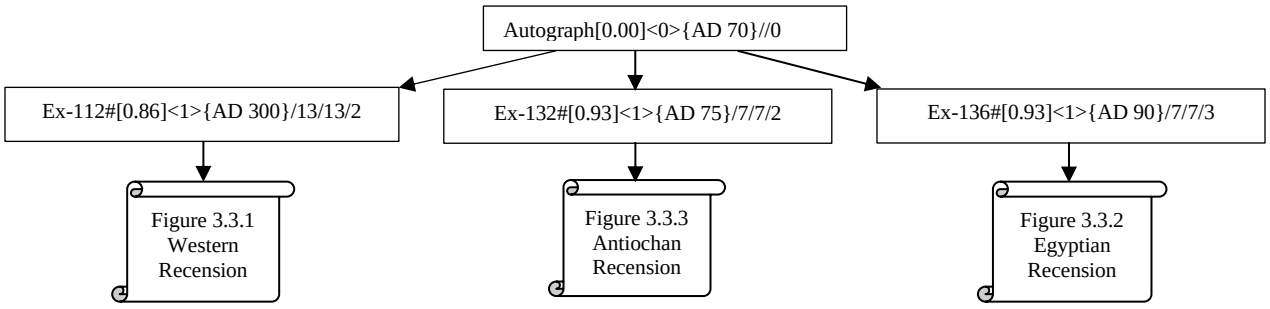
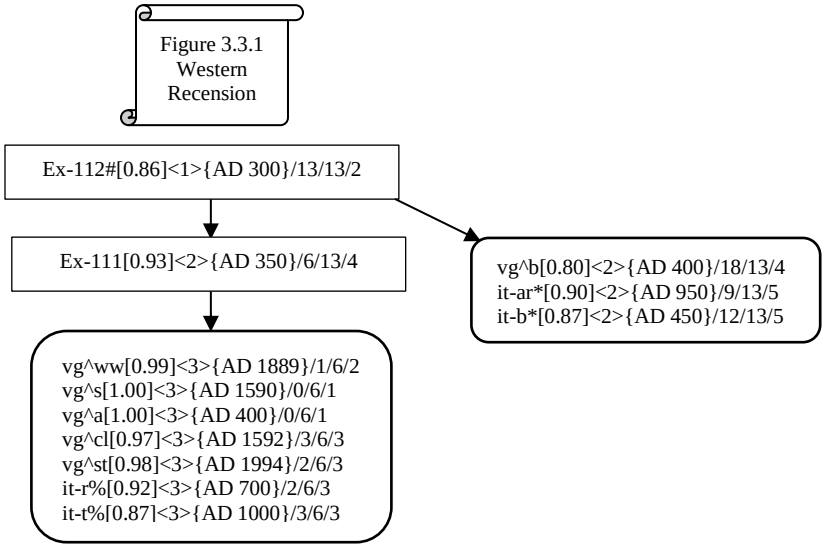


Figure 3.3.1 displays the genealogical history of the witnesses in the Western text tradition headed by exemplar Ex-112#, the Western recension (c. AD 300), the text from which nearly all the Western witnesses were derived. It has an affinity of 86% with the autographic text, differing by 13 variants, having two parents, the autograph and one virtual parent to account for mixture.

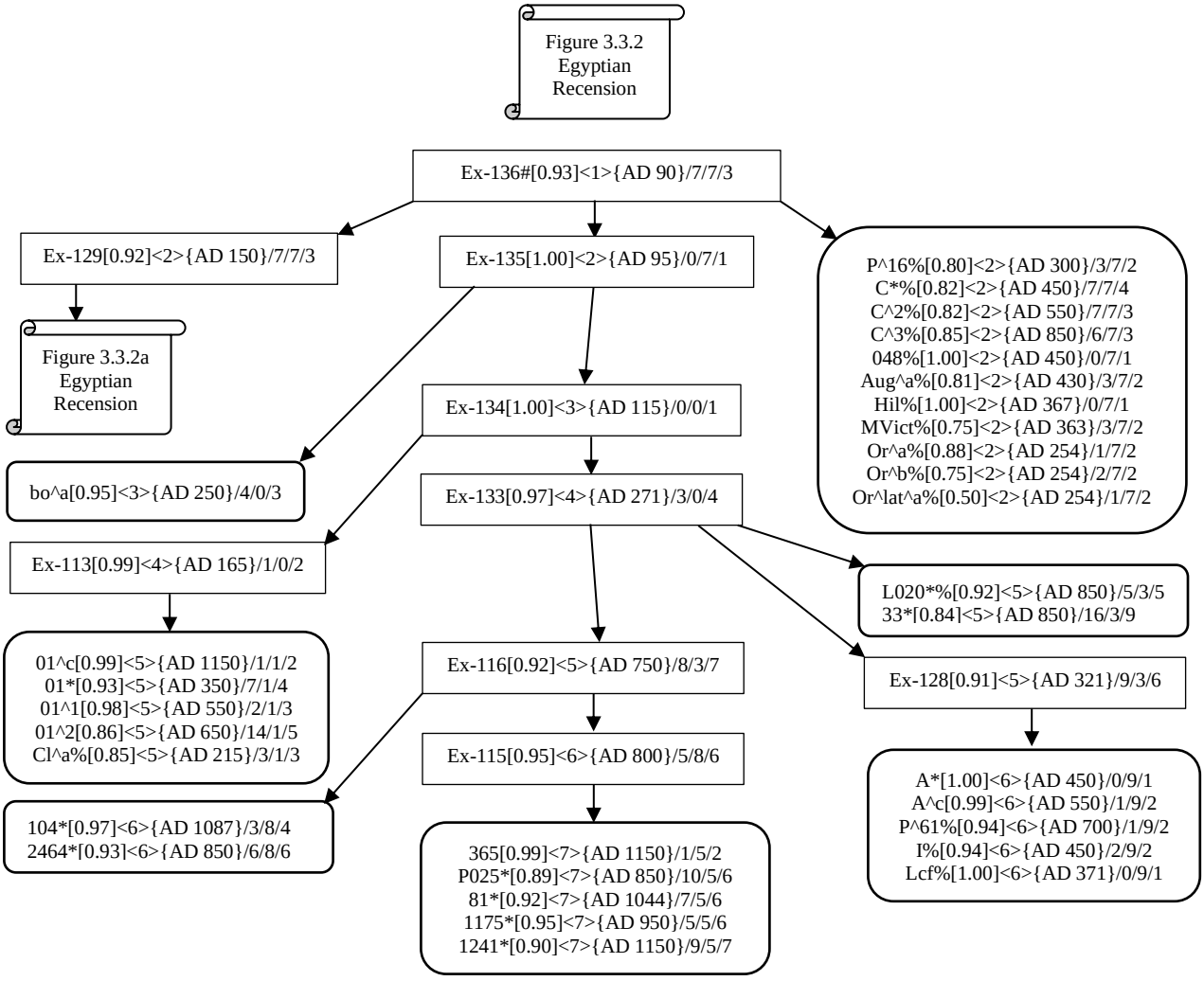
The Western Text Tradition



The genealogical history of the Western text tradition was reconstructed with only two exemplars spanning three generations ranging from c. AD 300 to AD 1000, not including the

printed editions of the Vulgate. The witnesses of this text tradition are closely related genetically as evidenced by the relatively large number of sibling descendants of the exemplars. The average affinity of the exemplars in this tradition with their parent exemplar is 89.5% with a standard deviation of 3.50. Beginning with its head exemplar Ex-112#, the succeeding exemplars of the main stem accumulated 6 variants, 6 (100%) of which persisted to the third generation. Its date is established by the Latin Vulgate (vg^a c. AD 400).

The Egyptian Text Tradition



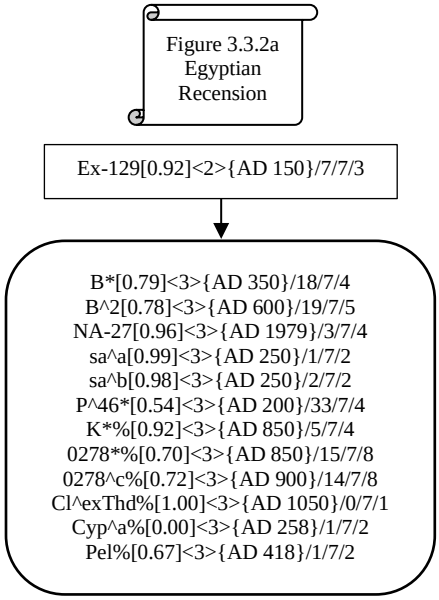


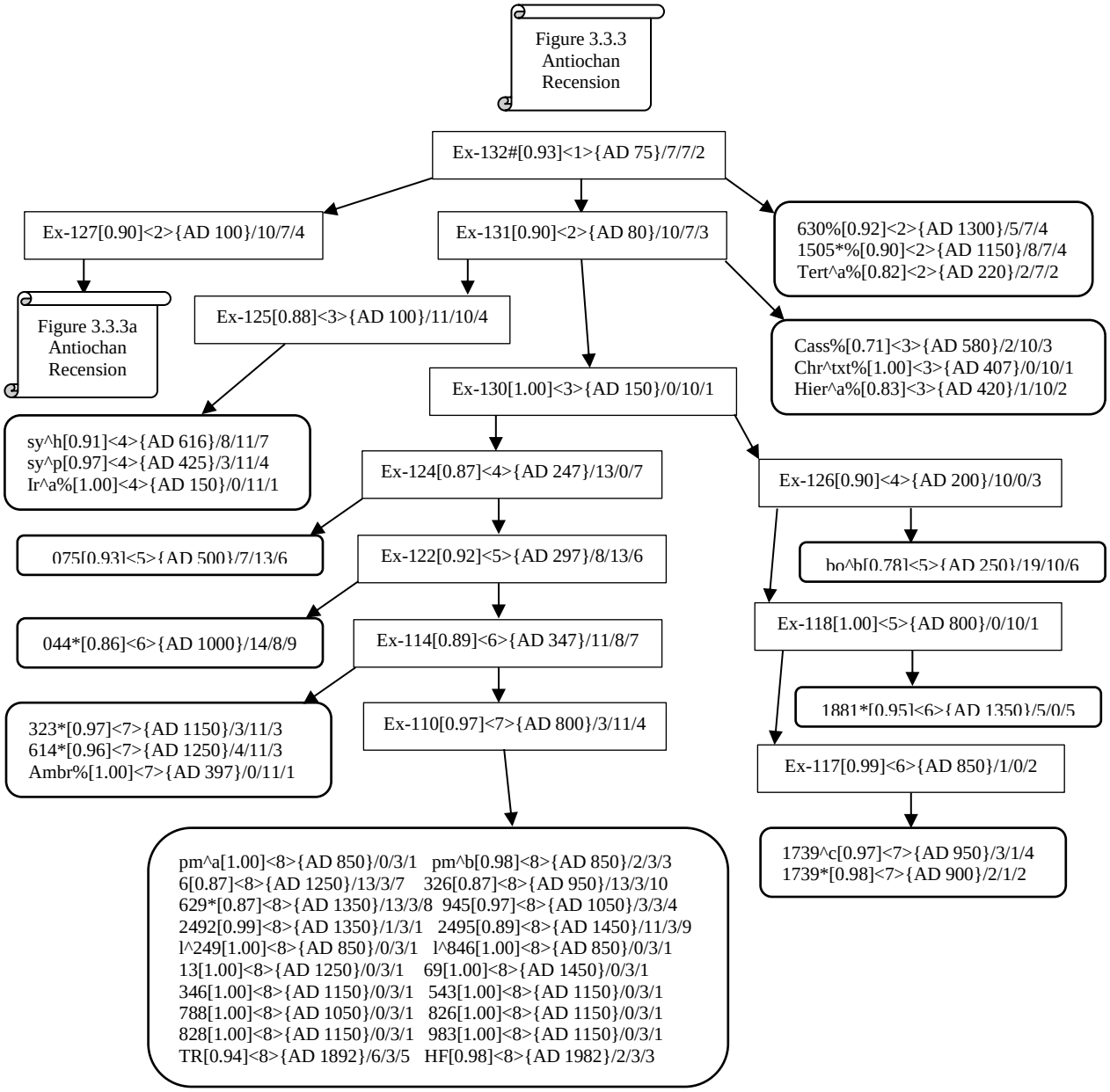
Figure 3.3.2, displays the diagram of the text tradition headed by exemplar Ex-136#, the Egyptian recension (c. AD 90), the text from which nearly all the Egyptian witnesses were derived. It has an affinity of 93% with the text of the autograph, differing from it in 7 places. It has three parents, the autograph and two virtual parents to account for mixture. Its date is established by the fifth-generation church father Clement of Alexandria (Cl c. AD 215).

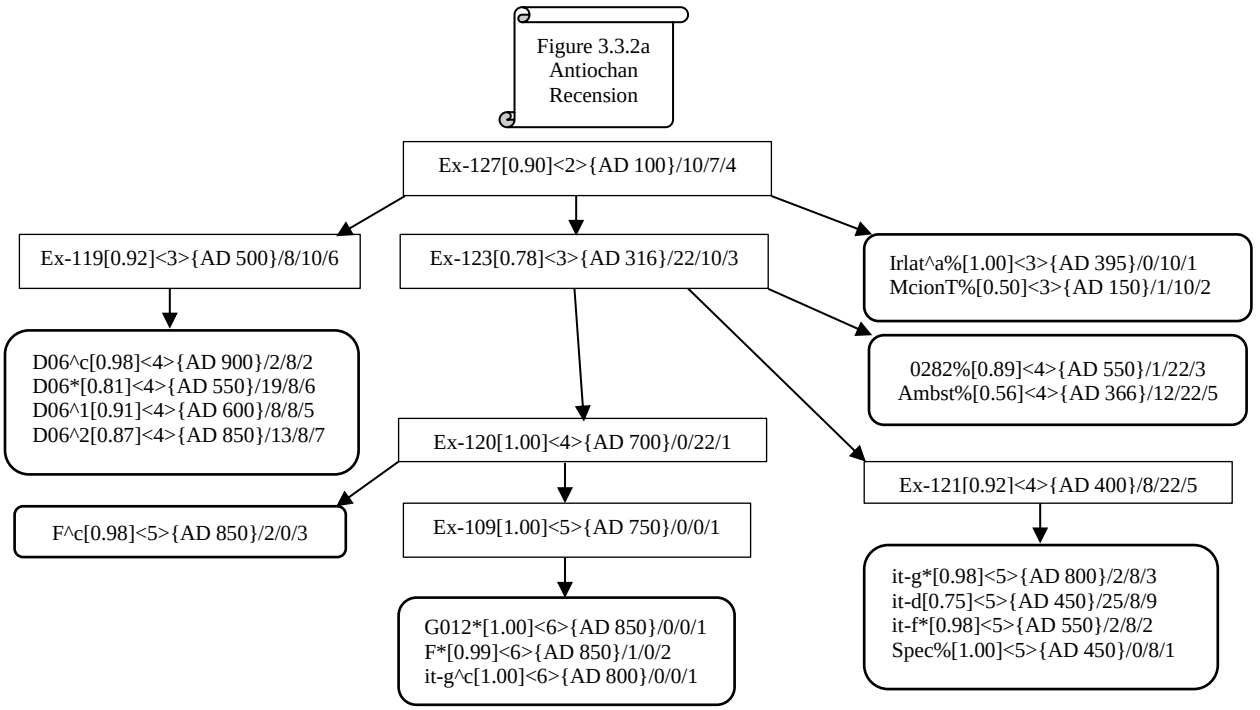
Its genealogical history was reconstructed with eight exemplars spanning seven generations ranging from AD 90 to AD 1150. The witnesses of this text tradition are closely related genetically as evidenced by the relatively large number of sibling descendants of the exemplars. The average affinity of the exemplars in this tradition with their parent exemplar is 95.75 % with a standard deviation of 3.53. Beginning with its head exemplar Ex-136#, the succeeding exemplars of the main stem accumulated 16 variants, 14 (67.5%) of which persisted to the seventh generation.

A number of fragmentary uncials, papyri, and church fathers found their best fit as descendants of the head exemplar Ex-136#. Fourth-generation exemplar Ex-113 (c. AD 165) is the source of Codex Sinaiticus (01*) and its correctors. Second-generation exemplar Ex-129 (c. AD 150) is the source of Codex Vaticanus (B*) and its correctors, along with papyrus P^46* (c. 200), the Sahidic translations (sa^a and sa^b, c. AD 250), and NA-27. Although Codex Sinaiticus (01*) and Codex Vaticanus (B*) are in the same text tradition, they differ from one another by 29 readings, having a mutual affinity of only 71%, and differing from the head exemplar Ex-136# by 15 readings (01*, 85%) and by 23 readings (B*, 77%).

The Antiochan Text Tradition

Figure 3.3.3 displays the branch headed by exemplar Ex-132#, the Antiochan recension, the text from which all the Antiochan witnesses derived their text. Its affinity with the autographic text is 93%; its date is c. AD 75; its text differs from the autographic text in 7 places; and it has two parents: the autograph and one virtual parents to account for mixture. Its genealogical history was reconstructed with 16 exemplars spanning eight generations ranging from c. AD 75 to c. AD 1450. While considerably more cluttered, this view enables the reader to see how strong or weak the genetic forces are that bind the witnesses together.





I call this branch the Antiochan text tradition because it has numerous witnesses that are genealogically earlier than what is commonly regarded as the Byzantine text, which, for Philippians, must have originated in the recension of fourth-generation exemplar Ex-124 (c. AD 247). This is the exemplar beyond which the Syriac versions are not found. This text tradition lacks any translation witnesses except the Syriac versions.

Excluding the head exemplar Ex-132#, the exemplars in this branch have affinities with their primary parent exemplars ranging from 78% to 100%, with an average of 92.75% with a standard deviation of 6.04. Beginning with the text of the head exemplar Ex-132#, the head of this branch, the succeeding exemplars accumulate 45 new variants, 29 of which persist to the last generation (64.4%).

Readings of the Autographic Text

The theory expressed in the first volume of this series[6] indicates that the readings of the autographic text should be determined on the basis of the "consensus among ancient independent witnesses." The solution for Philippians ended up with three independent recensions which were candidates for being witnesses to the text of the autograph. The guideline given in theory recommended selecting the three most ancient recensions for use in determining the consensus;

[6] Chapter Two of The Genealogical History of the Greek Text of the Gospel of Matthew.

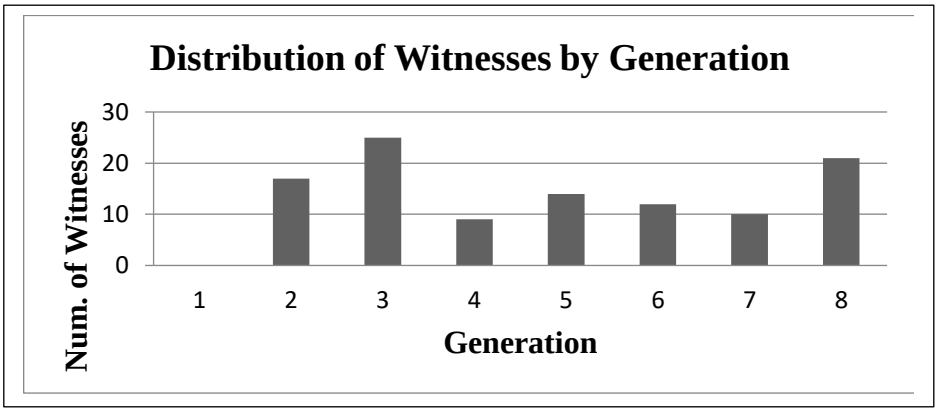
for Philippians they are: Ex-112#, Ex-132#, and Ex-136#. The text of the autograph is presented in Appendix D.

The Generations of Genealogical History

Program Lachmann-10 reconstructed the genealogical history of the text of Philippians in eight 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 108 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 Philippians by generation.

Table 3.1
Distribution of Extant Witnesses by Generation

Generation	Num. of Witnesses
1	0
2	17
3	25
4	9
5	14
6	12
7	10
8	21



Mixture

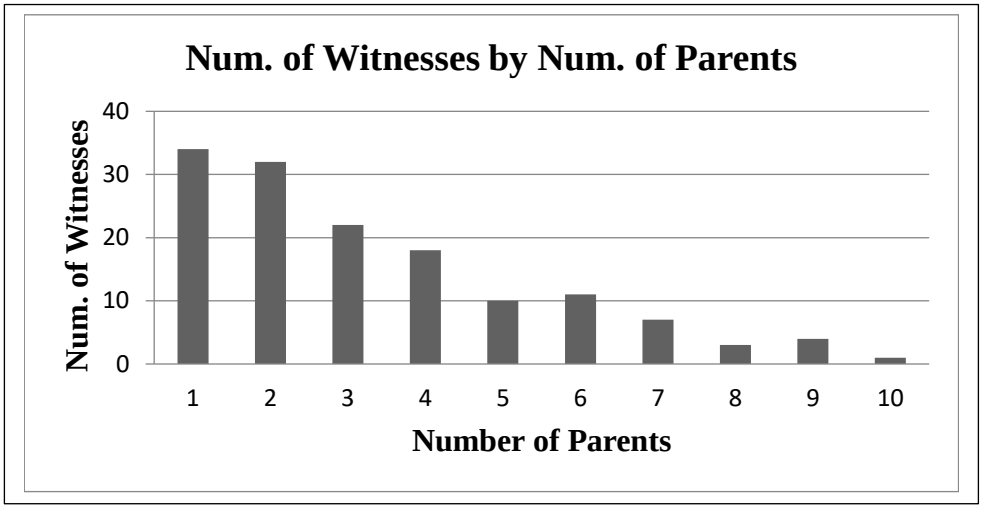
The number of parents a witness had is a measure of the mixture of its text; the more parents, the more mixture. At any place of variation, the reading of a witness may differ from that of its primary parent exemplar[7] for one of two reasons: (1) the reading is a newly initiated variant having no prior 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.

[7] 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.

Those witnesses with the greatest mixture are those with the most diverse text; for example: 34 of the witnesses had only one parent, having no mixture at all; four witnesses have 9: 044*; 33*; 2495; it-d; and one has 10: MS 326. Exemplar Ex-1119, the source of MS D06* and its corrector, has 6 parents, indicating the extreme mixture of that tradition; and exemplars Ex-124, Ex-122, and Ex-114, in the Byzantine section of the Antiochan text tradition, also have six or seven parents indicating considerable mixture. 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	34
2	32
3	22
4	18
5	10
6	11
7	7
8	3
9	4
10	1



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 has at least two primary descendants, 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. Nineteen exemplars have only two; five exemplars have three primary daughters; exemplar Ex-115 has five; and Ex-110 has eighteen.

Table 3.3
Distribution of Exemplars by Number of Primary Daughters

Num. of Primary Daughters	Num. of Exemplars
2	19
3	5
4	3
5	1
18	1

Table 3.4
Distribution of Exemplars by Number of Secondary Daughters

Num. of Secondary Daughters	Num. of Exemplars	Num. of Secondary Daughters	Num. of Exemplars
0	10	11	2
1	2	13	2
2	2	14	1
3	3	16	1
4	1	18	2
5	1	29	1
6	2	41	1
7	2	83	1
9	1	Total =	326

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.

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 above displays the distribution of secondary daughters by number of exemplars. Ten exemplars have no secondary daughters. Exemplar Ex-136#, the Egyptian recension, has 13 secondary daughters; exemplar Ex-132#, the Antiochan recension, has 16; and Ex-112#, the Western recension, has 29.

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

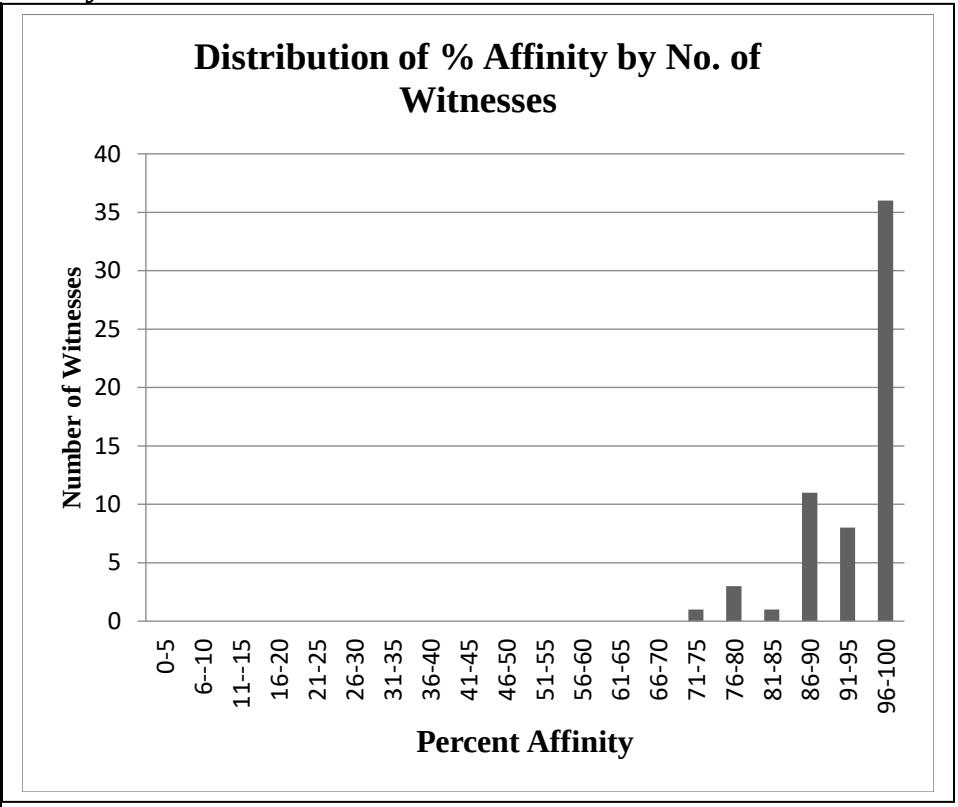
genealogical history of the witnesses.[8] This feature is treated further in Chapter Four where the genealogical history of the variants is discussed.

Distribution of Affinity

Another measure of the success of the software in reconstructing the genealogical history of the text of Philippians 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 witnesses[9] to their corresponding primary parent exemplar.

Table 3.5
Distribution of Affinity of Extant Witnesses with Primary Parent

% Affinity	No. 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	0
46-50	0
51-55	0
56-60	0
61-65	0
66-70	0
71-75	1
76-80	3
81-85	1
86-90	11
91-95	8
96-100	36
Total	60



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

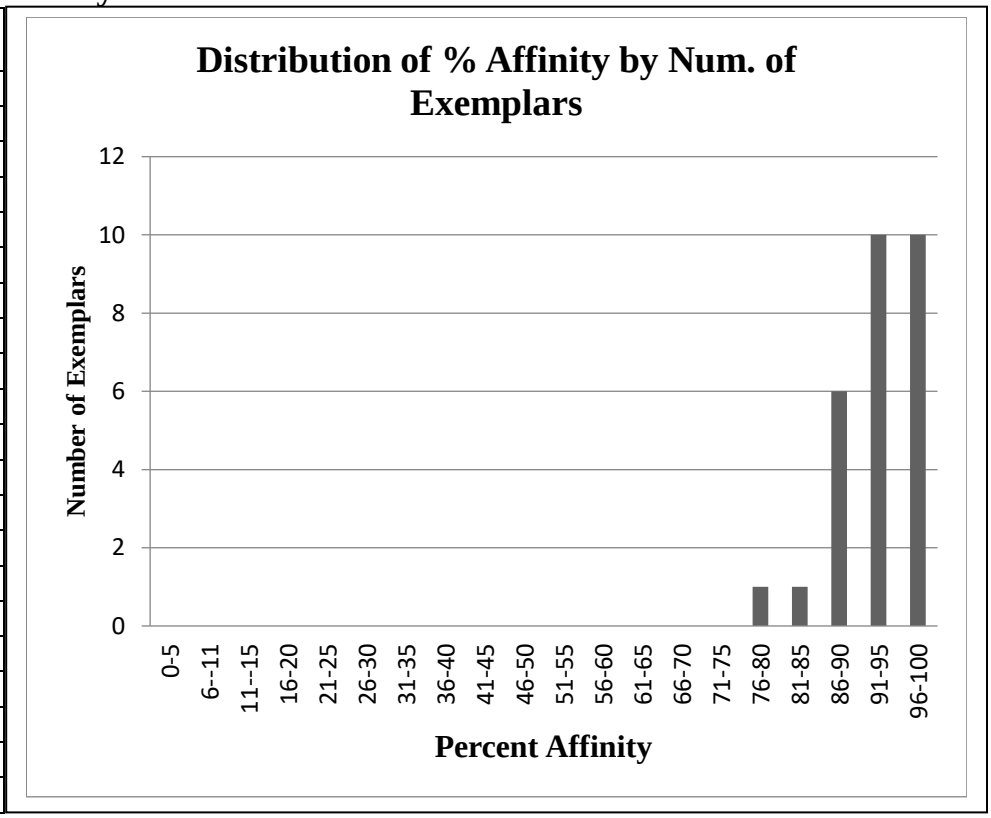
[9] Witnesses with less than 80% content are excluded because they do not contribute to the reconstruction of the genealogical history but are attached at the most appropriate place after the tree is complete.

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

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.[10] The evidence from Table 3.6 indicates that 20 (71.4%) of the 28 reconstructed exemplars[11] have a strong affinity (> 90%) with their primary parent exemplar, and another 7 (25.0%) had a moderate affinity (81-90%) with their parent; only one (3.6%) has a weak affinity (71-80%). The one exemplar with an affinity less than 80% is exemplar Ex-123 (78%), a second-generation exemplar in the Western text tradition.

Table 3.6
Distribution of Affinity of Exemplars with Primary Parent

% Affinity	No. of Exemplars
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	0
61-65	0
66-70	0
71-75	0
76-80	1
81-85	1
86-90	6
91-95	10
96-100	10
Total	28



[10] 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.

[11] 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.

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 the closest possible.

Global Inheritance Persistence

Another measure of the success of the software in reconstructing the genealogical history of the text of Philippians is the persistence of the variants once they are initiated in the stemma of genealogical history. Ideally, once a variant is initiated, it will persist in all the descendants of the exemplar in which it was initiated. Table 3.7 presents the global statistics for inheritance persistence for the reconstructed stemma of Philippians. The information is the accumulated sum of every witness' hereditary persistence. For each witness, the total number of variants it could inherit from all its ancestors was counted, also the number of those inheritable variants it actually inherited.[12]

Table 3.7
Global Inheritance Persistence

Global Total Number of Inheritable Variants:[13]	2,926
Global Number of Actually Inherited Variants:[14]	2,473
Global Number of Changed Variants:[15]	69
Global Number of Corrected Variants:[16]	384

This information indicates that for the 2,926 variants (the inheritable ones) initiated in all the ancestor exemplars in the stemma, 2,473 were persistent, being actually inherited by all their respective descendants (84.5%), and 69 were changed (2.3%) somewhere in intervening ancestors.

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[12] The hereditary persistence of a witness is the ratio of the number of inheritable variants to the number of actually inherited ones. The number of inheritable variants of a witness is the sum of the number of new variants initiated in all of its ancestor exemplars.

[13] An inheritable variant of a witness is one of its readings that was initiated in one of its ancestral exemplars.

[14] An inherited variant of a witness is one of its inheritable readings that persisted unaltered from its point of initiation through its intervening ancestors to the given witness itself.

[15] An inheritable variant of a witness is counted as changed if it was altered in an intervening ancestral exemplar, disrupting its hereditary persistence.

[16] An inheritable variant of a witness is counted as corrected if after being altered it is restored again to its initial reading.

Interestingly, 384 of them (13.1%) were corrected back to the reading of the exemplar in which the variant originated. This information indicates the solution may be regarded as reasonably successful. The persistence of variant readings may be observed in the trees tracing the genealogical history of specific variants found in Chapter four.

Date of the Autograph

The dates of the autograph and all other exemplars are relative, not exact, being created by the date algorithm of the software which states that a parent exemplar is 50 years older than that of its oldest sibling daughter. When the dates diminish to below AD 150, the generation gap is reduced to 20 years, giving more room for activity in the first half of the second century and earlier. When the dates diminish below AD 100, the generation gap is reduced to five years. When the date diminishes below AD 50, the generation gap is reduced to one year. The date of the autograph (c. AD 70) is traced down through the Antiochan text tradition to fourth-generation fragmentary church father Irenaeus (Ir^a% AD 150) through the following exemplars:

```
Autograph[0.00]<0>{AD 70}/0/0/0
  |-Ex-132#[0.93]<1>{AD 75}/7/7/2
     |-Ex-131[0.90]<2>{AD 80}/10/7/3
        |-Ex-125[0.88]<3>{AD 100}/11/10/4
        |   |-Ir^a%[1.00]<4>{AD 150}/0/11/1
```

The Irenaeus (Ir^a% c. AD 150) has 4 readings, having 100% affinity with its parent exemplar. This is a weak but reasonable basis for establishing the date of the autographic text.

Summary

Beginning with 108 extant witnesses, 71 of which were 80% or more complete, Lachmann-10 reconstructed 29 exemplars to account for the genealogical relationships among them. It constructed a stemma that mapped the genealogical history of the text of Philippians consisting of three main branches corresponding to the three traditional text types. Table 6.7 summarizes the following data for each branch:

(1) The name of the first-generation recension
(2) The date of the recension
(3) The date of the latest witness in the branch, a measure of the text tradition's longevity
(4) The affinity of the recension with the autographic text
(5) The number of variants the recension differs from the autographic text
(6) The number of exemplars created for the branch
(7) The number of generations occurring in the branch

(8) Standard deviation of the witnesses in the branch with their parent exemplar[17]

(9) Consistency of the witnesses in the branch with their parent exemplar[18]

(10) The number of accumulated variations within the branch

(11) Percent of persistence of variants within the branch

The names of the exemplars consist of an "Ex-" plus a number indicating the sequential order in which they were created. There are 108 extant witnesses for Philippians in this study, so the numbering of the exemplars began with Ex-109 and continued sequentially to Ex-136#, the last one created, increasing by one with each iteration. Table 6.8 displays how the exemplars of the three branches align sequentially with the dates of history; it also shows the date of the most recent witness in each branch; and also how the creation of the exemplars aligns with history.

Table 6.7
Summary of Data

	Egyptian	Antiochan	Western
Recension	Ex-136#	Ex-132#	Ex-112#
Date	AD 90	AD 75	AD 300
Latest	AD 1150	AD 1450	AD 1000
Affinity	93%	93%	86%
Difference	7	7	13
Exemplars	9	16	2
Generations	7	8	3
St. Deviation	3.53	6.04	3.5
Consistency	95.75%	92.75%	89.5%
Accumulated	16	45	6
Persistence	67.5%	64.4%	100%

[17]Standard deviation here is an overall measure of how deviant the exemplars were from their immediate parent exemplar within the branch. It is the root mean square of the deviation of all the exemplars in the branch.

[18] Consistency here is the average affinity of the exemplars with their parent exemplar.

Table 6.8
Alignment With Date

Date	Egyptian	Antiochan	Western
AD 75		Ex-132#	
AD 80		Ex-131	
AD 90	Ex-136#		
AD 95	Ex-135		
AD 100		Ex-127/125	
AD 115	Ex-134		
AD 150	Ex-129	Ex-130	
AD 165	Ex-113		
AD 200		Ex-126	
AD 247		Ex-124	
AD 271	Ex-133		
AD 297		Ex-122	
AD 300			Ex-112#
AD 316		Ex-123	
AD 321	Ex-128		
AD 347		Ex-114	
AD 350			Ex-111
AD 400		Ex-121	
AD 500		Ex-119	
AD 700		Ex-120	
AD 750	Ex-116	Ex-109	
AD 800	Ex-115	Ex-110/118	
AD 850		Ex-117	

One may notice that some exemplars appear out of order generationally; for example second-generation Egyptian Ex-129<2> , dated AD 150, appears later in time than third-generation exemplar Ex-134<3> (AD 115). One expects the generations of a branch to be sequential in time. However, this misalignment occurs because exemplar Ex-129, dated fifty years earlier than its oldest daughter papyrus P^46* (AD 200), is a descendant of first-generation exemplar Ex-136# (AD 90) and may actually have been copied any time subsequent to AD 90. This is an example of a group of late witnesses having been copied from a much earlier source.

Conclusions

The software does indeed reconstruct a genealogical history of the manuscripts of the Epistle to the Philippians, 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 Byzantine, but rather Western, Egyptian, and Antiochan, with Byzantine being a later form of the Antiochan text 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 relatively independent of each other and only loosely related to the other Egyptian witnesses.

This concludes the discussion of the genealogical history of the witnesses to Philippians. While the reconstruction of the genealogical history of witnesses depends on the quantitative affinity (consensus), genetic affinity (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 Philippians is discussed in Chapter Four.

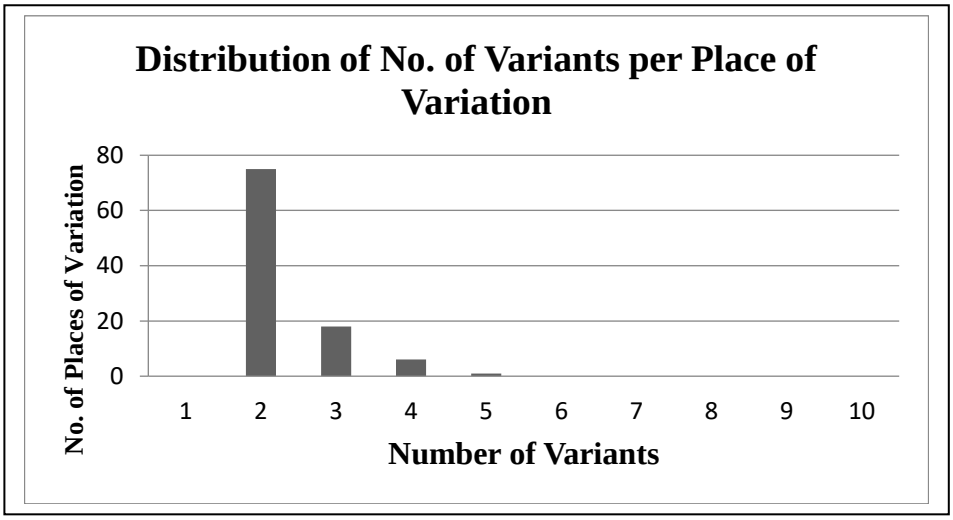
CHAPTER 4

THE HISTORY OF THE TEXTUAL VARIANTS IN PHILIPPIANS

Chapter Three presents the genealogical history of the manuscripts[1] of the Greek text of the Epistle to the Philippians. 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 100 places of textual variation in the book of Philippians and 233 variant readings. This averages out to a variableness index of 2.33 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

Number of variants	Number of Places of Variation
1	0
2	75
3	18
4	6
5	1
6	0
7	0
8	0
9	0
10	0
Total=	233



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

Initially the number 100 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 variation could occur. If the number of words in the Greek text of Philippians (1,645) 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 Philippians is 93.4% pure[2] before variations are even considered. Thus variation occurs in only 7.6% of the text. In that small portion of the text 233 variants are recorded, but 100 of them are original readings, so only 133 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 Philippians: (1) omissions, (2) alterations, (3) transpositions, and (4) additions. Table 4.2 lists the distribution of these types of variants in the 100 places of variation in the text of the Epistle to the Philippians, 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	15
Omit a phrase	1
Alternate word	42
Alternate words	19
Transposed words	3
Added word or phrase	20
Total	100

Table 4.3
Distribution of All Variants by Type

Variation Type	Number of Variants
Omit a word	30
Omit a phrase	2
Alternate word	96
Alternate words	57
Transposed words	6
Added word or phrase	42
Total	233

[2] ((1,645 – 100) ÷ 1,645) x 100 = 93.4.

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;[3]

(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;[4]

(5) if witnesses are of different languages, then select the Greek reading.

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 Philippians.

Table 4.4
Frequency of Exemplar Reading Rules

(1) by greatest probability	2,605
(2) by deferred ambiguity	175
(4) by default to NA-27	18
(5) by arbitrary choice	0
(6) by language deference	62
Total	2,860

The evidence indicates that the vast majority of exemplar readings (91.08%) were determined by "consensus among independent witnesses," and nearly all the remainder (6.12%) were

[3] 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 2,860 decisions the software made, only 9 had more than two alternatives.

[4] 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 three branches to be constructed as siblings constituting the ancient independent witnesses.

determined by deferred ambiguity, while only 0.63% were deferred to the NA-27 reading, and none were determined by arbitrary choice or language preference.

Autographic Readings

The readings of the autographic text of Philippians were determined on the basis of consensus among the three most ancient independent recensions: (1) Exemplar Ex-112#, the Western recension; (2) Exemplar Ex-136#, the Egyptian recension; and (3) Exemplar Ex-132#, the Antiochan recension. Appendix D lists each of the 100 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 Philippians. Again the evidence indicates that 86% of the readings were determined by "consensus among ancient independent witnesses"; 13% were determined by language deference; and only one was determined by default to NA-27 or arbitrary choice.

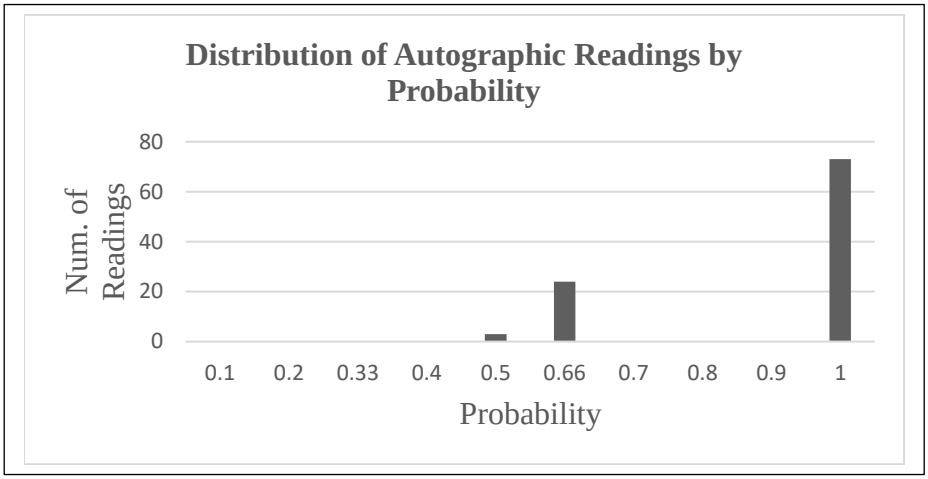
Table 4.5
Frequency of Exemplar Reading Rules

Number of Autographic variants decided by greatest probability	86	86%
Number of Autographic variants decided by Choice of NA27	1	1%
Number of Autographic variants decided by arbitrary choice	0	0.00%
Number of Autographic variants decided by Language deference	13	13%
Total	100	

Table 4.6 and its associated graph displays the distribution of the probability of the reconstructed autographic readings. Of the 100 readings, 73 had a probability of 1.0 (100%), 24 had a probability of 0.66 (66%), and 3 had a probability of 0.5 (50%).

Table 4.6
Distribution of Autographic Readings by Probability

Probability	Number of Readings
0.1	0
0.2	0
0.33	0
0.4	0
0.5	3
0.66	24
0.7	0
0.8	0
0.9	0
1.0	73



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 94 times or 94% of the time, and differs from the NA-27 text 6 times or 6% of the time. Appendix E lists the 315 places where the Lachmann-10 text differs from that of NA-27.

Table 4.7
Frequency of Variants

Variant 1	94
Variant 2	6
Variant 3	0
Variant 4	0
Variant 5	0
Variant 6	0
Variant 7	0
Total	100

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 genea-

logical history where each variant originated.[5] Often, after the first initiation of a reading, it may have been introduced again in a later exemplar by means of mixture.

Exemplars Ex-138$ through Ex-143$, 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 133 non-autographic variants, 126 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-136# was the ancestral forefather of the Egyptian text tradition. This recension differs from the autograph by 7 variants[6] among which it uniquely originated the following 2 variants peculiar to this entire text tradition, such variants cannot be original:

Place of Variation	Reference	Variant
26.2	1:24,2.2	omit
43.1	2:5,1.1	omit

Western Recension

First-generation exemplar Ex-112# was the Western recension, being the text from which most of the Old Latin translations were made. It differs from the autographic text by 13 secondary

[5] 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.

[6] 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: 1:24,2.2; 2:5,1.1; 2:26,1.3[Ex-142$]; 2:30,1.2[Ex-143$]; 3:10,1.2[Ex-142$]; 3:13,1.2[Ex-142$]; 4:19,1.1[Ex-142$].

variants,[7] among which it uniquely originated the following one variant peculiar to this entire text tradition, such varriants cannot be original:

Place of Variation	Reference	Variant
87.3	4:1,1.3	—πειτε

Antiochan Recension

Exemplar Ex-132# was the Antiochan recension, being the text from which the Syrian and Byzantine witnesses were derived. It differs from the autographic text by 7 variants,[8] among which it uniquely originated the following 4 variants peculiar to this entire text tradition, such varriants cannot be original:

Place of Variation	Reference	Variant
36.3	2:3,1.3	ἤ
47.2	2:11,1.2	—σεται
52.2	2:15,2.2	αμωμητα
100.1	4:23,2.1	ᵀ ομιτ

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 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. In the examples that follow, the genealogical tree diagram of Figure 3.2 (found in Chapter 3) is used to display the genealogical distribution of the variants at the selected place of variation. For example, "Ex-112#-1" means that exemplar Ex-112# has the first variant there; "B*-3" means that witness B* (Codex Vaticanus) has the third variant there; and "0171%-0" means that fragment 0171 has a lacuna there. Only one descendant of an exemplar is displayed, usually the prominent one, but it may be assumed that all its sibling descendants have the same reading unless otherwise

[7] 1:8,2.2[Ex-142$]; 1:23,2.2[Ex-142$]; 2:4,1.2[Ex-142$]; 2:4,3.2[Ex-142$]; 2:4,4.3[Ex-142$]; 2:15,1.2[Ex-142$]; 3:3,1.2[Ex-142$]; 3:6,2.2[Ex-142$]; 3:7,2.2[Ex-142$]; 3:8,1.2[Ex-142$]; 3:12,2.2[Ex-142$]; 3:21,2.2[Ex-142$]; 4:1,1.3.

[8] 1:27,1.2[Ex-142$]; 2:3,1.3; 2:11,1.2; 2:15,2.2; 2:24,1.1[Ex-142$]; 4:13,1.2[Ex-142$]; 4:23,2.1.

indicated. Colors are used to mark the genealogical descent of the alternate readings: green marks the genealogical descent of the autographic reading, and other colors mark that of the alternate readings there.

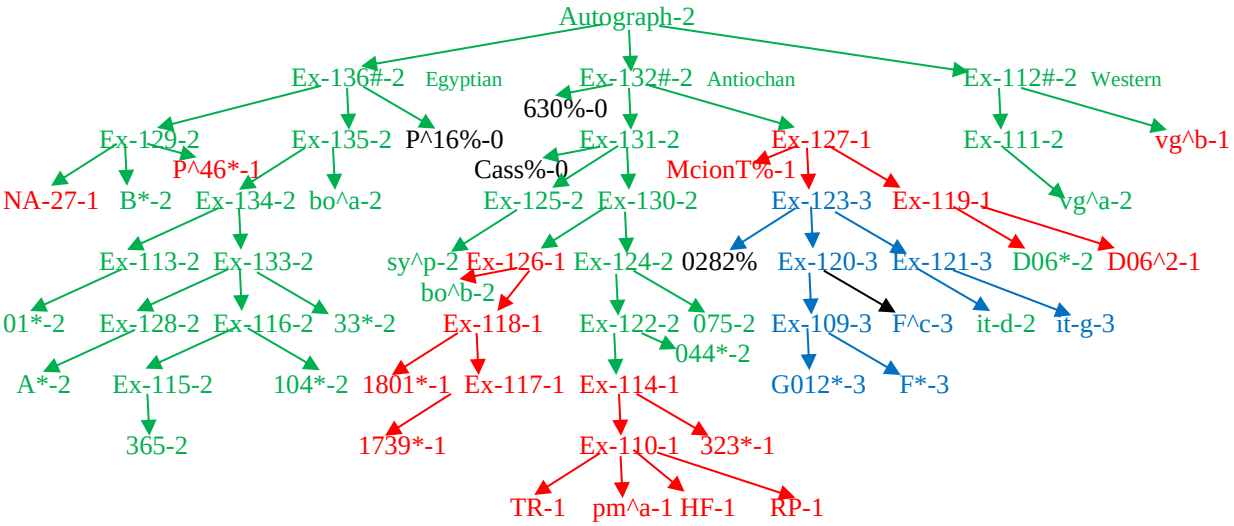
Variants of Textual Interest

The genealogical history of some variants is more interesting than that of others because of their significance for translation. For example key words are missing in some witnesses (1:14; 2:9; 3:12). Also some places of variation have multiple options widely distributed among the witnesses (3:14; 4:16); the genealogical history may help to decide which option is more likely original.

Omit *God* 1:14,1?

The fourteenth verse of chapter one is lacking the word *God* in some witnesses: "and that most of the brethren, trusting in the Lord because of my imprisonment, have far more courage to speak the word of God without fear. (NAU)" Witnesses with variant 1 lack the word *God* while those with variant 2 contain it, and those with variant 3 substitute the word *Lord*. Figure 4.1 displays the distribution of the variants throughout genealogical history.

Figure 4.1
Distribution of 1:14,1



Variant 2, containing the word *God*, has the consensus of all three first-generation recensions, with a probability of being original of 100 percent; it was selected as the autographic reading on this basis. Variant 2 occurs in all the Western witnesses (Exemplar Ex-112# and its descendants) except for Latin Vulgate (vg^b) and Old Latin it-r% (not shown) ; it also occurs in all the Egyptian witnesses (Exemplar Ex-136# and its descendants) except for papyrus P^46* and

NA-27; and it occurs in most of the early Antiochan witnesses (Exemplar Ex-132# and its descendants) except for the descendants of second-generation exemplar Ex-127, fourth-generation exemplar Ex-126, and sixth-generation exemplar Ex-114. This variant has the greatest antiquity, the greatest early distribution, and excellent persistence in two of the text traditions.

Variant 1, lacking the word, first originated in the sub-branch of the Antiochan text tradition headed by second-generation exemplar Ex-127, and then was handed down by mixture to the sub-branch headed by fourth-generation exemplar Ex-126, and again to the sub-branch headed by sixth-generation exemplar Ex-114. In addition, it was acquired by mixture in third-generation papyrus P^46* in the Egyptian text tradition and in second-generation Latin Vulgate vg*b. This reading lacks antiquity and early distribution, but did enjoy persistence once it was introduced. The editors of NA-27 selected this reading as autographic on the merit of P^46* against the strong witness of external evidence, including all the other witnesses in the Egyptian branch. Bruce Metzger stated: "A majority of the committee preferred the reading . . . as that which best explains the origin of the other readings, which have the appearance of scribal expansions."[9] Admittedly it is hard to explain the omission of this word if it were original, but the external evidence is strong and P^46 is a diversity maverick in Philippians, differing from its parent exemplar by 33 readings with an affinity of only 54%. This is an instance where the Byzantine text is distinct from the earlier Antiochan text, and where it lacks a theologically significant word.

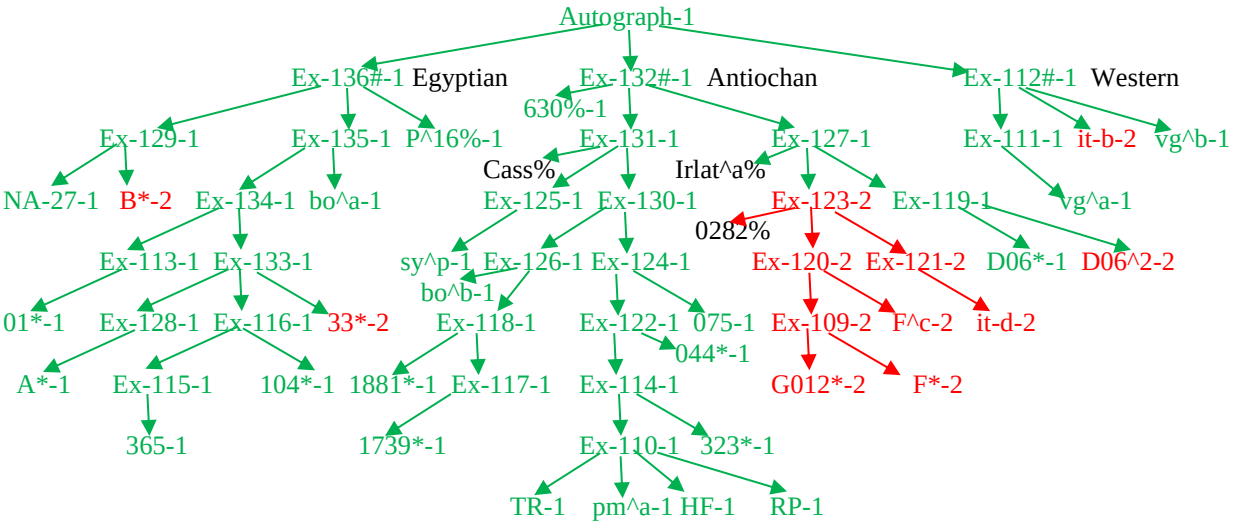
Variant 3, containing the word *Lord*, originated in the sub-branch of the Antiochan text tradition headed by third-generation exemplar Ex-123 and occurs nowhere else. This variant has no possibility of being original, lacking antiquity and distribution, but having good persistence.

Omit *Jesus* 3:12,2?

The twelfth verse of chapter three the word *Jesus* is lacking in some witnesses: "Not that I have already attained, or am already perfected; but I press on, that I may lay hold of that for which Christ Jesus has also laid hold of me." Witnesses with variant 1 contain the word *Jesus* while those with variant 2 lack it. Figure 4.2 displays the distribution of the variants throughout genealogical history.

[9] Bruce M. Metzger, *A Textual Commentary of the Greek New Testament* (London: United Bible Societies 1971), p. 612.

Figure 4.2
Distribution of 3:12,2



Variant 1, containing the word *Jesus*, has the consensus of all three first-generations recensions, with a probability of being original of 100 percent; and so was selected as the autographic reading on this basis. It is contained in all the witnesses in the Egyptian text tradition headed by exemplar Ex-136#, except for MSS B*, B^2, and 33*, as well as church father Clement of Alexandria (Cl^a%, not shown). It is contained in all the witnesses in the Antiochan text tradition headed by exemplar Ex-132#, except for those in the sub-branch headed by third-generation exemplar Ex-123, for MS D06^2, and church father Tertullian (Tert^a%, not shown). It occurs in all the witnesses in the Western text tradition headed by exemplar Ex-112#, except for Old Latin translation it-b. This reading has the greatest antiquity, distribution, and persistence.

Variant 2, lacking the word *Jesus*, only occurs in the witnesses in the sub-branch of the Antiochan text tradition headed by third-generation exemplar Ex-123, in MS D06^2, and church father Tertullian (Tert^a%, not shown). It occurs in the Egyptian text tradition in MSS B*, B^2, and 33*, as well as church father Clement of Alexandria (Cl^a%, not shown). It occurs in the Western text tradition only in Old Latin translation it-b. This variant lacks antiquity and distribution, but has good persistence once it was introduced. Clearly it was not in the autograph.

Add *to see* 2:26?

The twenty-sixth verse of chapter two the words *to see* are added in some witnesses: “since he was longing for you all, and was distressed because you had heard that he was sick.” There are four variants at this place:

(1) παντας υμας—you all

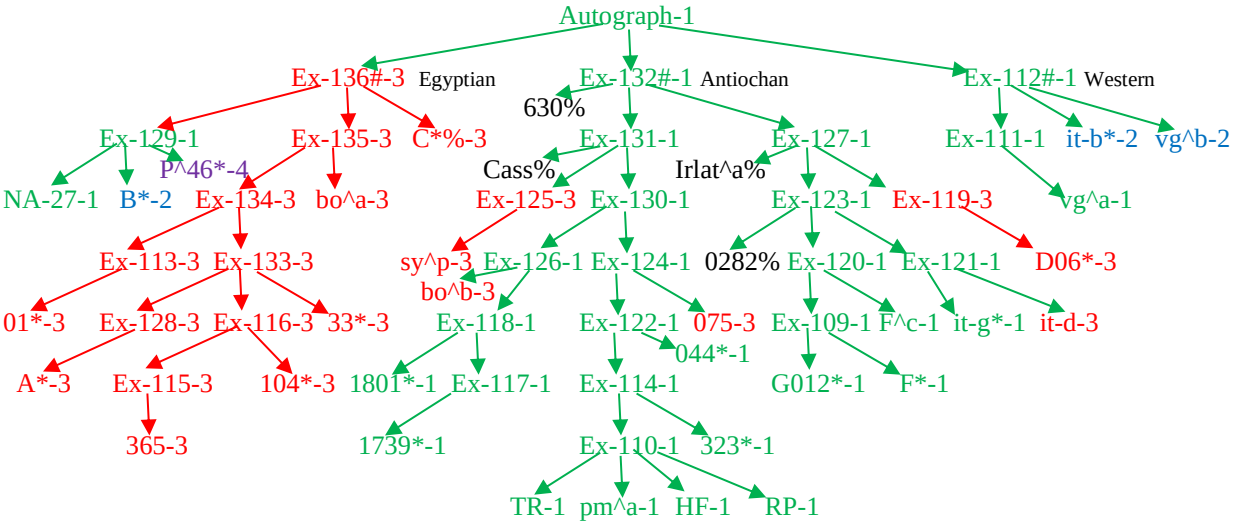
(2) υμας παντας—you all

(3) παντας υμας ιδειν—to see you all

(4) πεμψαι προς υμας—to send to you

Figure 4.3 displays the distribution of the variants throughout genealogical history.

Figure 4.3
Distribution of 2:26



Variant 1, lacking the phrase *to see*, has the consensus of two of the three first-generation recensions, with a probability of being original of 67 percent; it was selected as the autographic reading on this basis. Variant 1 occurs in all the witnesses in the Western text tradition headed by first-generation exemplar Ex-112#, except Latin Vulgate (vg^b) and the Old Latin translation it-b. It occurs in all the witnesses of the Antiochan text tradition headed by first-generation exemplar Ex-132#, except for those in the sub-branch headed by third-generation exemplar Ex-119, and for those in the sub-branch headed by third-generation exemplar Ex-125, and for MS 075, Old Latin translation it-d and Boharic translation bo^b. It also occurs in the Egyptian witnesses in the sub-branch headed by second-generation exemplar Ex-129, except for MSS B* and its corrector B^2, and for papyrus P^46*. This variant has the greatest antiquity, distribution, and persistence.

Variant 3, including the phrase *to see*, occurs in all the witnesses in the Egyptian text tradition headed by first-generation exemplar Ex-136#, except for those in the sub-branch headed by second-generation exemplar Ex-129. It also occurs in the witnesses in the sub-branch of the Antiochan text tradition headed by third-generation exemplar Ex-119, and in those in the sub-branch headed by third-generation exemplar Ex-125. It also occurs sporadically in MS 075, and

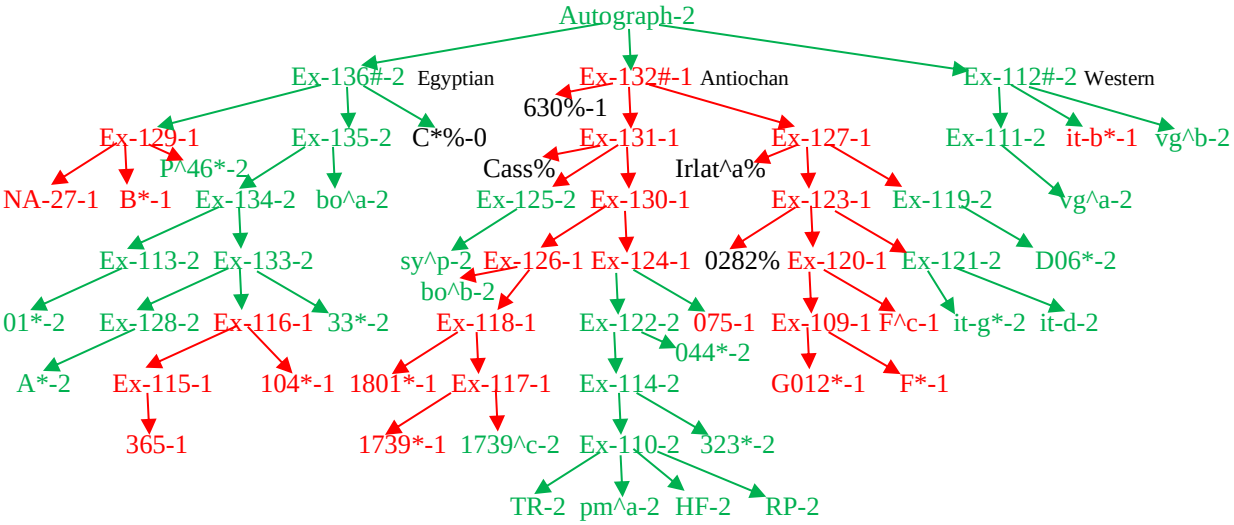
bo^b and it-d. This variant lacks antiquity and distribution, but has persistence after once being introduced.

Variant 2, having the reverse word order of variant 1, occurs sporadically in vg^b, it-b, and MSS B* and B^2. Variant 4, *to send you*, occurs only in papyrus P^46*. These two variants have no possibility of being original.

Add *Amen* 4:23?

The twenty-third verse of chapter four is lacking the word *Amen* in some witnesses: "The grace of our Lord Jesus Christ be with you all. Amen." Witnesses with variant 1 lack the word *Amen* while those with variant 2 contain it. Figure 4.4 displays the distribution of the variants throughout genealogical history.

Figure 4.4
Distribution of 4:23



Variant 2, containing the word *Amen*, has the consensus of two of the three first-generation recensions, with a probability of being original of 67 percent; it was selected as the autographic reading on this basis. Variant 2 occurs in all the witnesses in the Western text tradition headed by first-generation exemplar Ex-112#, except the Old Latin translation it-b. It occurs in all the witnesses of the Egyptian text tradition headed by first-generation exemplar Ex-136#, except for those in the sub-branch headed by second-generation exemplar Ex-129, and for those in the sub-branch headed by fifth-generation exemplar Ex-116. It also occurs in the Antiochan witnesses in the sub-branches headed by third-generation exemplar Ex-125, by third-generation exemplar Ex-119, by fourth-generation exemplar Ex-121, and by fifth-generation exemplar Ex-122, the head of

the Byzantine text tradition. This variant has the greatest antiquity, widest distribution, and better persistence.

Variant 1, lacking the word *Amen*, occurs in the witnesses of the Antiochan branch, except for the descendants of third-generation exemplar Ex-125, the descendants of third-generation exemplar Ex-119, the descendants of fourth-generation exemplar Ex-121, and the descendants of fifth-generation exemplar Ex-122, the Byzantine text tradition. This variant lacks antiquity, early distribution, and consistent persistence.

Multiple Variants at 3:14

The fourth place of variation in verse fourteen of chapter three has five variant readings: "I press toward the goal for the prize of the upward call of God in Christ Jesus." This is the greatest number of variants at one place of variation for the Book of Philippians. The variants are:

(1) του θεου ἐν Χριστω Ἰησου: of God in Christ Jesus.

(2) θεου: of God.

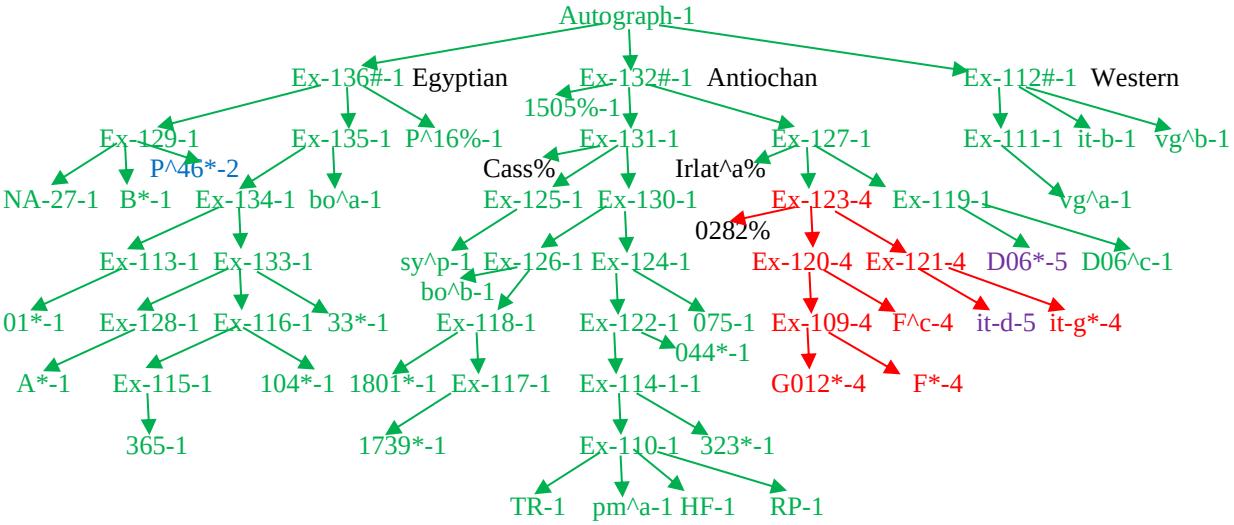
(3) ἐν Χριστω Ἰησου: in Christ Jesus.

(4) εν κυριω Ἰησου Χριστω: in the Lord Jesus Christ.

(5) *του θεου εν κυριω Ἰησου Χριστω*: of God in the Lord Jesus Christ.

Figure 4.5 displays the distribution of these variants throughout genealogical history.

Figure 4.5
Distribution of 3:14,4



Variant 1 "of God in Christ Jesus" is supported by all three of the first-generation recensions: the Western recension (Ex-112#), the Antiochan recension (Ex-132#) and the Egyptian recension (Ex-136#) with a probability of 100 percent. It occurs in all the witnesses of the Western

text tradition, in all the witnesses of the Egyptian text tradition except for papyrus P^46* and church father Clement of Alexandria (Cl^a%, not shown), and in all the witnesses in the Antiochan text tradition except for those in the sub-branch headed by third-generation exemplar Ex-123. This variant has the greatest antiquity, widest distribution, and excellent persistence.

Variant 4 "in the Lord Jesus Christ" occurs only in the witnesses in the sub-branch of the Antiochan text headed by third-generation exemplar Ex-123, except for Old Latin translation it-d. This reading lacks antiquity and distribution, having very little probability of being original. Variant 2 "of God" occurs only in papyrus P^46* in the Egyptian text tradition, and in church father Ambrosiaster (Ambst) in the Antiochan text tradition (not shown). Variant 3 "in Christ Jesus" occurs only in church father Clement of Alexandria in the Egyptian text tradition (Cl^a%, not shown). Variant 5 "of God in the Lord Jesus Christ" occurs only in MS D06* and its companion Old Latin translation it-d in the Antiochan text tradition. None of these variants have a chance of being original. The genealogical evidence supports variant 1 as the autographic reading with 100% probability.

50% Probability at 1:27

Philippians 1:27 is one of the places having only 50% probability of recovering the autographic reading: "Only let your conduct be worthy of the gospel of Christ, so that whether I come and see you or am absent, I may hear of your affairs, that you stand fast in one spirit, with one mind striving together for the faith of the gospel." There three variants here:

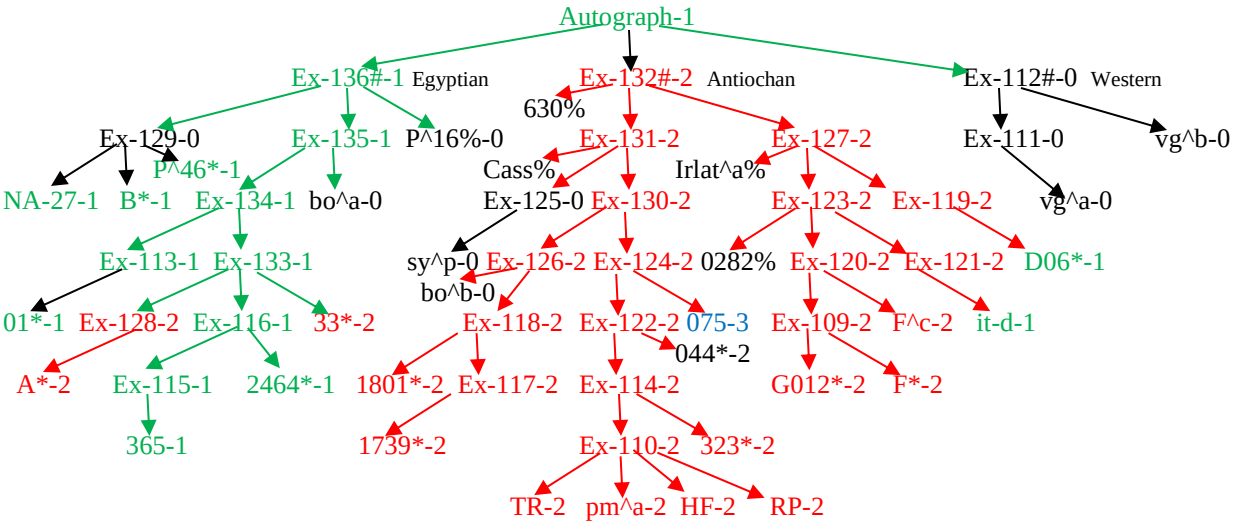
(1) *ἀκουω*: I may hear.

(2) *ἀκουσω*: I will hear.

(3) *ἀκουων*: hearing.

Figure 4.6 displays the distribution of the variants at 1:27 throughout genealogical history. At this place of variation there is no consensus among the first generation recensions. The Egyptian recension (Ex-136#) supports variant 1 "I may hear"; the Antiochan recension (Ex-132#) supports variant 2 "I will hear"; and the Western recension (Ex-112#) has a lacuna because the NA-27 editors were not able to determine the underlying Greek text of the Latin rendering. In cases of ambiguity like this, Lachmann-10 is programmed to select the NA-27 reading if it's available on the assumption that it has the better internal evidence. This leaves the selected reading with a probability of only 50%. But the difference in meaning is slight. Variant 3 "hearing" occurs only MS 075 and has no possibility of being original from the perspective of genealogical history.

Figure 4.6
Distribution of 1:27,1



Family Gene at 2:5,1

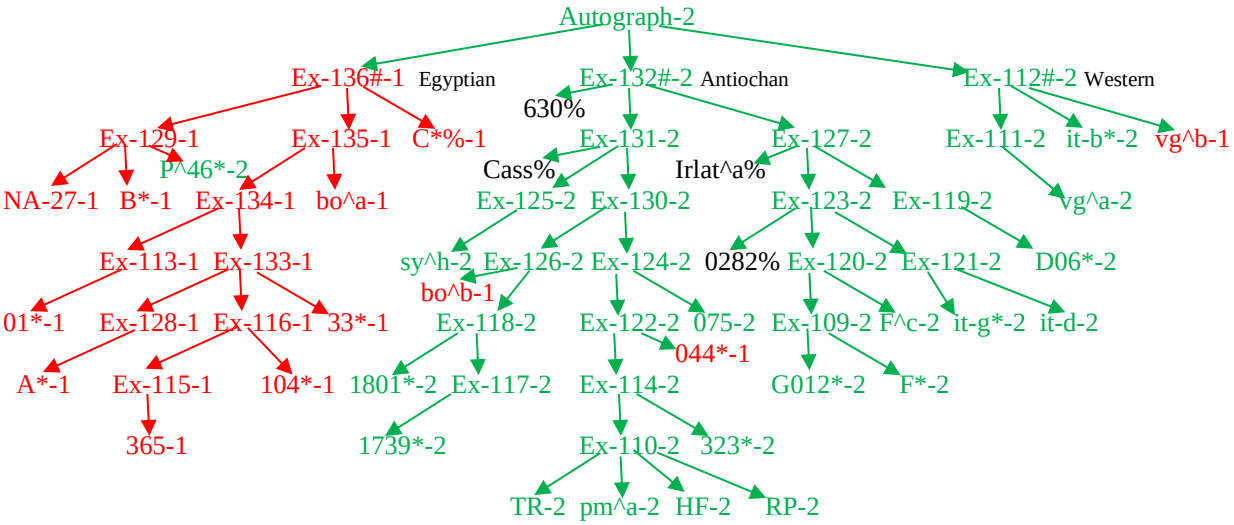
Philippians 2:5 is one of the places of variation where one reading of the family gene[10] of the Egyptian recension (Ex-136#) is initiated: "Let this mind be in you which was also in Christ Jesus." There are two variants here:

(1) Omit the word *for*: one of the readings of the Egyptian family gene.
(2) γαρ: for.

Figure 4.7 displays the distribution of the variants at 2:5 throughout genealogical history. Variant 2 "for" is supported by two of the first-generation exemplars: Ex-112# the Western recension and Ex-132# the Antiochan recension; so it was accepted as the autographic reading with a probability of 67 percent. It is supported by all the witnesses in the Western text tradition except for Vulgate (vg^b) and Old Latin it-t% (not shown). It is supported by all the witnesses in the Antiochan text tradition except for MSS 044* and 2495 (not shown), and Boharic (bo^b). It has the greatest antiquity, distribution, and persistence.

[10] A family gene is the set of variants that are peculiar to a text tradition, having been initiated in the head exemplar of that tradition, but not by mixture. Such readings cannot be original according to genetic principles.

Figure 4.7
Distribution of 2:5,1



Variant 1 (omitting the word *for*) is supported by all the witnesses in the Egyptian text tradition except for papyrus P^46* and MSS 01^2, 0278*% and 0278^c% (not shown). It is also supported by MSS 044* and 2495 (not shown), and Boharic (bo*b) in the Antiochan text tradition, and by Vulgate (vg^b) and Old Latin it-t% (not shown) in the Western text tradition. This reading lacks antiquity and distribution, but has persistence once introduced.

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.[11]

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

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

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 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 the doctrine of Christ in the Epistle to the Philippians:

Philippians 2:9,1

Ehrman asserted:

> In addition to scribal alterations that serve to prevent an absolute identification of Christ with God the Father, there are others that work to "subordinate" him to God within the divine economy. These variants are also to be construed as the remnants of proto-orthodoxy, even though the explicit claim that Christ was not fully equal with God would at a later date be condemned as heretical. To be sure, even for the proto-orthodox, Christ was in one sense *equal* with God (although not *identical* with him). But this involved an equality of substance, not of function within the divine economy; with respect to the latter, the Father was, to use the words of the Fourth Gospel, "greater" than Christ. Not so for the Patripassianists, who saw Christ as God himself. Certain changes within the New Testament manuscript tradition work to dissociate the text from such a view by clarifying the relationship between Christ and God.
>
> An interesting example occurs in the well-known Christ hymn of Philippians 2:6-11, in which, at his exaltation, Christ is said to be awarded "the name that is above every name." But "the" name above all others is surely that of God the Father himself, a name that, in the orthodox understanding of the hymn, Christ was not given when made "Lord" over all creation. And so we find in witnesses as early as the Alexandrian fathers Clement and Origen, along with a number of Western and Byzantine manuscripts, the change that clarifies Christ's exaltation. By eliminating the

article these witnesses state that Christ was given "a name" that is above all others. Although not to be identified as the Father, Christ is made Lord of all else.[12]

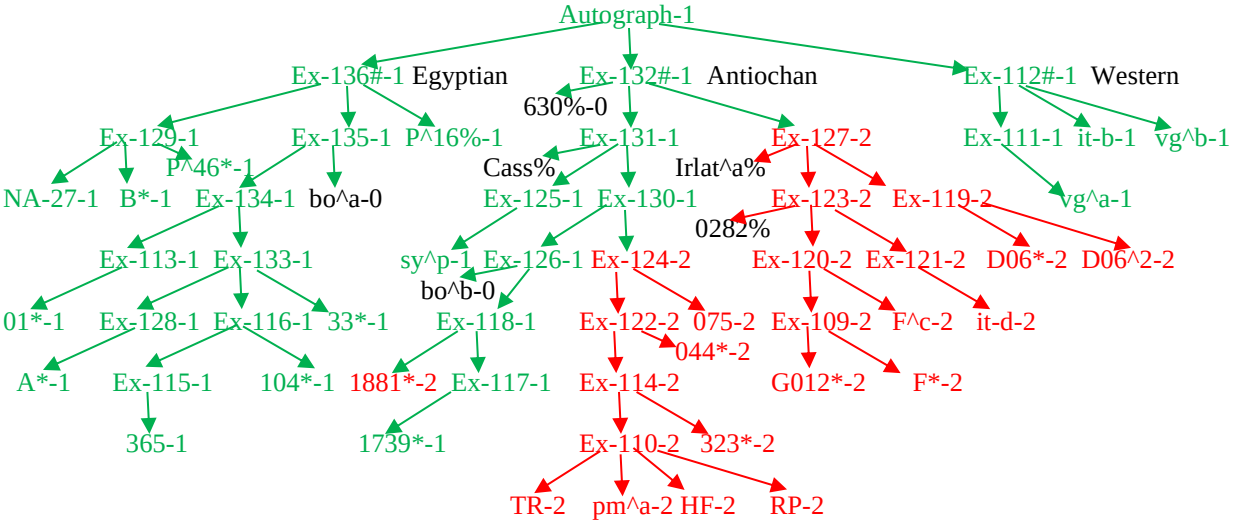
Verse 9 contains the phrase of interest here: "Therefore God also has highly exalted Him and given Him the name which is above every name." There are two variants here:

(1) *το*: the

(2) omit the article

Figure 4.8 displays the distribution of these variants throughout the history of the text.

Figure 4.8
Philippians 2:9,1 The Name



Variant 1 "the" has the consensus of the three first-generation recentions: Exemplar Ex-112#, the source of the Western text tradition; exemplar Ex-132#, the source of the Antiochan text tradition; and exemplar Ex-136#, the source of the Egyptian text tradition. It was accepted as the autographic reading on that basis with 100 percent probability. It occurs in all the witnesses of the Western text tradition; in all the witnesses of the Egyptian text tradition, except for fragmentary MS 0278% and its corrector and for church father Clement (Cl-exThd) neither of which are shown; and in all the early-generations of the Antiochan text tradition, except for the witnesses in the sub-branch headed by second-generation exemplar Ex-127, and for those in the sub-branch headed by fourth-generation exemplar Ex-124, probably the proto-Byzantine recension. This variant has the greatest antiquity and distribution, together with excellent persistence.

[12] Ehrman, p. 268.

Variant 2, omitting the definite article, was first initiated in the sub-branch of the Antiochan text tradition headed by second-generation exemplar Ex-127, the source of the diglot manuscripts D06*, F*, and G012*, together with their correctors and their Old Latin companions it-d, it-f* and it-g*. It was then initiated by mixture in the sub-branch headed by fourth-generation exemplar Ex-124, the likely source of the proto-Byzantine text tradition. In addition, it is supported by fragmentary MS 0278% and its corrector and by church father Clement (Cl-exThd) in the Egyptian text tradition, neither of which are shown; it is also supported by sixth-generation MS 1881*. This reading lacks antiquity and distribution, but had persistence once it was initiated.

This is the only place in Philippians mentioned by Ehrman. He was right that the article was deleted in some later witnesses, but the orthodox reading is original according to the canonical text (NA-27) as confirmed by genealogical principles. So orthodox scribes did not corrupt the original text; it was already orthodox here, as expected.

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. For example, to trace the history of the variants at the twelfth variation unit, follow the following steps:

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

Appendix D says:

12.1	1:11,2.1	ʽκαι επαινον θεου	1

That is, the autographic reading is the first variant (12.1), και επαινον θεου "and praise of God," with a probability of 1.00 (= 100%).

Appendix F says:

12.2	1:11,2.2	Ex-138$;	κ. επ. Χριστου
12.3	1:11,2.3	Ex-123;	κ. επ. μοι
12.4	1:11,2.4	Ex-139$;	θεου κ. επ. εμοι

That is, variant 2 is και επαινον Χριστου "and praise of Christ," initiated in exemplar Ex-138$.

Variant 3 is και επαινον μοι "and praise for me." It was initiated in exemplar Ex-123.

Variant 4 is θεου και επαινον μοι "of God and praise for me." It was initiated in exemplar Ex-139$.

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

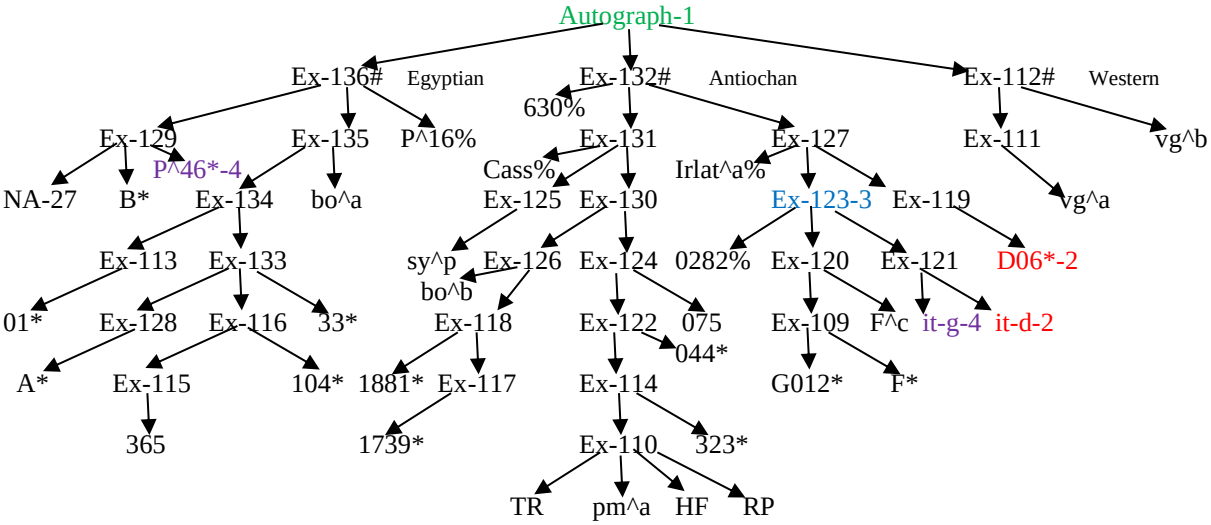
Appendix H says:

12.1	1:11,2.1	Autograph;
12.2	1:11,2.2	[D06*]<4>; [it-d]<5>; Ex-138$<1>;
12.3	1:11,2.3	Ex-123<3>;
12.4	1:11,2.4	[P^46*]<3>; [it-g*]<5>; Ex-139$<1>;

That is, the first variant was initiated in the autograph The second variant was initiated in virtual exemplar Ex-138$, and was subsequently introduced by mixture in extant [D06*]<4> and [it-d]<5>. The third variant was initiated in exemplar Ex-123. And the fourth variant was initiated in exemplar Ex-139$ and was subsequently introduced by mixture in [P^46*]<3>; [it-g*]<5>.

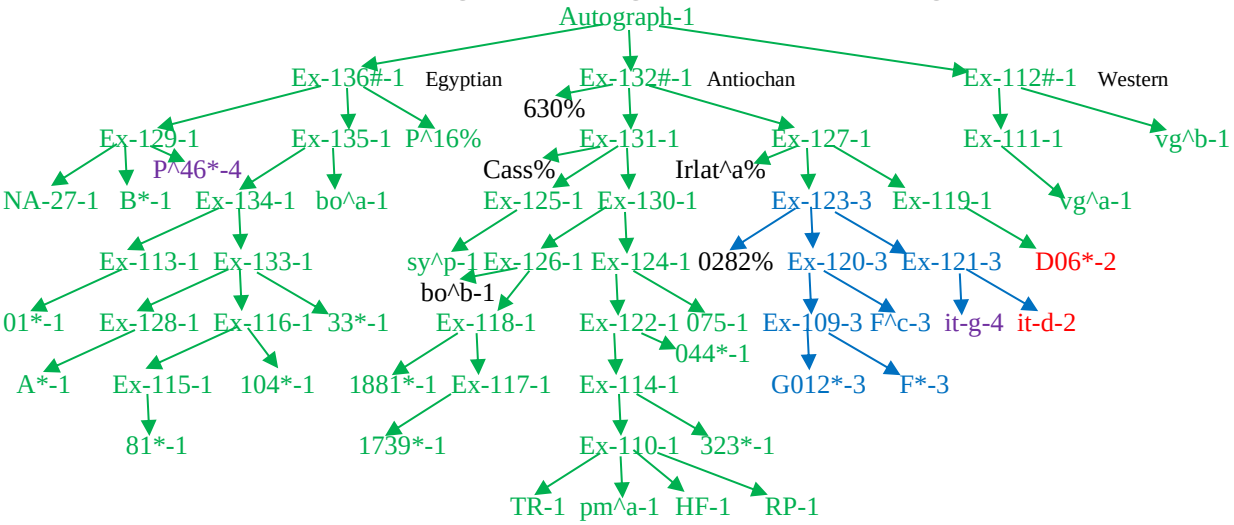
Step 3: copy figure 3.2 from chapter 3 on a separate sheet of paper, as on the next page, and write the variant numbers at the places on diagram where each variant was initiated; use green for the autographic reading (1), red for the second variant (2), blue for the third variant (3), and purple for the fourth variant (4), as illustrated in figure 4.9. Some witnesses do not appear on the diagram, but may be located by reference to Figure 3.1 in chapter 3 if so desired.

Figure 4.9
Illustrating Places of Initiation at Philippians 1:11



Step 4: Using its designated color, let the each initiated variant extend by inheritance to all its descendants down to its terminal extant witnesses, or until changed by a new initiation, as shown in figure 4.10. Color the tree branch arrows the same color as the exemplar from which they extend. The colors display the genealogical heredity of the associated variant.

Figure 4.10
Illustrating Extending Inherited Readings



The tree diagram indicates that first variant occurs in all three of the first-generation recensions (Ex-112#, Ex-132#, and Ex-136#) and so was selected as the autographic reading with 100 percent probability. The first variant occurs in all the witnesses in the Western text tradition (Ex-112#), in all the witnesses in the Egyptian text tradition (Ex-136#) except for papyrus P^46*, and in all the witnesses in the Antiochan text tradition (Ex-132#) except those in the sub-branch headed by third-generation exemplar Ex-123 and MS D06*. This reading has the greatest antiquity, distribution, and persistence.

The second variant occurs only in diglot MS D06* and its Old Latin companion it-d, both in remote branches of the Antiochan text tradition. The third variant occurs only in the sub-branch of the Antiochan text tradition head by third-generation exemplar Ex-123. The fourth variant occurs only in papyrus P^46* in the Egyptian text tradition and in Old Latin translation it-g in the Antiochan text tradition. The genealogical evidence overwhelmingly supports the first variant as the autographic reading.

Conclusion

This chapter identifies the autographic readings of the Greek text of the Epistle to the Philippians 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 is history, and identifying their characteristic readings. It discusses doctrinally significant passages and shows that the variant readings there do not alter the orthodoxy of Christian doctrine expressed in the earliest form of the text, but appear in peripheral, inconsequential branches.

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 Philippians. 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

[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.

mixture occurred in others. As it turned out, the presence of mixture does not affect the 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 19 out of 29 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

[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.

a binary construction does not turn out to be a crucial weakness. Still, some may be concerned that the earliest history of the text is determined by such diverse witnesses. However, Table 4.4 of Chapter 4 indicates that 94.17% 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 86.0 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 Philippians. 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
September, 2019

APPENDIX A

List of Extant Witnesses to the Greek Text of the Book of Philippians

This appendix contains a list of the extant witnesses to the Greek text of the Book of Philippians. 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^61%	700	0	3:6-8, 12, 14-16	16	16.00%
P^16%	300	0	3:12, 14-16; 4:3-8	15	15.00%
P^46*	200	0	1:1, 5-14, 18-27, 30-3:18; 4:3-10, 15-23	87	87.00%
01*	350	0	1:1-4:23	100	100.00%
01^c	1150	0	1:1-25, 28-2:22; 2:27-3:8; 3:11-4:23	95	95.00%
01^1	550	0	1:1-2:22; 2:27-3:8; 3:11-4:23	96	96.00%
01^2	650	0	1:1-25, 28-4:23	99	99.00%
A*	450	0	1:1-4:23	100	100.00%
A^c	550	0	1:1-4:23	100	100.00%
B*	350	0	1:1-4:23	100	100.00%
B^2	600	0	1:1-4:23	100	100.00%
C*%	450	0	1:23-3:3	40	40.00%
C^2%	550	0	1:23-3:3	40	40.00%
C^3%	850	0	1:23-3:3	39	39.00%
D06*	550	0	1:1-4:23	99	99.00%
D06^c	900	0	1:1-11, 16-24, 29-3:12; 3:14-18; 4:1-10, 15, 18, 23	89	89.00%
D06^1	600	0	1:1-11, 16-24, 28-3:12; 3:14-4:18; 4:23	93	93.00%
D06^2	850	0	1:1-4:23	97	97.00%
F*	850	0	1:1-4:23	100	100.00%
F^c	850	0	1:1-4:23	100	100.00%
G012*	850	0	1:1-4:23	100	100.00%
I%	450	0	1:1-4, 11, 20-23; 2:1-3, 12-13, 26-27; 3:6, 14-16; 4:3, 13-15	32	32.00%
K*%	850	0	1:1-4, 6-11, 16-24, 29-2:4; 2:7, 11-13, 19-22, 27; 3:1, 6-8, 12, 14-4:10; 4:15, 18	71	71.00%
L020*%	850	0	1:1-4, 7-11, 16-24, 29-2:1; 2:3, 7, 11-12, 19, 22, 27; 3:1, 6-8, 12, 14-4:18	64	64.00%
P025*	850	0	1:1-10, 14-24, 27-2:4; 2:7, 11-13, 19-24, 27-4:18; 4:23	87	87.00%
044*	1000	0	1:1-4:23	100	100.00%
48%	450	0	1:8-23; 2:1, 3, 7	24	24.00%
75	500	0	1:1-4:23	100	100.00%
0278*%	850	0	1:1-3:3; 4:15, 18	64	64.00%
0278^c%	900	0	1:1-3:3; 4:15, 18	64	64.00%
282%	550	0	2:22-24; 3:6-8	9	9.00%
6	1250	0	1:1-4:23	100	100.00%

Witness	Date	Language	Content	No. of Readings	Percent Complete
33*	850	0	1:1-4:23	100	100.00%
81*	1044	0	1:1-25, 28-2:13; 2:19-22, 26-3:8; 3:11-4:23	93	93.00%
104*	1087	0	1:1-4, 6-25, 28-2:4; 2:7, 11-12, 19, 22, 26-3:8; 3:11-4:23	87	87.00%
323*	1150	0	1:1-4:23	100	100.00%
326	950	0	1:1-4:23	100	100.00%
365	1150	0	1:1-4, 6-10, 14-24, 28-2:4; 2:7, 11-13, 19, 22, 26-4:10; 4:15, 18-23	84	84.00%
614*	1250	0	1:1-4:23	100	100.00%
629*	1350	0	1:1-4:23	100	100.00%
630%	1300	0	1:1-4, 7-10, 16-24, 29-2:1; 2:3, 7, 11-12, 19, 22, 27; 3:1, 6-8, 12, 14-4:18; 4:23	64	64.00%
945	1050	0	1:1-4:23	100	100.00%
1175*	950	0	1:1-25, 28-2:13; 2:19, 22, 26-4:23	93	93.00%
1241*	1150	0	1:1-5, 7-10, 14-24, 27-2:19; 2:22-3:10; 3:12-4:23	91	91.00%
1505*%	1150	0	1:1-10, 16-24, 28-2:4; 2:7, 11-12, 19, 22, 27-3:8; 3:11-12, 14-4:10; 4:15, 18-19	78	78.00%
1739*	900	0	1:1-4:23	100	100.00%
1739^c	950	0	1:1-4:23	100	100.00%
1881*	1350	0	1:1-4:23	100	100.00%
2464*	850	0	1:1-24, 27-2:12; 2:19-24, 27-3:10; 3:12, 14-4:18	84	84.00%
2492	1350	0	1:1-4:23	100	100.00%
2495	1450	0	1:1-4:23	100	100.00%
pm^a	850	0	1:1-4:23	100	100.00%
pm^b	850	0	1:1-4:23	100	100.00%
TR	1892	0	1:1-4:23	100	100.00%
HF	1982	0	1:1-4:23	100	100.00%
RP	2005	0	1:1-4:23	100	100.00%
l^249	850	0	1:1-4:23	100	100.00%
l^846	850	0	1:1-4:23	100	100.00%
vg^a	400	1	1:1-4, 6-24, 28-2:12; 2:15-19, 22-27; 3:1-8, 11-4:23	90	90.00%
vg^b	400	1	1:1-4, 6-24, 28-2:12; 2:15-19, 22-27; 3:1-8, 11-4:23	90	90.00%
vg^cl	1592	1	1:1-4, 6-24, 28-2:12; 2:15-27; 3:1-8, 11-4:23	92	92.00%
vg^s	1590	1	1:1-4, 6-24, 28-2:12; 2:15-19, 22-27; 3:1-8, 11-4:23	90	90.00%

Witness	Date	Language	Content	No. of Readings	Percent Complete
vg^st	1994	1	1:1-4, 6-24, 28-2:12; 2:15-27; 3:1-8, 11-4:23	92	92.00%
vg^ww	1889	1	1:1-4, 6-24, 28-2:12; 2:15-27; 3:1-8, 11-4:23	92	92.00%
it-ar*	950	1	1:1-4, 6-24, 28-2:12; 2:15-27; 3:1-8, 11-4:23	92	92.00%
it-b*	450	1	1:1-4, 6-24, 28-2:12; 2:15-27; 3:1-8, 11-4:23	92	92.00%
it-d	450	1	1:1-4:23	99	99.00%
it-f*	550	1	1:1-4:23	99	99.00%
it-g*	800	1	1:1-4:23	100	100.00%
it-g^c	800	1	1:1-4:23	100	100.00%
it-r%	700	1	1:1-4, 6-20; 4:13-23	26	26.00%
it-t%	1000	1	2:5-7, 11; 3:7-8, 11-12, 18-4:8	23	23.00%
sy^h	616	1	1:1-4, 6-11, 16-24, 28-2:12; 2:19-3:8; 3:12, 14-4:15; 4:18, 23	85	85.00%
sy^p	425	1	1:1-4, 6-24, 28-2:12; 2:19-4:15; 4:18, 23	88	88.00%
sa^a	250	1	1:1-4, 7-24, 28-2:1; 2:3, 5-7, 11-12, 19, 22-4:23	85	85.00%
sa^b	250	1	1:1-4, 7-24, 28-2:1; 2:3, 5-7, 11-12, 19, 22-4:23	85	85.00%
bo^a	250	1	1:1-4, 7-24, 28-2:1; 2:3, 5-7, 11-12, 19, 22-4:23	85	85.00%
bo^b	250	1	1:1-4, 7-24, 28-2:1; 2:3, 5-7, 11-12, 19, 22-4:23	85	85.00%
13	1250	0	1:1-4:23	100	100.00%
69	1450	0	1:1-4:23	100	100.00%
346	1150	0	1:1-4:23	100	100.00%
543	1150	0	1:1-4:23	100	100.00%
788	1050	0	1:1-4:23	100	100.00%
826	1150	0	1:1-4:23	100	100.00%
828	1150	0	1:1-4:23	100	100.00%
983	1150	0	1:1-4:23	100	100.00%
NA-27	1979	0	1:1-4:23	100	100.00%
Ambr%	397	1	3:3, 21	3	3.00%
Ambst%	366	1	1:3, 6, 11, 19; 2:1-4, 12, 21, 24-26; 3:7, 12, 14; 4:8, 16, 23	27	27.00%
Aug^a%	430	1	1:23, 28; 2:4-5, 24; 3:8, 11, 16	16	16.00%
Cass%	580	1	1:1-3; 2:4, 21	7	7.00%
Chr^txt%	407	0	3:03	1	1.00%
Cl^a%	215	0	1:14, 23-24; 2:2, 11, 15, 21; 3:12-15; 4:13	20	20.00%

Witness	Date	Language	Content	No. of Readings	Percent Complete
Cl^exThd %	1050	1	2:9-11	3	3.00%
Cyp^a%	258	1	2:7, 21	2	2.00%
Hier^a%	420	1	2:4; 3:11; 4:13	6	6.00%
Hil%	367	1	2:2, 4; 3:16	7	7.00%
Ir^a%	150	0	2:11; 3:21	4	4.00%
Irlat^a%	395	1	3:11-12, 21	6	6.00%
Lcf%	371	1	3:07	2	2.00%
McionT%	150	0	1:14; 2:7	2	2.00%
MVict%	363	1	1:28; 2:4, 21; 3:21; 4:7	12	12.00%
Or^a%	254	0	1:24; 2:5; 3:14	8	8.00%
Or^b%	254	0	1:24; 2:5; 3:14	8	8.00%
Or^lat^a%	254	1	2:11	2	2.00%
Pel%	418	1	2:4; 4:7	7	7.00%
Spec%	450	0	2:01	2	2.00%
Tert^a%	220	1	3:11-14, 21	11	11.00%

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, 10-1:10,1 indicates that the 10th place of variation occurs in chapter 1, verse 10, and is the 1st place of variation in that verse.

Reference at Each Place of Variation

1- 1:1,1	2- 1:3,1	3- 1:4,1	4- 1:5,1	5- 1:6,1	6- 1:7,1	7- 1:8,1
8- 1:8,2	9- 1:9,1	10- 1:10,1	11- 1:11,1	12- 1:11,2	13- 1:14,1	14- 1:16,1
15- 1:16,2	16- 1:16,3	17- 1:18,1	18- 1:18,2	19- 1:19,1	20- 1:20,1	21- 1:22,1
22- 1:22,2	23- 1:23,1	24- 1:23,2	25- 1:24,1	26- 1:24,2	27- 1:25,1	28- 1:27,1
29- 1:28,1	30- 1:28,2	31- 1:29,1	32- 1:30,1	33- 2:1,1	34- 2:1,2	35- 2:2,1
36- 2:3,1	37- 2:3,2	38- 2:3,3	39- 2:4,1	40- 2:4,2	41- 2:4,3	42- 2:4,4
43- 2:5,1	44- 2:5,2	45- 2:7,1	46- 2:9,1	47- 2:11,1	48- 2:11,2	49- 2:12,1
50- 2:13,1	51- 2:15,1	52- 2:15,2	53- 2:19,1	54- 2:21,1	55- 2:22,1	56- 2:24,1
57- 2:26,1	58- 2:27,1	59- 2:30,1	60- 2:30,2	61- 3:1,1	62- 3:3,1	63- 3:6,1
64- 3:6,2	65- 3:7,1	66- 3:7,2	67- 3:8,1	68- 3:8,2	69- 3:8,3	70- 3:10,1
71- 3:10,2	72- 3:11,1	73- 3:12,1	74- 3:12,2	75- 3:12,3	76- 3:13,1	77- 3:14,1
78- 3:14,2	79- 3:14,3	80- 3:14,4	81- 3:15,1	82- 3:16,1	83- 3:16,2	84- 3:18,1
85- 3:21,1	86- 3:21,2	87- 4:1,1	88- 4:3,1	89- 4:7,1	90- 4:7,2	91- 4:7,3
92- 4:8,1	93- 4:10,1	94- 4:13,1	95- 4:15,1	96- 4:16,1	97- 4:18,1	98- 4:19,1
99- 4:23,1	100- 4:23,2					

Appendix C

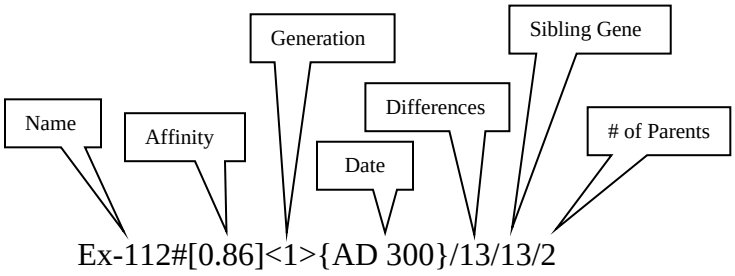
The Genealogical Tree Diagram of

The Textual History of the Epistle to

The Philippians

This appendix contains the tree diagram of the genealogical history of the Greek text of the Epistle to the Philippians. 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-112#,[1] Ex-132#, and Ex-136#. Only the primary exemplars are displayed, so no mixture connections are shown. The diagram spills over onto succeeding pages, but the lower-case 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.



[1] 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 Philippians

```
Autograph[0.00]<0>{AD 70}/0/0/0
  |-Ex-112#[0.86]<1>{AD 300}/13/13/2
  |   |-vg^b[0.80]<2>{AD 400}/18/13/4
  |   |-it-ar*[0.90]<2>{AD 950}/9/13/5
  |   |-it-b*[0.87]<2>{AD 450}/12/13/5
  |   |-Ex-111[0.93]<2>{AD 350}/6/13/4
  |       |-vg^ww[0.99]<3>{AD 1889}/1/6/2
  |       |-vg^s[1.00]<3>{AD 1590}/0/6/1
  |       |-vg^a[1.00]<3>{AD 400}/0/6/1
  |       |-vg^cl[0.97]<3>{AD 1592}/3/6/3
  |       |-vg^st[0.98]<3>{AD 1994}/2/6/3
  |       |-it-r%[0.92]<3>{AD 700}/2/6/3
  |       |-it-t%[0.87]<3>{AD 1000}/3/6/3
  |-Ex-136#[0.93]<1>{AD 90}/7/7/3
  |   |-P^16%[0.80]<2>{AD 300}/3/7/2
  |   |-C*%[0.82]<2>{AD 450}/7/7/4
  |   |-C^2%[0.82]<2>{AD 550}/7/7/3
  |   |-C^3%[0.85]<2>{AD 850}/6/7/3
  |   |-048%[1.00]<2>{AD 450}/0/7/1
  |   |-Aug^a%[0.81]<2>{AD 430}/3/7/2
  |   |-Hil%[1.00]<2>{AD 367}/0/7/1
  |   |-MVict%[0.75]<2>{AD 363}/3/7/2
  |   |-Or^a%[0.88]<2>{AD 254}/1/7/2
  |   |-Or^b%[0.75]<2>{AD 254}/2/7/2
  |   |-Or^lat^a%[0.50]<2>{AD 254}/1/7/2
  |   |-Ex-129[0.92]<2>{AD 150}/7/7/3
  |   |   |-sa^a[0.99]<3>{AD 250}/1/7/2
  |   |   |-sa^b[0.98]<3>{AD 250}/2/7/2
  |   |   |-P^46*[0.54]<3>{AD 200}/33/7/4
  |   |   |-B*[0.79]<3>{AD 350}/18/7/4
  |   |   |-B^2[0.78]<3>{AD 600}/19/7/5
  |   |   |-K*%[0.92]<3>{AD 850}/5/7/4
  |   |   |-0278*%[0.70]<3>{AD 850}/15/7/8
  |   |   |-0278^c%[0.72]<3>{AD 900}/14/7/8
  |   |   |-NA-27[0.96]<3>{AD 1979}/3/7/4
  |   |   |-Cl^exThd%[1.00]<3>{AD 1050}/0/7/1
  |   |   |-Cyp^a%[0.00]<3>{AD 258}/1/7/2
  |   |   |-Pel%[0.67]<3>{AD 418}/1/7/2
  |   |-Ex-135[1.00]<2>{AD 95}/0/7/1
  |       |-bo^a[0.95]<3>{AD 250}/4/0/3
  |       |-Ex-134[1.00]<3>{AD 115}/0/0/1
  |           |-Ex-113[0.99]<4>{AD 165}/1/0/2
  |           |   |-01^c[0.99]<5>{AD 1150}/1/1/2
 a         b  c
```

```
a         b  c
|         |  |-01*[0.93]<5>{AD 350}/7/1/4
|         |  |-01^1[0.98]<5>{AD 550}/2/1/3
|         |  |-01^2[0.86]<5>{AD 650}/14/1/5
|         |  |-Cl^a%[0.85]<5>{AD 215}/3/1/3
|         |-Ex-133[0.97]<4>{AD 271}/3/0/4
|            |-L020*%[0.92]<5>{AD 850}/5/3/5
|            |-33*[0.84]<5>{AD 850}/16/3/9
|            |-Ex-128[0.91]<5>{AD 321}/9/3/6
|            |  |-A*[1.00]<6>{AD 450}/0/9/1
|            |  |-A^c[0.99]<6>{AD 550}/1/9/2
|            |  |-P^61%[0.94]<6>{AD 700}/1/9/2
|            |  |-I%[0.94]<6>{AD 450}/2/9/2
|            |  |-Lcf%[1.00]<6>{AD 371}/0/9/1
|            |-Ex-116[0.92]<5>{AD 750}/8/3/7
|               |-104*[0.97]<6>{AD 1087}/3/8/4
|               |-2464*[0.93]<6>{AD 850}/6/8/6
|               |-Ex-115[0.95]<6>{AD 800}/5/8/6
|                  |-365[0.99]<7>{AD 1150}/1/5/2
|                  |-P025*[0.89]<7>{AD 850}/10/5/6
|                  |-81*[0.92]<7>{AD 1044}/7/5/6
|                  |-1175*[0.95]<7>{AD 950}/5/5/6
|                  |-1241*[0.90]<7>{AD 1150}/9/5/7
|-Ex-132#[0.93]<1>{AD 75}/7/7/2
   |-630%[0.92]<2>{AD 1300}/5/7/4
   |-1505*%[0.90]<2>{AD 1150}/8/7/4
   |-Tert^a%[0.82]<2>{AD 220}/2/7/2
   |-Ex-127[0.90]<2>{AD 100}/10/7/4
   |  |-Irlat^a%[1.00]<3>{AD 395}/0/10/1
   |  |-McionT%[0.50]<3>{AD 150}/1/10/2
   |  |-Ex-119[0.92]<3>{AD 500}/8/10/6
   |  |  |-D06^c[0.98]<4>{AD 900}/2/8/2
   |  |  |-D06*[0.81]<4>{AD 550}/19/8/6
   |  |  |-D06^1[0.91]<4>{AD 600}/8/8/5
   |  |  |-D06^2[0.87]<4>{AD 850}/13/8/7
   |  |-Ex-123[0.78]<3>{AD 316}/22/10/3
   |     |-0282%[0.89]<4>{AD 550}/1/22/3
   |     |-Ambst%[0.56]<4>{AD 366}/12/22/5
   |     |-Ex-121[0.92]<4>{AD 400}/8/22/5
   |     |  |-it-g*[0.98]<5>{AD 800}/2/8/3
   |     |  |-it-d[0.75]<5>{AD 450}/25/8/9
   |     |  |-it-f*[0.98]<5>{AD 550}/2/8/2
   |     |  |-Spec%[1.00]<5>{AD 450}/0/8/1
   |     |-Ex-120[1.00]<4>{AD 700}/0/22/1
   |        |-F^c[0.98]<5>{AD 850}/2/0/3
  a         b
```

```
a         b
 |         |-Ex-109[1.00]<5>{AD 750}/0/0/1
 |           |-G012*[1.00]<6>{AD 850}/0/0/1
 |           |-F*[0.99]<6>{AD 850}/1/0/2
 |           |-it-g^c[1.00]<6>{AD 800}/0/0/1
 |-Ex-131[0.90]<2>{AD 80}/10/7/3
    |-Cass%[0.71]<3>{AD 580}/2/10/3
    |-Chr^txt%[1.00]<3>{AD 407}/0/10/1
    |-Hier^a%[0.83]<3>{AD 420}/1/10/2
    |-Ex-125[0.88]<3>{AD 100}/11/10/4
    |  |-sy^h[0.91]<4>{AD 616}/8/11/7
    |  |-sy^p[0.97]<4>{AD 425}/3/11/4
    |  |-Ir^a%[1.00]<4>{AD 150}/0/11/1
    |-Ex-130[1.00]<3>{AD 150}/0/10/1
       |-Ex-126[0.90]<4>{AD 200}/10/0/3
       |  |-bo^b[0.78]<5>{AD 250}/19/10/6
       |  |-Ex-118[1.00]<5>{AD 800}/0/10/1
       |     |-1881*[0.95]<6>{AD 1350}/5/0/5
       |     |-Ex-117[0.99]<6>{AD 850}/1/0/2
       |        |-1739^c[0.97]<7>{AD 950}/3/1/4
       |        |-1739*[0.98]<7>{AD 900}/2/1/2
       |-Ex-124[0.87]<4>{AD 247}/13/0/7
          |-075[0.93]<5>{AD 500}/7/13/6
          |-Ex-122[0.92]<5>{AD 297}/8/13/6
             |-044*[0.86]<6>{AD 1000}/14/8/9
             |-Ex-114[0.89]<6>{AD 347}/11/8/7
                |-323*[0.97]<7>{AD 1150}/3/11/3
                |-614*[0.96]<7>{AD 1250}/4/11/3
                |-Ambr%[1.00]<7>{AD 397}/0/11/1
                |-Ex-110[0.97]<7>{AD 800}/3/11/4
                   |-pm^a[1.00]<8>{AD 850}/0/3/1
                   |-6[0.87]<8>{AD 1250}/13/3/7
                   |-326[0.87]<8>{AD 950}/13/3/10
                   |-629*[0.87]<8>{AD 1350}/13/3/8
                   |-945[0.97]<8>{AD 1050}/3/3/4
                   |-2492[0.99]<8>{AD 1350}/1/3/1
                   |-2495[0.89]<8>{AD 1450}/11/3/9
                   |-pm^b[0.98]<8>{AD 850}/2/3/3
                   |-l^249[1.00]<8>{AD 850}/0/3/1
                   |-l^846[1.00]<8>{AD 850}/0/3/1
                   |-13[1.00]<8>{AD 1250}/0/3/1
                   |-69[1.00]<8>{AD 1450}/0/3/1
                   |-346[1.00]<8>{AD 1150}/0/3/1
                   |-543[1.00]<8>{AD 1150}/0/3/1
                   |-788[1.00]<8>{AD 1050}/0/3/1
                     a
```

a
|-826[1.00]<8>{AD 1150}/0/3/1
|-828[1.00]<8>{AD 1150}/0/3/1
|-983[1.00]<8>{AD 1150}/0/3/1
|-TR[0.94]<8>{AD 1892}/6/3/5
|-HF[0.98]<8>{AD 1982}/2/3/3
|-RP[0.99]<8>{AD 2005}/1/3/2

Appendix D

List of Autographic Readings for

The Epistle to the Philippians

This appendix contains the list of autographic readings for the Greek text of the Epistle to the Philippians 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
1.1	1:1,1.1	⸂συν ἐπισκοποις	1
2.1	1:3,1.1	⸂Εὐχαριστω τω θεω μου	1
3.1	1:4,1.1	⊤ ομιτ	1
4.1	1:5,1.1	○της	1
5.2	1:6,1.2	2 1	1
6.1	1:7,1.1	○ἐν	1
7.1	1:8,1.1	⌜μου	1
8.1	1:8,2.1	⊤ ομιτ	0.67
9.1	1:9,1.1	⌜περισσευη	1
10.1	1:10,1.1	⊤ ομιτ	1
11.1	1:11,1.1	⸂καρπον δικαιοσυνης τον	1
12.1	1:11,2.1	⸂και επαινον θεου	1
13.2	1:14,1.2	⸠ του θεου	1
14.1	1:16,1.1	⸡οι μεν ἐξ ἀγαπης εἰδοτες οτι εἰς ἀπολογιαν του εὐαγγελιου κειμαι	1
15.1	1:16,2.1	○τον	1
16.1	1:16,3.1	⌜ἐγειρειν	1
17.1	1:18,1.1	⸂πλην οτι	1
18.1	1:18,2.1	⊤ ομιτ	1
19.1	1:19,1.1	⌜γαρ	1
20.1	1:20,1.1	⌜ἀποκαραδοκιαν	1
21.1	1:22,1.1	⸂εἰ δε	1
22.1	1:22,2.1	⌜αιρησομαι	1
23.1	1:23,1.1	○εἰς	1
24.1	1:23,2.1	⸂πολλω γαρ μαλλον	0.67
25.1	1:24,1.1	⌜ἐπιμενειν	1
26.1	1:24,2.1	○ἐν	0.67
27.1	1:25,1.1	⌜παραμενω	1
28.1	1:27,1.1	⌜ἀκουω	0.5
29.1	1:28,1.1	⸂ἐστιν αὐτοις	1
30.1	1:28,2.1	⌜υμων	1
31.1	1:29,1.1	⌜υμιν	1
32.1	1:30,1.1	□ἐν ἐμοι	1
33.1	2:1,1.1	⌜τι	1
34.1	2:1,2.1	⌜τις	1
35.1	2:2,1.1	⌜εν	1
36.1	2:3,1.1	⸂μηδε κατα	0.67
37.1	2:3,2.1	⌜ηγουμενοι	1
38.1	2:3,3.1	⊤ ομιτ	1
39.1	2:4,1.1	⌜εκαστος	0.67
40.1	2:4,2.1	⌜σκοπουντες	1

Place of Variation	Reference	Autographic Reading	Probability
41.1	2:4,3.1	○και	0.67
42.1	2:4,4.1	⌜εκαστοι	0.67
43.2	2:5,1.2	γαρ	0.67
44.1	2:5,2.1	⌜φρονειτε	1
45.1	2:7,1.1	⌜ἀνθρωπων	1
46.1	2:9,1.1	○το	1
47.1	2:11,1.1	⌜ἐξομολογησηται	0.67
48.1	2:11,2.1	⸂κυριος Ἰησους Χριστος	1
49.1	2:12,1.1	○ως	1
50.1	2:13,1.1	⊤ ομιτ	1
51.1	2:15,1.1	⌜γενησθε	0.67
52.1	2:15,2.1	⌜αμωμα	0.67
53.1	2:19,1.1	⌜κυριω	1
54.1	2:21,1.1	⸂Ἰησου Χριστου	1
55.1	2:22,1.1	⌜γινωσκετε	1
56.2	2:24,1.2	προς υμας	0.67
57.1	2:26,1.1	⸂παντας υμας	0.67
58.1	2:27,1.1	⌜θανατω	1
59.1	2:30,1.1	⌜Χριστου	0.5
60.1	2:30,2.1	⌜παραβολευσαμενος	1
61.1	3:1,1.1	⊤ ομιτ	1
62.1	3:3,1.1	⌜θεου	0.67
63.1	3:6,1.1	⌜ζηλος	1
64.1	3:6,2.1	⊤ ομιτ	0.67
65.1	3:7,1.1	○Ἀλλα	1
66.1	3:7,2.1	⸢ην μοι⊤	0.67
67.1	3:8,1.1	○και	0.67
68.1	3:8,2.1	⊤ ομιτ	1
69.1	3:8,3.1	⊤ ομιτ	1
70.1	3:10,1.1	○την	0.5
71.1	3:10,2.1	○των	1
72.1	3:11,1.1	⸂την ἐκ	1
73.1	3:12,1.1	⊤ ομιτ	1
74.1	3:12,2.1	○και	0.67
75.1	3:12,3.1	○Ἰησου	1
76.1	3:13,1.1	⌜οὐ	0.67
77.1	3:14,1.1	⌜διωκω	1
78.1	3:14,2.1	⌜εἰς	1
79.1	3:14,3.1	⸂ανω κλησεως	1
80.1	3:14,4.1	⸂του θεου ἐν Χριστω Ἰησου	1

Place of Variation	Reference	Autographic Reading	Probability
81.1	3:15,1.1	⌜φρονωμεν	1
82.1	3:16,1.1	⌜ἐφθασαμεν	1
83.1	3:16,2.1	⌜τω αὐτω στοιχειν	1
84.1	3:18,1.1	⊤ ομιτ	1
85.1	3:21,1.1	⊤ ομιτ	1
86.1	3:21,2.1	⌜αὐτω	0.67
87.1	4:1,1.1	⌜ἀγαπητοι	0.67
88.1	4:3,1.1	⌜λοιπων συνεργων μου	1
89.1	4:7,1.1	⌜θεου	1
90.1	4:7,2.1	⌜νοηματα	1
91.1	4:7,3.1	⌜Χριστω	1
92.1	4:8,1.1	⊤ ομιτ	1
93.1	4:10,1.1	⌜το	1
94.1	4:13,1.1	⊤ ομιτ	0.67
95.1	4:15,1.1	○δε	1
96.1	4:16,1.1	⌜εἰς την χρειαν μοι	1
97.1	4:18,1.1	⊤ ομιτ	1
98.2	4:19,1.2	—σαι	0.67
99.1	4:23,1.1	⌜του πνευματος	1
100.2	4:23,2.2	αμην	0.67

Appendix E

List of the Places the Lachmann-10 Text

Differs from the NA-27 Text for

the Epistle to the Philippians

Ref.		NA-27 Reading		Lachmann Reading	Prob.
1:6,1.2	Transpose NA-27 =>	⸂Χριστου ᾽Ιησου⸃	to =>	2 1	[1.00]
1:14,1.2	At NA-27 =>	⸋ ομιτ	insert =>	⸓ του θεου	[1.00]
2:5,1.2	At NA-27 =>	⸋ ομιτ	insert =>	γαρ	[0.67]
2:24,1.2	At NA-27 =>	⸋ ομιτ	insert =>	προς υμας	[0.67]
4:19,1.2	Replace NA-27 =>	⸢πληρωσει	with =>	—σαι	[0.67]
4:23,2.2	At NA-27 =>	⸋ ομιτ	insert =>	αμην	[0.67]

Appendix F

Places Where the Non-Autographic Variants Were Initiated

in the Textual History of Philippians

Arranged in Order by Reference

This appendix lists the place in the genealogical history of the text of the Epistle to the Philippians 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:

43.3	2:5,1.3	2492;	ουν

(1) 43.3 refers to the third variant at variation unit 43.
(2) 2:5,1.3 is the reference where this place of variation occurs: chapter 2, verse 5, the first place of variation in this verse, the third variant there.
(3) This variant was initiated in MS 2492.
(4) The variant reads: ουν = therefore.

Since the variant was first initiated in a manuscript, it is a singularity having no prior history.

The following line means:

52.2	2:15,2.2	Ex-132#;	αμωμητα

(1) 52.2 refers to the second variant at variation unit 52.
(2) 2:15,2.2 is the reference where this place of variation occurs: chapter 2, verse 15, the second place of variation in this verse, the second variant there.
(3) This variant was initiated in exemplar Ex-132#, the head of the Antiochan text tradition.
(4) The variant reads: αμωμητα = blameless

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-132#) unless otherwise altered in one of its subsequent branches.

The following line means:

5.1	1:6,1.1	Ex-138$;	ˢΧριστου ᾽Ιησουᵀ

(1) 5.1 refers to the first variant at variation unit five.
(2) 1:6,1.1 is the reference where this place of variation occurs: chapter 1, verse 6, the first place of variation in this verse, the first variant there.
(3) This variant was initiated in exemplar Ex-138$, a virtual exemplar, a source of mixture.
(4) The variant reads: Χριστου ᾽Ιησου = Christ Jesus.

List of Places Where Variants Were Initiated in the Genealogical History Arranged in order by Reference Total = 132

Place of Variation	Reference	Where Initiated	Variant
1.2	1:1,1.2	Ex-138$;	συνεπισκ—
2.2	1:3,1.2	Ex-138$;	εγω μεν ευχ. τω κυριω ημων
3.2	1:4,1.2	Ex-138$;	και
4.2	1:5,1.2	Ex-138$;	° ομιτ
5.1	1:6,1.1	Ex-138$;	ˢΧριστου Ἰησου˥
6.2	1:7,1.2	Ex-138$;	° ομιτ
7.2	1:8,1.2	Ex-139$;	μοι
7.3	1:8,1.3	Ex-140$;	—
8.2	1:8,2.2	Ex-142$;	εστιν
9.2	1:9,1.2	Ex-138$;	—ευση
10.2	1:10,1.2	P^46*;	την
11.2	1:11,1.2	Ex-131;	καρπων δικ. των
12.2	1:11,2.2	Ex-138$;	κ. επ. Χριστου
12.3	1:11,2.3	Ex-123;	κ. επ. μοι
12.4	1:11,2.4	Ex-139$;	θεου κ. επ. εμοι
13.1	1:14,1.1	Ex-138$;	˥ ομιτ
13.3	1:14,1.3	Ex-123;	κυριου
14.2	1:16,1.2	Ex-142$;	’σ 17 α.’σ 16, σεδ οι μεν. οι δε
15.2	1:16,2.2	Ex-142$;	° ομιτ
16.2	1:16,3.2	Ex-138$;	πεγειρεν
16.3	1:16,3.3	Ex-139$;	επιφερειν
17.2	1:18,1.2	Ex-138$;	οτι
17.3	1:18,1.3	Ex-142$;	πλην
18.2	1:18,2.2	Ex-138$;	αλλα
19.2	1:19,1.2	Ex-138$;	δε
20.2	1:20,1.2	Ex-123;	καραδ—
21.2	1:22,1.2	Ex-138$;	ειτε
22.2	1:22,2.2	Ex-138$;	—σωμαι
23.2	1:23,1.2	Ex-138$;	° ομιτ
24.2	1:23,2.2	Ex-142$;	1 3
24.3	1:23,2.3	Ex-139$;	ποσω μαλ.
24.4	1:23,2.4	Ex-140$;	πολλω γαρ
25.2	1:24,1.2	Ex-139$;	—μειναι
26.2	1:24,2.2	Ex-136#;	° ομιτ
27.2	1:25,1.2	Ex-139$;	συμπαραμ—
28.2	1:27,1.2	Ex-142$;	—σω

Place of Variation	Reference	Where Initiated	Variant
28.3	1:27,1.3	075;	—ων
29.2	1:28,1.2	Ex-142$;	αυ. μεν εστιν
29.3	1:28,1.3	Ex-139$;	εσ. αυ. μεν
30.2	1:28,2.2	Ex-139$;	υμιν
30.3	1:28,2.3	Ex-140$;	ημιν
31.2	1:29,1.2	Ex-138$;	ημ—
32.2	1:30,1.2	Ex-138$;	□ ομιτ
33.2	2:1,1.2	Ex-138$;	τις
34.2	2:1,2.2	Ex-138$;	τι
34.3	2:1,2.3	Ex-139$;	τινα
35.2	2:2,1.2	Ex-138$;	αυτο
36.2	2:3,1.2	Ex-139$;	1
36.3	2:3,1.3	Ex-132#;	ἤ
36.4	2:3,1.4	Ex-140$;	ἢ κατα
37.2	2:3,2.2	Ex-138$;	προηγ—
38.2	2:3,3.2	Ex-138$;	τους
39.2	2:4,1.2	Ex-142$;	¤ —στοι
40.2	2:4,2.2	Ex-122;	—πειτε
40.3	2:4,2.3	Ex-138$;	—πειτω
41.2	2:4,3.2	Ex-142$;	○ ομιτ
42.2	2:4,4.2	Ex-138$;	—στος
42.3	2:4,4.3	Ex-142$;	—
43.1	2:5,1.1	Ex-136#;	⊤ ομιτ
43.3	2:5,1.3	2492;	ουν
44.2	2:5,2.2	Ex-138$;	—νεισθω
45.2	2:7,1.2	Ex-142$;	—που
46.2	2:9,1.2	Ex-138$;	○ ομιτ
47.2	2:11,1.2	Ex-132#;	—σεται
48.2	2:11,2.2	Ex-138$;	1 2
48.3	2:11,2.3	K*%;	3 1
49.2	2:12,1.2	Ex-138$;	○ ομιτ
50.2	2:13,1.2	Ex-138$;	ο
51.2	2:15,1.2	Ex-142$;	ητε
52.2	2:15,2.2	Ex-132#;	αμωμητα
53.2	2:19,1.2	Ex-138$;	Χριστω
54.2	2:21,1.2	Ex-139$;	¤ 2 1
55.2	2:22,1.2	P^46*;	οιδατε
56.1	2:24,1.1	Ex-142$;	⊤ ομιτ
57.2	2:26,1.2	Ex-138$;	2 1
57.3	2:26,1.3	Ex-142$;	π. υμ. ιδειν

Place of Variation	Reference	Where Initiated	Variant
57.4	2:26,1.4	P^46*;	πεμψαι προς υμας
58.2	2:27,1.2	Ex-138$;	—του
59.2	2:30,1.2	Ex-143$;	κυριου
59.3	2:30,1.3	Ex-138$;	—
59.4	2:30,1.4	Ex-142$;	του Χρ.
60.2	2:30,2.2	Ex-138$;	—βουλ—
61.2	3:1,1.2	Ex-139$;	το
62.2	3:3,1.2	Ex-142$;	θεω
62.3	3:3,1.3	P^46*;	—
63.2	3:6,1.2	Ex-138$;	—ον
64.2	3:6,2.2	Ex-142$;	θεου
65.2	3:7,1.2	Ex-139$;	° ομιτ
66.2	3:7,2.2	Ex-142$;	2 1
67.2	3:8,1.2	Ex-142$;	° ομιτ
68.2	3:8,2.2	Ex-138$;	του
69.2	3:8,3.2	Ex-138$;	ειναι
70.2	3:10,1.2	Ex-142$;	° ομιτ
71.2	3:10,2.2	Ex-138$;	° ομιτ
72.2	3:11,1.2	Ex-138$;	των
72.3	3:11,1.3	Ex-123;	των εκ
73.2	3:12,1.2	Ex-139$;	ἤ ηδη δεδικαιωμαι
74.2	3:12,2.2	Ex-142$;	° ομιτ
75.2	3:12,3.2	Ex-138$;	° ομιτ
76.2	3:13,1.2	Ex-142$;	̂ ουπω
77.2	3:14,1.2	Ex-138$;	—κων
78.2	3:14,2.2	Ex-138$;	επι
79.2	3:14,3.2	Ex-138$;	ανεγκλησιας
80.2	3:14,4.2	Ex-138$;	θεου
80.3	3:14,4.3	Cl^a%;	3-5
80.4	3:14,4.4	Ex-123;	εν κυριω Ι. Χρ.
80.5	3:14,4.5	Ex-139$;	του θ. εν κ. Ι. Χρ.
81.2	3:15,1.2	Ex-138$;	—νουμεν
82.2	3:16,1.2	Ex-138$;	—σατε
83.2	3:16,2.2	Ex-139$;	τω αυ. στ. κανονι, το αυτο φρονειν
83.3	3:16,2.3	Ex-140$;	το αυ. φρ., τω αυ. καν. στ.
84.2	3:18,1.2	P^46*;	βλεπετε
85.2	3:21,1.2	Ex-138$;	εις το γενεσθαι αυτο
86.2	3:21,2.2	Ex-142$;	εαυτω
87.2	4:1,1.2	Ex-138$;	αγ. μου
87.3	4:1,1.3	Ex-112#;	—

Place of Variation	Reference	Where Initiated	Variant
88.2	4:3,1.2	Ex-138$;	συνερ. μου και των λοιπ.
89.2	4:7,1.2	Ex-138$;	Χριστου
90.2	4:7,2.2	Ex-138$;	σωματα
90.3	4:7,2.3	P^16%;	νοημ. και τα σωμ.
91.2	4:7,3.2	P^46*;	κυριω
92.2	4:8,1.2	Ex-138$;	επιστημης
93.2	4:10,1.2	Ex-123;	του
94.2	4:13,1.2	Ex-142$;	Χριστω
95.2	4:15,1.2	Ex-138$;	° ομιτ
96.2	4:16,1.2	Ex-139$;	2 3 4
96.3	4:16,1.3	Ex-140$;	τ. χρ. μου
96.4	4:16,1.4	Ex-142$;	εις τ. χρ. μου
97.2	4:18,1.2	Ex-138$;	δε
98.1	4:19,1.1	Ex-142$;	⌜πληρωσει
99.2	4:23,1.2	Ex-139$;	παντων
100.1	4:23,2.1	Ex-132#;	⊤ ομιτ

Appendix G

Places Where the Non-Autographic Variants Were Initiated

in the Textual History of Philippians

Arranged in Order by Witness

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

P^46*	4.1	1:5,1.1	◦της

(1) This variant was initiated in paprus P^46*.

(2) 4.1 refers to the first variant at variation unit 4.

(3) 1:5,1.1 is the reference where this place of variation occurs: chapter 1, verse 5, the first place of variation in this verse, the first variant there.

(4) The variant reads: της = the (fem.).

Since the variant was first initiated in a manuscript, it a singularity having no prior history.

The following line means:

Ex-123	13.3	1:14,1.3	κυριου

(1) This variant was initiated in exemplar Ex-123.

(2) 13.3 refers to the third variant at variation unit 13.

(3) 1:14,1.3 is the reference where this place of variation occurs: chapter 1, verse 14, the first place of variation in this verse, the third variant there.

(4) The variant reads: κυριου = Lord.

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-123) unless otherwise altered in one of its subsequent branches.

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

Total = 149

Witness	Place of Variation	Reference	Variant Reading
P^16%	90.3	4:7,2.3	νοημ. και τα σωμ.
Total for P^16% = 1			
P^46*	4.1	1:5,1.1	○της
P^46*	10.2	1:10,1.2	την
P^46*	35.1	2:2,1.1	⌜εν
P^46*	40.1	2:4,2.1	⌜σκοπουντες
P^46*	42.1	2:4,4.1	⌜εκαστοι
P^46*	46.1	2:9,1.1	○το
P^46*	50.1	2:13,1.1	⊤ ομιτ
P^46*	52.1	2:15,2.1	⌜αμωμα
P^46*	55.2	2:22,1.2	οιδατε
P^46*	57.4	2:26,1.4	πεμψαι προς υμας
P^46*	62.3	3:3,1.3	—
P^46*	63.1	3:6,1.1	⌜ζηλος
P^46*	84.2	3:18,1.2	βλεπετε
P^46*	91.2	4:7,3.2	κυριω
Total for P^46* = 14			
B*	52.1	2:15,2.1	⌜αμωμα
Total for B* = 1			
K*%	48.3	2:11,2.3	3 1
K*%	54.3	2:21,1.3	2
Total for K*% = 2			
75	28.3	1:27,1.3	—ων
Total for 075 = 1			
2492	43.3	2:5,1.3	ουν
Total for 2492 = 1			
NA-27	28.1	1:27,1.1	⌜ἀκουω
NA-27	52.1	2:15,2.1	⌜αμωμα
Total for NA-27 = 2			

Witness	Place of Variation	Reference	Variant Reading
Cl^a%	80.3	3:14,4.3	3-5
Total for Cl^a% = 1			
Cl^exThd%	46.2	2:9,1.2	° ομιτ
Total for Cl^exThd% = 1			
Cyp^a%	54.3	2:21,1.3	2
Total for Cyp^a% = 1			
Pel%	40.1	2:4,2.1	⌜σκοπουντες
Pel%	41.1	2:4,3.1	°και
Pel%	42.3	2:4,4.3	—
Total for Pel% = 3			
Ex-112#	87.3	4:1,1.3	—
Total for Ex-112# = 1			
Ex-122	40.2	2:4,2.2	—πειτε
Total for Ex-122 = 1			
Ex-123	12.3	1:11,2.3	κ. επ. μοι
Ex-123	13.3	1:14,1.3	κυριου
Ex-123	20.2	1:20,1.2	καραδ—
Ex-123	72.3	3:11,1.3	των εκ
Ex-123	80.4	3:14,4.4	εν κυριω Ι. Χρ.
Ex-123	93.2	4:10,1.2	του
Total for Ex-123 = 6			
Ex-131	11.2	1:11,1.2	καρπων δικ. των
Total for Ex-131 = 1			
Ex-132#	36.3	2:3,1.3	ἤ
Ex-132#	47.2	2:11,1.2	—σεται
Ex-132#	52.2	2:15,2.2	αμωμητα
Ex-132#	100.1	4:23,2.1	⊤ ομιτ
Total for Ex-132# = 4			
Ex-136#	26.2	1:24,2.2	° ομιτ
Ex-136#	43.1	2:5,1.1	⊤ ομιτ

Witness	Place of Variation	Reference	Variant Reading
Total for Ex-136# = 2			
Ex-138$	1.2	1:1,1.2	συνεπισκ—
Ex-138$	2.2	1:3,1.2	εγω μεν ευχ. τω κυριω ημων
Ex-138$	3.2	1:4,1.2	και
Ex-138$	4.2	1:5,1.2	○ ομιτ
Ex-138$	5.1	1:6,1.1	⸢Χριστου Ἰησου⸣
Ex-138$	6.2	1:7,1.2	○ ομιτ
Ex-138$	9.2	1:9,1.2	—ευση
Ex-138$	12.2	1:11,2.2	κ. επ. Χριστου
Ex-138$	13.1	1:14,1.1	⸣ ομιτ
Ex-138$	16.2	1:16,3.2	πεγειρεν
Ex-138$	17.2	1:18,1.2	οτι
Ex-138$	18.2	1:18,2.2	αλλα
Ex-138$	19.2	1:19,1.2	δε
Ex-138$	21.2	1:22,1.2	ειτε
Ex-138$	22.2	1:22,2.2	—σωμαι
Ex-138$	23.2	1:23,1.2	○ ομιτ
Ex-138$	31.2	1:29,1.2	ημ—
Ex-138$	32.2	1:30,1.2	□ ομιτ
Ex-138$	33.2	2:1,1.2	τις
Ex-138$	34.2	2:1,2.2	τι
Ex-138$	35.2	2:2,1.2	αυτο
Ex-138$	37.2	2:3,2.2	προηγ—
Ex-138$	38.2	2:3,3.2	τους
Ex-138$	40.3	2:4,2.3	—πειτω
Ex-138$	42.2	2:4,4.2	—στος
Ex-138$	44.2	2:5,2.2	—νεισθω
Ex-138$	46.2	2:9,1.2	○ ομιτ
Ex-138$	48.2	2:11,2.2	1 2
Ex-138$	49.2	2:12,1.2	○ ομιτ
Ex-138$	50.2	2:13,1.2	ο
Ex-138$	53.2	2:19,1.2	Χριστω
Ex-138$	57.2	2:26,1.2	2 1
Ex-138$	58.2	2:27,1.2	—του
Ex-138$	59.3	2:30,1.3	—
Ex-138$	60.2	2:30,2.2	—βουλ—
Ex-138$	63.2	3:6,1.2	—ον
Ex-138$	68.2	3:8,2.2	του
Ex-138$	69.2	3:8,3.2	ειναι

Witness	Place of Variation	Reference	Variant Reading
Ex-138$	71.2	3:10,2.2	° ομιτ
Ex-138$	72.2	3:11,1.2	των
Ex-138$	75.2	3:12,3.2	° ομιτ
Ex-138$	77.2	3:14,1.2	—κων
Ex-138$	78.2	3:14,2.2	επι
Ex-138$	79.2	3:14,3.2	ανεγκλησιας
Ex-138$	80.2	3:14,4.2	θεου
Ex-138$	81.2	3:15,1.2	—νουμεν
Ex-138$	82.2	3:16,1.2	—σατε
Ex-138$	85.2	3:21,1.2	εις το γενεσθαι αυτο
Ex-138$	87.2	4:1,1.2	αγ. μου
Ex-138$	88.2	4:3,1.2	συνερ. μου και των λοιπ.
Ex-138$	89.2	4:7,1.2	Χριστου
Ex-138$	90.2	4:7,2.2	σωματα
Ex-138$	92.2	4:8,1.2	επιστημης
Ex-138$	95.2	4:15,1.2	° ομιτ
Ex-138$	97.2	4:18,1.2	δε
Total for Ex-138$ = 55			
Ex-139$	7.2	1:8,1.2	μοι
Ex-139$	12.4	1:11,2.4	θεου κ. επ. εμοι
Ex-139$	16.3	1:16,3.3	επιφερειν
Ex-139$	24.3	1:23,2.3	ποσω μαλ.
Ex-139$	25.2	1:24,1.2	—μειναι
Ex-139$	27.2	1:25,1.2	συμπαραμ—
Ex-139$	29.3	1:28,1.3	εσ. αυ. μεν
Ex-139$	30.2	1:28,2.2	υμιν
Ex-139$	34.3	2:1,2.3	τινα
Ex-139$	36.2	2:3,1.2	1
Ex-139$	54.2	2:21,1.2	¨ 2 1
Ex-139$	61.2	3:1,1.2	το
Ex-139$	65.2	3:7,1.2	° ομιτ
Ex-139$	73.2	3:12,1.2	ἤ ηδη δεδικαιωμαι
Ex-139$	80.5	3:14,4.5	του θ. εν κ. Ι. Χρ.
Ex-139$	83.2	3:16,2.2	τω αυ. στ. κανονι, το αυτο φρονειν
Ex-139$	96.2	4:16,1.2	2 3 4
Ex-139$	99.2	4:23,1.2	παντων
Total for Ex-139$ = 18			

Witness	Place of Variation	Reference	Variant Reading
Ex-140$	7.3	1:8,1.3	—
Ex-140$	24.4	1:23,2.4	πολλω γαρ
Ex-140$	30.3	1:28,2.3	ημιν
Ex-140$	36.4	2:3,1.4	ἢ κατα
Ex-140$	83.3	3:16,2.3	το αυ. φρ., τω αυ. καν. στ.
Ex-140$	96.3	4:16,1.3	τ. χρ. μου
Total for Ex-140$ = 6			
Ex-142$	8.2	1:8,2.2	εστιν
Ex-142$	14.2	1:16,1.2	’σ 17 α.’σ 16, σεδ οι μεν˙ οι δε
Ex-142$	15.2	1:16,2.2	° ομιτ
Ex-142$	17.3	1:18,1.3	πλην
Ex-142$	24.2	1:23,2.2	1 3
Ex-142$	28.2	1:27,1.2	—σω
Ex-142$	29.2	1:28,1.2	αυ. μεν εστιν
Ex-142$	39.2	2:4,1.2	ˆ —στοι
Ex-142$	41.2	2:4,3.2	° ομιτ
Ex-142$	42.3	2:4,4.3	—
Ex-142$	45.2	2:7,1.2	—που
Ex-142$	51.2	2:15,1.2	ητε
Ex-142$	56.1	2:24,1.1	⊤ ομιτ
Ex-142$	57.3	2:26,1.3	π. υμ. ιδειν
Ex-142$	59.4	2:30,1.4	του Χρ.
Ex-142$	62.2	3:3,1.2	θεω
Ex-142$	64.2	3:6,2.2	θεου
Ex-142$	66.2	3:7,2.2	2 1
Ex-142$	67.2	3:8,1.2	° ομιτ
Ex-142$	70.2	3:10,1.2	° ομιτ
Ex-142$	74.2	3:12,2.2	° ομιτ
Ex-142$	76.2	3:13,1.2	ˆ ουπω
Ex-142$	86.2	3:21,2.2	εαυτω
Ex-142$	94.2	4:13,1.2	Χριστω
Ex-142$	96.4	4:16,1.4	εις τ. χρ. μου
Ex-142$	98.1	4:19,1.1	⌜πληρωσει
Total for Ex-142$ = 26			
Ex-143$	59.2	2:30,1.2	κυριου
Total for Ex-143$ = 1			

Appendix H

Every Place Where a Variant is Initiated

in the Textual History of Philippians

Arranged in Order by Reference

This appendix lists every place a variant is introduced into the textual history of Philippians 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:

13.2	1:14,1.2	[D06*]<4>; [326]<8>; [629*]<8>; [it-d]<5>; [bo^b]<5>; Autograph;

(1) 13.2 refers to the second variant in variation unit 13.

(2) 1:14,1.2 is the reference where this place of variation occurs: chapter 1, verse 14, the first place of variation in this verse, the second variant there.

(3) *Autograph* means that the variant was initiated in the autograph and then by mixture in [D06*]<4>; [326]<8>; [629*]<8>; [it-d]<5>; [bo^b]<5>.

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:

2.2	1:3,1.2	[D06*]<4>; [it-b*]<2>; [Cass%]<3>; [Ex-123]<3>; Ex-138$<1>;

(1) 2.2 refers to the second variant in variation unit 2.

(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) The variant was first initiated in first-generation virtual exemplar Ex-138$, and subsequently initiated by mixture from Ex-138$ into [D06*]<4>; [it-b*]<2>; [Cass%]<3>; [Ex-123]<3>.

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:

10.2	1:10,1.2	P^46*<3>;

(1) 10.2 refers to the second variant in variation unit 10.

(2) 1:10,1.2 is the reference where this place of variation occurs: chapter 1, verse 10, the first place of variation in this verse, the second variant there.

(3) The variant was first initiated only in third-generation extant papyrus P^46*. This is a singularity; it has no heredity.

Place of Variation	Reference	Places Variant is Introduced
1.1	1:1,1.1	[bo^b]<5>; [Ex-122]<5>; [Ex-125]<3>; Autograph;
1.2	1:1,1.2	[B^2]<3>; [D06^2]<4>; [K*%]<3>; [P025*]<7>; [33*]<5>; [1241*]<7>; [it-r%]<3>; [Ex-131]<2>; Ex-138$<1>;
2.1	1:3,1.1	Autograph;
2.2	1:3,1.2	[D06*]<4>; [it-b*]<2>; [Cass%]<3>; [Ex-123]<3>; Ex-138$<1>;
3.1	1:4,1.1	[it-d]<5>; Autograph;
3.2	1:4,1.2	[044*]<6>; [2495]<8>; [vg^b]<2>; [sy^h]<4>; [Ex-123]<3>; Ex-138$<1>;
4.1	1:5,1.1	P^46*<3>; [B*]<3>; [B^2]<3>; [NA-27]<3>; Autograph;
4.2	1:5,1.2	[0278*%]<3>; [0278^c%]<3>; [1739*]<7>; [Ex-124]<4>; [Ex-127]<2>; Ex-138$<1>;
5.1	1:6,1.1	[P^46*]<3>; [B*]<3>; [B^2]<3>; [it-b*]<2>; [it-d]<5>; [NA-27]<3>; [Ambst%]<4>; [Ex-111]<2>; [Ex-119]<3>; [Ex-122]<5>; Ex-138$<1>;
5.2	1:6,1.2	[K*%]<3>; [0278*%]<3>; [0278^c%]<3>; [614*]<7>; [TR]<8>; Autograph;
6.1	1:7,1.1	Autograph;
6.2	1:7,1.2	[D06*]<4>; [TR]<8>; [vg^b]<2>; [Ex-123]<3>; [Ex-128]<5>; Ex-138$<1>;
7.1	1:8,1.1	[P025*]<7>; [81*]<7>; [2464*]<6>; Autograph;
7.2	1:8,1.2	[01^c]<5>; [044*]<6>; [0278*%]<3>; [0278^c%]<3>; [326]<8>; [Ex-116]<5>; [Ex-127]<2>; Ex-139$<1>;
7.3	1:8,1.3	[P^46*]<3>; [it-ar*]<2>; Ex-140$<1>;
8.1	1:8,2.1	[044*]<6>; [6]<8>; [it-d]<5>; Autograph;
8.2	1:8,2.2	[01^2]<5>; [0278*%]<3>; [0278^c%]<3>; [1881*]<6>; [sy^h]<4>; [Ex-112#]<1>; [Ex-119]<3>; [Ex-121]<4>; [Ex-124]<4>; [Ex-128]<5>; [Ex-139$]<1>; Ex-142$<1>;
9.1	1:9,1.1	Autograph;
9.2	1:9,1.2	[B*]<3>; [B^2]<3>; [044*]<6>; [81*]<7>; [2464*]<6>; [2495]<8>; [it-d]<5>; [Ex-119]<3>; Ex-138$<1>;
10.1	1:10,1.1	Autograph;
10.2	1:10,1.2	P^46*<3>;
11.1	1:11,1.1	[075]<5>; [6]<8>; [326]<8>; [1739*]<7>; [bo^b]<5>; Autograph;
11.2	1:11,1.2	Ex-131<2>;
12.1	1:11,2.1	Autograph;
12.2	1:11,2.2	[D06*]<4>; [it-d]<5>; Ex-138$<1>;
12.3	1:11,2.3	Ex-123<3>;
12.4	1:11,2.4	[P^46*]<3>; [it-g*]<5>; Ex-139$<1>;
13.1	1:14,1.1	[P^46*]<3>; [vg^b]<2>; [it-r%]<3>; [NA-27]<3>; [Ex-114]<6>; [Ex-126]<4>; [Ex-127]<2>; Ex-138$<1>;
13.2	1:14,1.2	[D06*]<4>; [326]<8>; [629*]<8>; [it-d]<5>; [bo^b]<5>; Autograph;
13.3	1:14,1.3	Ex-123<3>;
14.1	1:16,1.1	[629*]<8>; Autograph;
14.2	1:16,1.2	[D06^1]<4>; [sy^h]<4>; [Ex-122]<5>; [Ex-138$]<1>; Ex-142$<1>;
15.1	1:16,2.1	[it-d]<5>; [bo^b]<5>; Autograph;
15.2	1:16,2.2	[01^1]<5>; [B*]<3>; [B^2]<3>; [044*]<6>; [0278*%]<3>; [0278^c%]<3>; [Ex-123]<3>; [Ex-126]<4>; [Ex-138$]<1>; [Ex-139$]<1>; Ex-142$<1>;
16.1	1:16,3.1	[326]<8>; [Ex-126]<4>; Autograph;
16.2	1:16,3.2	[D06^2]<4>; [P025*]<7>; Ex-138$<1>;

Place of Variation	Reference	Places Variant is Introduced
16.3	1:16,3.3	[D06^1]<4>; [0278*%]<3>; [0278^c%]<3>; [Ex-131]<2>; Ex-139$<1>;
17.1	1:18,1.1	[614*]<7>; Autograph;
17.2	1:18,1.2	[B*]<3>; [B^2]<3>; Ex-138$<1>;
17.3	1:18,1.3	[1881*]<6>; [it-d]<5>; [sy^h]<4>; [Ex-119]<3>; [Ex-122]<5>; [Ex-139$]<1>; Ex-142$<1>;
18.1	1:18,2.1	Autograph;
18.2	1:18,2.2	[P^46*]<3>; [bo^b]<5>; Ex-138$<1>;
19.1	1:19,1.1	[bo^b]<5>; Autograph;
19.2	1:19,1.2	[P^46*]<3>; [B*]<3>; [B^2]<3>; [0278*%]<3>; [0278^c%]<3>; [1175*]<7>; [Ambst%]<4>; [Ex-126]<4>; Ex-138$<1>;
20.1	1:20,1.1	[it-d]<5>; Autograph;
20.2	1:20,1.2	Ex-123<3>;
21.1	1:22,1.1	Autograph;
21.2	1:22,1.2	[P^46*]<3>; [D06*]<4>; [it-d]<5>; Ex-138$<1>;
22.1	1:22,2.1	Autograph;
22.2	1:22,2.2	[P^46*]<3>; [B*]<3>; [B^2]<3>; [2464*]<6>; Ex-138$<1>;
23.1	1:23,1.1	Autograph;
23.2	1:23,1.2	[P^46*]<3>; [Ex-127]<2>; Ex-138$<1>;
24.1	1:23,2.1	[6]<8>; [326]<8>; [vg^b]<2>; Autograph;
24.2	1:23,2.2	[01*]<5>; [D06^2]<4>; [sy^h]<4>; [Ex-112#]<1>; [Ex-122]<5>; [Ex-138$]<1>; Ex-142$<1>;
24.3	1:23,2.3	[D06*]<4>; [Ex-123]<3>; Ex-139$<1>;
24.4	1:23,2.4	[P^46*]<3>; [0278*%]<3>; [0278^c%]<3>; [Cl^a%]<5>; Ex-140$<1>;
25.1	1:24,1.1	[P025*]<7>; [81*]<7>; Autograph;
25.2	1:24,1.2	[B*]<3>; [B^2]<3>; [0278*%]<3>; [0278^c%]<3>; [1505*%]<2>; [Ex-116]<5>; Ex-139$<1>;
26.1	1:24,2.1	[L020*%]<5>; [bo^a]<3>; [Ex-114]<6>; [Ex-116]<5>; [Ex-129]<2>; Autograph;
26.2	1:24,2.2	[P025*]<7>; [6]<8>; [81*]<7>; [2495]<8>; [Ex-117]<6>; [Ex-124]<4>; Ex-136#<1>;
27.1	1:25,1.1	[P^46*]<3>; [B*]<3>; [B^2]<3>; [044*]<6>; [0278*%]<3>; [6]<8>; [323*]<7>; [NA-27]<3>; Autograph;
27.2	1:25,1.2	[D06^2]<4>; [0278^c%]<3>; [Ex-124]<4>; Ex-139$<1>;
28.1	1:27,1.1	[P^46*]<3>; [B*]<3>; [B^2]<3>; [D06*]<4>; [629*]<8>; [it-d]<5>; NA-27<3>; Autograph;
28.2	1:27,1.2	[01^1]<5>; [C*%]<2>; [C^2%]<2>; [C^3%]<2>; [0278*%]<3>; [0278^c%]<3>; [33*]<5>; [Ex-128]<5>; [Ex-132#]<1>; [Ex-138$]<1>; Ex-142$<1>;
28.3	1:27,1.3	075<5>;
29.1	1:28,1.1	Autograph;
29.2	1:28,1.2	[Aug^a%]<2>; [MVict%]<2>; [Ex-114]<6>; [Ex-138$]<1>; Ex-142$<1>;
29.3	1:28,1.3	[D06^2]<4>; [P025*]<7>; [104*]<6>; [1505*%]<2>; [Ex-124]<4>; Ex-139$<1>;
30.1	1:28,2.1	[B*]<3>; [B^2]<3>; [D06^2]<4>; [044*]<6>; [0278*%]<3>; [0278^c%]<3>; [it-d]<5>; [NA-27]<3>; Autograph;
30.2	1:28,2.2	[D06^1]<4>; [it-ar*]<2>; [bo^a]<3>; [bo^b]<5>; [Ex-111]<2>; [Ex-124]<4>; [Ex-129]<2>; Ex-139$<1>;
30.3	1:28,2.3	[C*%]<2>; [vg^b]<2>; [it-b*]<2>; [Ex-127]<2>; Ex-140$<1>;

Place of Variation	Reference	Places Variant is Introduced
31.1	1:29,1.1	Autograph;
31.2	1:29,1.2	[1241*]<7>; [Ex-128]<5>; Ex-138$<1>;
32.1	1:30,1.1	Autograph;
32.2	1:30,1.2	[P^46*]<3>; [81*]<7>; Ex-138$<1>;
33.1	2:1,1.1	Autograph;
33.2	2:1,1.2	[D06*]<4>; [D06^c]<4>; [L020*%]<5>; [33*]<5>; [2495]<8>; Ex-138$<1>;
34.1	2:1,2.1	[P025*]<7>; [075]<5>; [1175*]<7>; [bo^b]<5>; [Ex-110]<7>; [Ex-125]<3>; Autograph;
34.2	2:1,2.2	[K*%]<3>; [630%]<2>; [945]<8>; [vg^st]<3>; [vg^ww]<3>; [Ex-115]<6>; [Ex-131]<2>; Ex-138$<1>;
34.3	2:1,2.3	[TR]<8>; [vg^cl]<3>; [it-ar*]<2>; [it-b*]<2>; [Ambst%]<4>; [Ex-121]<4>; Ex-139$<1>;
35.1	2:2,1.1	P^46*<3>; [B*]<3>; [B^2]<3>; [K*%]<3>; [0278*%]<3>; [0278^c%]<3>; [NA-27]<3>; Autograph;
35.2	2:2,1.2	[01*]<5>; [C*%]<2>; [C^2%]<2>; [C^3%]<2>; [044*]<6>; [33*]<5>; [81*]<7>; [1241*]<7>; [2464*]<6>; [vg^b]<2>; [it-f*]<5>; [Ex-111]<2>; [Ex-128]<5>; Ex-138$<1>;
36.1	2:3,1.1	[1505*%]<2>; [Ambst%]<4>; [Ex-126]<4>; Autograph;
36.2	2:3,1.2	[P^46*]<3>; [01^2]<5>; Ex-139$<1>;
36.3	2:3,1.3	Ex-132#<1>;
36.4	2:3,1.4	[629*]<8>; [2464*]<6>; [it-ar*]<2>; [bo^b]<5>; Ex-140$<1>;
37.1	2:3,2.1	Autograph;
37.2	2:3,2.2	[P^46*]<3>; [D06*]<4>; [D06^c]<4>; [I%]<6>; [K*%]<3>; [075]<5>; [0278*%]<3>; [0278^c%]<3>; [1175*]<7>; [1505*%]<2>; Ex-138$<1>;
38.1	2:3,3.1	Autograph;
38.2	2:3,3.2	[P^46*]<3>; [B*]<3>; [B^2]<3>; Ex-138$<1>;
39.1	2:4,1.1	[P^46*]<3>; [K*%]<3>; [P025*]<7>; [365]<7>; [NA-27]<3>; [Ambst%]<4>; [Pel%]<3>; Autograph;
39.2	2:4,1.2	[B*]<3>; [B^2]<3>; [044*]<6>; [0278*%]<3>; [0278^c%]<3>; [Ex-112#]<1>; [Ex-123]<3>; [Ex-133]<4>; [Ex-139$]<1>; Ex-142$<1>;
40.1	2:4,2.1	P^46*<3>; [B*]<3>; [B^2]<3>; [0278*%]<3>; [0278^c%]<3>; [NA-27]<3>; Pel%<3>; Autograph;
40.2	2:4,2.2	Ex-122<5>;
40.3	2:4,2.3	[K*%]<3>; [945]<8>; [1505*%]<2>; [MVict%]<2>; [Ex-125]<3>; Ex-138$<1>;
41.1	2:4,3.1	[P^46*]<3>; [B*]<3>; [B^2]<3>; [D06^2]<4>; [0278*%]<3>; [0278^c%]<3>; [NA-27]<3>; [Ambst%]<4>; Pel%<3>; [Ex-111]<2>; Autograph;
41.2	2:4,3.2	[K*%]<3>; [vg^cl]<3>; [Ex-112#]<1>; [Ex-127]<2>; [Ex-138$]<1>; Ex-142$<1>;
42.1	2:4,4.1	P^46*<3>; [B*]<3>; [B^2]<3>; [K*%]<3>; [NA-27]<3>; Autograph;
42.2	2:4,4.2	[0278*%]<3>; [0278^c%]<3>; [it-d]<5>; [Hier^a%]<3>; [Ex-114]<6>; [Ex-125]<3>; Ex-138$<1>;
42.3	2:4,4.3	Pel%<3>; [Ex-112#]<1>; [Ex-123]<3>; [Ex-139$]<1>; Ex-142$<1>;
43.1	2:5,1.1	[044*]<6>; [2495]<8>; [vg^b]<2>; [it-t%]<3>; [bo^b]<5>; Ex-136#<1>;
43.2	2:5,1.2	[P^46*]<3>; [01^2]<5>; [0278*%]<3>; [0278^c%]<3>; Autograph;
43.3	2:5,1.3	2492<8>;
44.1	2:5,2.1	Autograph;

Place of Variation	Reference	Places Variant is Introduced
44.2	2:5,2.2	[C^2%]<2>; [0278*%]<3>; [0278^c%]<3>; [Or^a%]<2>; [Or^b%]<2>; [Ex-124]<4>; Ex-138$<1>;
45.1	2:7,1.1	Autograph;
45.2	2:7,1.2	[P^46*]<3>; [vg^b]<2>; [it-t%]<3>; [Cyp^a%]<3>; [McionT%]<3>; [Ex-138$]<1>; Ex-142$<1>;
46.1	2:9,1.1	P^46*<3>; [B*]<3>; [B^2]<3>; [629*]<8>; [NA-27]<3>; Autograph;
46.2	2:9,1.2	[0278*%]<3>; [0278^c%]<3>; [1881*]<6>; Cl^exThd%<3>; [Ex-124]<4>; [Ex-127]<2>; Ex-138$<1>;
47.1	2:11,1.1	[F^c]<5>; [104*]<6>; [323*]<7>; [2495]<8>; [pm^b]<8>; [TR]<8>; [bo^b]<5>; [Ex-125]<3>; Autograph;
47.2	2:11,1.2	[C*%]<2>; [C^2%]<2>; [C^3%]<2>; [K*%]<3>; [0278*%]<3>; [0278^c%]<3>; Ex-132#<1>; [Ex-133]<4>;
48.1	2:11,2.1	[it-d]<5>; Autograph;
48.2	2:11,2.2	[A^c]<6>; [1505*%]<2>; [vg^b]<2>; [it-b*]<2>; [sa^b]<3>; [Or^lat^a%]<2>; [Ex-123]<3>; Ex-138$<1>;
48.3	2:11,2.3	K*%<3>;
49.1	2:12,1.1	Autograph;
49.2	2:12,1.2	[B*]<3>; [B^2]<3>; [33*]<5>; [1241*]<7>; [vg^b]<2>; [Ambst%]<4>; Ex-138$<1>;
50.1	2:13,1.1	P^46*<3>; [B*]<3>; [B^2]<3>; [K*%]<3>; [NA-27]<3>; Autograph;
50.2	2:13,1.2	[D06^1]<4>; [0278*%]<3>; [0278^c%]<3>; [1739^c]<7>; [Ex-124]<4>; Ex-138$<1>;
51.1	2:15,1.1	[B*]<3>; [B^2]<3>; [0278*%]<3>; [0278^c%]<3>; [NA-27]<3>; Autograph;
51.2	2:15,1.2	[P^46*]<3>; [D06*]<4>; [Ex-112#]<1>; [Ex-123]<3>; [Ex-128]<5>; [Ex-138$]<1>; Ex-142$<1>;
52.1	2:15,2.1	P^46*<3>; B*<3>; [B^2]<3>; NA-27<3>; Autograph;
52.2	2:15,2.2	[0278*%]<3>; [0278^c%]<3>; Ex-132#<1>;
53.1	2:19,1.1	Autograph;
53.2	2:19,1.2	[C*%]<2>; [C^2%]<2>; [C^3%]<2>; [D06*]<4>; [630%]<2>; [Ex-123]<3>; [Ex-126]<4>; Ex-138$<1>;
54.1	2:21,1.1	[P^46*]<3>; [326]<8>; [2495]<8>; [NA-27]<3>; Autograph;
54.2	2:21,1.2	[B*]<3>; [B^2]<3>; [0278*%]<3>; [0278^c%]<3>; [vg^st]<3>; [sy^h]<4>; [Ambst%]<4>; [Cass%]<3>; [Ex-114]<6>; Ex-139$<1>;
54.3	2:21,1.3	K*%<3>; Cyp^a%<3>;
55.1	2:22,1.1	Autograph;
55.2	2:22,1.2	P^46*<3>;
56.1	2:24,1.1	[P^46*]<3>; [01^2]<5>; [B*]<3>; [B^2]<3>; [0278*%]<3>; [0278^c%]<3>; [33*]<5>; [it-b*]<2>; [sa^a]<3>; [NA-27]<3>; [Ex-132#]<1>; [Ex-138$]<1>; Ex-142$<1>;
56.2	2:24,1.2	[0282%]<4>; [326]<8>; [629*]<8>; [sy^p]<4>; [bo^b]<5>; [Ex-121]<4>; Autograph;
57.1	2:26,1.1	[01^2]<5>; [Ex-129]<2>; Autograph;
57.2	2:26,1.2	[B*]<3>; [B^2]<3>; [vg^b]<2>; [it-b*]<2>; [Ambst%]<4>; Ex-138$<1>;
57.3	2:26,1.3	[075]<5>; [0278*%]<3>; [0278^c%]<3>; [326]<8>; [2495]<8>; [it-d]<5>; [bo^b]<5>; [Ex-119]<3>; [Ex-125]<3>; [Ex-136#]<1>; [Ex-139$]<1>; Ex-142$<1>;
57.4	2:26,1.4	P^46*<3>;
58.1	2:27,1.1	[1241*]<7>; [Ex-114]<6>; Autograph;
58.2	2:27,1.2	[01^2]<5>; [B*]<3>; [B^2]<3>; [0278*%]<3>; [2495]<8>; [Ex-116]<5>; [Ex-124]<4>; Ex-138$<1>;
59.1	2:30,1.1	[6]<8>; [1175*]<7>; [2464*]<6>; [Ex-129]<2>; Autograph;

Place of Variation	Reference	Places Variant is Introduced
59.2	2:30,1.2	[1505*%]<2>; [sy^h]<4>; [bo^b]<5>; [Ex-124]<4>; [Ex-136#]<1>; [Ex-140$]<1>; Ex-143$<1>;
59.3	2:30,1.3	[C*%]<2>; [C^2%]<2>; [C^3%]<2>; Ex-138$<1>;
59.4	2:30,1.4	[it-d]<5>; [Ex-114]<6>; [Ex-119]<3>; [Ex-139$]<1>; Ex-142$<1>;
60.1	2:30,2.1	Autograph;
60.2	2:30,2.2	[C*%]<2>; [C^2%]<2>; [C^3%]<2>; [33*]<5>; [Ex-131]<2>; Ex-138$<1>;
61.1	3:1,1.1	[Ex-110]<7>; [Ex-115]<6>; Autograph;
61.2	3:1,1.2	[629*]<8>; [945]<8>; [HF]<8>; [Ex-114]<6>; [Ex-116]<5>; Ex-139$<1>;
62.1	3:3,1.1	[81*]<7>; [1241*]<7>; [vg^b]<2>; [Ex-114]<6>; [Ex-126]<4>; Autograph;
62.2	3:3,1.2	[01^2]<5>; [D06*]<4>; [TR]<8>; [Ex-112#]<1>; [Ex-115]<6>; [Ex-121]<4>; [Ex-131]<2>; [Ex-139$]<1>; Ex-142$<1>;
62.3	3:3,1.3	P^46*<3>;
63.1	3:6,1.1	P^46*<3>; [B*]<3>; [B^2]<3>; [K*%]<3>; [NA-27]<3>; Autograph;
63.2	3:6,1.2	[01^2]<5>; [D06^1]<4>; [33*]<5>; [Ex-131]<2>; Ex-138$<1>;
64.1	3:6,2.1	Autograph;
64.2	3:6,2.2	[629*]<8>; [Ex-112#]<1>; [Ex-123]<3>; [Ex-138$]<1>; Ex-142$<1>;
65.1	3:7,1.1	[F*]<6>; [F^c]<5>; [it-f*]<5>; Autograph;
65.2	3:7,1.2	[P^46*]<3>; [01*]<5>; [33*]<5>; [it-b*]<2>; [Ex-115]<6>; [Ex-123]<3>; [Ex-128]<5>; Ex-139$<1>;
66.1	3:7,2.1	Autograph;
66.2	3:7,2.2	[B*]<3>; [B^2]<3>; [614*]<7>; [Ex-112#]<1>; [Ex-121]<4>; [Ex-138$]<1>; Ex-142$<1>;
67.1	3:8,1.1	[bo^b]<5>; Autograph;
67.2	3:8,1.2	[P^46*]<3>; [01*]<5>; [6]<8>; [33*]<5>; [Ex-112#]<1>; [Ex-121]<4>; [Ex-126]<4>; [Ex-138$]<1>; Ex-142$<1>;
68.1	3:8,2.1	Autograph;
68.2	3:8,2.2	[P^61%]<6>; [P^46*]<3>; [B*]<3>; [B^2]<3>; Ex-138$<1>;
69.1	3:8,3.1	[bo^b]<5>; [Ex-125]<3>; Autograph;
69.2	3:8,3.2	[01^2]<5>; [D06^2]<4>; [vg^b]<2>; [Aug^a%]<2>; [Ex-128]<5>; [Ex-131]<2>; Ex-138$<1>;
70.1	3:10,1.1	[01^2]<5>; [33*]<5>; [bo^a]<3>; [Ex-115]<6>; [Ex-129]<2>; Autograph;
70.2	3:10,1.2	[P^46*]<3>; [B*]<3>; [B^2]<3>; [1241*]<7>; [Ex-136#]<1>; [Ex-138$]<1>; Ex-142$<1>;
71.1	3:10,2.1	Autograph;
71.2	3:10,2.2	[P^46*]<3>; [01*]<5>; [B*]<3>; [B^2]<3>; Ex-138$<1>;
72.1	3:11,1.1	[044*]<6>; [1739^c]<7>; [it-d]<5>; [Ex-125]<3>; Autograph;
72.2	3:11,1.2	[bo^a]<3>; [Aug^a%]<2>; [Ex-131]<2>; Ex-138$<1>;
72.3	3:11,1.3	Ex-123<3>;
73.1	3:12,1.1	[D06^1]<4>; [D06^2]<4>; [it-d]<5>; Autograph;
73.2	3:12,1.2	[P^46*]<3>; [it-ar*]<2>; [it-b*]<2>; [Ex-127]<2>; Ex-139$<1>;
74.1	3:12,2.1	[Ambst%]<4>; Autograph;
74.2	3:12,2.2	[01*]<5>; [D06*]<4>; [326]<8>; [2495]<8>; [sy^p]<4>; [Ex-112#]<1>; [Ex-123]<3>; [Ex-138$]<1>; Ex-142$<1>;
75.1	3:12,3.1	Autograph;

Place of Variation	Reference	Places Variant is Introduced
75.2	3:12,3.2	[B*]<3>; [B^2]<3>; [D06^2]<4>; [33*]<5>; [it-b*]<2>; [Cl^a%]<5>; [Tert^a%]<2>; [Ex-123]<3>; Ex-138$<1>;
76.1	3:13,1.1	[Ex-129]<2>; Autograph;
76.2	3:13,1.2	[D06*]<4>; [075]<5>; [614*]<7>; [629*]<8>; [vg^b]<2>; [it-ar*]<2>; [it-d]<5>; [bo^b]<5>; [Ex-136#]<1>; [Ex-138$]<1>; Ex-142$<1>;
77.1	3:14,1.1	Autograph;
77.2	3:14,1.2	[I%]<6>; [044*]<6>; Ex-138$<1>;
78.1	3:14,2.1	[044*]<6>; Autograph;
78.2	3:14,2.2	[Ex-124]<4>; [Ex-127]<2>; Ex-138$<1>;
79.1	3:14,3.1	Autograph;
79.2	3:14,3.2	[Or^b%]<2>; [Tert^a%]<2>; Ex-138$<1>;
80.1	3:14,4.1	Autograph;
80.2	3:14,4.2	[P^46*]<3>; [Ambst%]<4>; Ex-138$<1>;
80.3	3:14,4.3	Cl^a%<5>;
80.4	3:14,4.4	Ex-123<3>;
80.5	3:14,4.5	[D06*]<4>; [it-d]<5>; Ex-139$<1>;
81.1	3:15,1.1	Autograph;
81.2	3:15,1.2	[L020*%]<5>; [326]<8>; [1241*]<7>; [Ex-113]<4>; Ex-138$<1>;
82.1	3:16,1.1	Autograph;
82.2	3:16,1.2	[P^16%]<2>; [sa^b]<3>; Ex-138$<1>;
83.1	3:16,2.1	[P025*]<7>; [6]<8>; Autograph;
83.2	3:16,2.2	[01^2]<5>; [sy^p]<4>; [Ex-124]<4>; Ex-139$<1>;
83.3	3:16,2.3	[629*]<8>; [1881*]<6>; [vg^b]<2>; [Ex-111]<2>; [Ex-116]<5>; [Ex-127]<2>; Ex-140$<1>;
84.1	3:18,1.1	Autograph;
84.2	3:18,1.2	P^46*<3>;
85.1	3:21,1.1	[6]<8>; [323*]<7>; [Ex-126]<4>; Autograph;
85.2	3:21,1.2	[D06^1]<4>; [33*]<5>; [Ex-131]<2>; Ex-138$<1>;
86.1	3:21,2.1	[it-b*]<2>; Autograph;
86.2	3:21,2.2	[01^2]<5>; [D06^2]<4>; [L020*%]<5>; [044*]<6>; [6]<8>; [104*]<6>; [326]<8>; [630%]<2>; [1175*]<7>; [1241*]<7>; [pm^b]<8>; [TR]<8>; [HF]<8>; [RP]<8>; [Ex-112#]<1>; [Ex-121]<4>; [Ex-138$]<1>; Ex-142$<1>;
87.1	4:1,1.1	[Ex-111]<2>; Autograph;
87.2	4:1,1.2	[B*]<3>; [B^2]<3>; [33*]<5>; [Ex-125]<3>; Ex-138$<1>;
87.3	4:1,1.3	[D06*]<4>; [it-d]<5>; Ex-112#<1>;
88.1	4:3,1.1	Autograph;
88.2	4:3,1.2	[P^16%]<2>; [01*]<5>; Ex-138$<1>;
89.1	4:7,1.1	Autograph;
89.2	4:7,1.2	[vg^b]<2>; [it-t%]<3>; [Ex-128]<5>; Ex-138$<1>;
90.1	4:7,2.1	Autograph;
90.2	4:7,2.2	[it-ar*]<2>; [MVict%]<2>; [Pel%]<3>; [Ex-123]<3>; Ex-138$<1>;
90.3	4:7,2.3	P^16%<2>;

Place of Variation	Reference	Places Variant is Introduced
91.1	4:7,3.1	Autograph;
91.2	4:7,3.2	P^46*<3>;
92.1	4:8,1.1	Autograph;
92.2	4:8,1.2	[D06*]<4>; [vg^cl]<3>; [it-ar*]<2>; [Ex-123]<3>; Ex-138$<1>;
93.1	4:10,1.1	[it-d]<5>; Autograph;
93.2	4:10,1.2	Ex-123<3>;
94.1	4:13,1.1	[629*]<8>; [630%]<2>; [it-d]<5>; [Ex-119]<3>; [Ex-126]<4>; Autograph;
94.2	4:13,1.2	[01^2]<5>; [D06^2]<4>; [1881*]<6>; [Ex-132#]<1>; [Ex-139$]<1>; Ex-142$<1>;
95.1	4:15,1.1	Autograph;
95.2	4:15,1.2	[P^46*]<3>; [D06*]<4>; [1505*%]<2>; [vg^b]<2>; [it-d]<5>; [sy^h]<4>; Ex-138$<1>;
96.1	4:16,1.1	[33*]<5>; [Ex-110]<7>; Autograph;
96.2	4:16,1.2	[P^46*]<3>; [326]<8>; [Ex-133]<4>; Ex-139$<1>;
96.3	4:16,1.3	[D06*]<4>; [075]<5>; [it-ar*]<2>; [it-d]<5>; Ex-140$<1>;
96.4	4:16,1.4	[D06^1]<4>; [L020*%]<5>; [P025*]<7>; [629*]<8>; [630%]<2>; [it-g*]<5>; [Ambst%]<4>; [Ex-114]<6>; [Ex-138$]<1>; [Ex-141$]<1>; Ex-142$<1>;
97.1	4:18,1.1	Autograph;
97.2	4:18,1.2	[P^46*]<3>; [2495]<8>; [vg^b]<2>; Ex-138$<1>;
98.1	4:19,1.1	[D06^2]<4>; [bo^b]<5>; [Ex-114]<6>; [Ex-136#]<1>; [Ex-138$]<1>; Ex-142$<1>;
98.2	4:19,1.2	[6]<8>; [33*]<5>; [326]<8>; [Ex-116]<5>; Autograph;
99.1	4:23,1.1	[6]<8>; [629*]<8>; Autograph;
99.2	4:23,1.2	[01^2]<5>; [Ex-122]<5>; [Ex-125]<3>; Ex-139$<1>;
100.1	4:23,2.1	[6]<8>; [it-b*]<2>; [Ex-116]<5>; [Ex-129]<2>; Ex-132#<1>;
100.2	4:23,2.2	[P^46*]<3>; [1739^c]<7>; [bo^b]<5>; [Ex-119]<3>; [Ex-121]<4>; [Ex-122]<5>; [Ex-125]<3>; Autograph;

Glossary of Terms

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

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 [CP]: 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 [CP(A,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 [CR]: 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 [CR(A,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 [Cmp]: A measure of how much of a text a particular **witness** contains. It is calculated as follows: The Completeness of A [Cmp(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**.

Complexity: In the context of a branch of the genealogical tree, complexity is defined as the number of **exemplars** in the branch plus the number of new **variant readings** initiated in the branch.

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.

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

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

Family Gene: the set of variants that are peculiar to a text tradition, having been initiated in the head exemplar of that tradition but not by mixture.

Genetic Affinity [GA]: A measure of the degree to which **witnesses** to a given text are genetically related. It is calculated as follows: Affinity of A to B [GA(A,B)] = (the number of **places of variation** where both A and B have any **reading** [CP(A,B)] – the number of **places of variation** where A and B differ [GD(A,B)]) ÷ (the number of **places of variation** where both A and B have any **reading** [CP(A,B)]), where A and B are **witnesses** to the same text. The genetic affinity of A to B has the same value as the genetic affinity of B to A. Identical witnesses have 100% affinity.

Genetic Distance [GD]: The genetic distance between two **witnesses** is defined as the number of **places of variation** where the two witnesses have different **readings**.

Genetic Dominance: A **reading** has genetic dominance as long as it is inherited by the **descendants** of the exemplar in which it 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.

Inheritance: That characteristic of a **reading** correctly copied from the parent **exemplar** of the **witness** in which the reading is found.

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***.

Minuscule: A **manuscript** written in longhand 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 its place in the tree diagram that maps the genealogical history of the text.

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 is 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: Sister first generation descendants of the same **exemplar**.

Sibling Gene: the set of variants peculiar to a group of sibling witnesses, being those readings initiated in the parent exemplar of those siblings.

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

Variant Heredity [VH]: 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 mixture in a reconstructed branch of the genealogical tree. It is a descendant of one of the exemplars in the branch, but it has no primary descendants, only secondary ones.

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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