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The Manuscripts of John of Damascus on Paul

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Doctor of Philosophy in New Testament and Early Christianity
The University of Edinburgh
2023
Abstract

This thesis sets out to determine whether the following three manuscripts constitute a newly identified textual family in Rom 13–1 Cor 4: Gregory-Aland (GA) 0150, GA 2110, and GA 1506. The term “family” refers to a homogeneous group for which a textual critic can confidently construct the archetypal text. The steps taken to prove a family relationship between the above witnesses include quantitative analysis, reading by reading analysis, and consideration of the scholia and marginalia. Others have suggested that the relationship of GA 0150 and GA 2110 is one of exemplar and of copy. Without any clear causal connections between the two manuscripts, however, a common exemplar best explains their remarkable similarity. Since the scholia of John of Damascus account for half the text on any given page, examination of these demonstrated that the special relationship shared by the lemmata extends to the scholia. The family is important because its archetypal text represents that which was available to John of Damascus. Therefore, the archetypal text of the family dates to the Umayyad Caliphate (mid-seventh to mid-eighth centuries) and comes from the Mar Saba monastery east of Jerusalem. Since the family represents the text available to—and transmitted by—a specific person, it should be referenced in critical editions as relating to John of Damascus rather than direct New Testament witnesses. There is also a component of digital humanities in this thesis since the study included the creation and utilization of a new desktop computer application and a web application.
Lay Summary

People who study ancient manuscripts containing the New Testament group manuscripts by similarity. One of the goals of textual criticism is to explain the ‘family tree’ of manuscripts and how people transmitted them through the centuries. Some use this information to refine what can be known about the earliest form of the text. Others are more interested in what happened to the text as readers and copyists engaged it. To determine at which position on the family tree a manuscript belongs, we compare text of the manuscript and compare it to others. Like humans, manuscripts often belong to an extended family and to an immediate family. It is less common, however, that immediate family members still exist.

In this study, I argue that I have discovered a new family containing three immediate family members. These include two ninth-century manuscripts, GA 0150 and GA 2110, and GA 1506, a fourteenth-century manuscript. To prove that these manuscripts are immediate relations, I first transcribed the text from the manuscripts and, using computer aids, compared the three with other New Testament manuscripts. After identifying every letter in which the family manuscripts agree and disagree with others, I evaluated every difference between them in Romans 13–1 Corinthians 4. To support this study, I also created new computer software to help especially with calculations and visualizing the percentage agreements and disagreements between family manuscripts and others.

I conclude that the above three manuscripts do constitute an immediate family relationship, and two of the manuscripts might even be siblings—copies from the same parent manuscript. Another interesting feature of the manuscripts is that they contain more than just the biblical text; they have commentary sections that accompany the biblical text. In the early seventh or late eighth-century, John of Damascus penned the commentary sections by extracting and summarizing portions of John Chrysostom’s homilies. I show that the family manuscripts are as closely related concerning both the biblical sections and the commentary sections. I have named this family ‘Family 0150.’
Acknowledgements

This thesis could not have been accomplished without the support of family, colleagues, and professional acquaintances. First of all, I thank my supervisor Paul Foster for his unending and kind guidance throughout the COVID19 pandemic and disruptions to normal university activity. For more than four years Professor Foster generously shared his breadth of expertise, critical engagement, and professional advice. The New College Library staff provided invaluable help, especially during the lockdowns. I thank my parents, Dave and Toni Flood, for their unending support of all varieties both while we were near and when we were continents apart. Most importantly, I thank my wife, Audrey Flood, without whose support this entire endeavor would have been impossible. Together we moved four children to another country, and together we moved five children back.
# Table of Contents

List of Tables .......................................................................................................................... viii  
List of Figures ........................................................................................................................... viii  
Abbreviations ........................................................................................................................... xii

1 General Introduction .............................................................................................................. 1  
1.1 Outline of Part One: The Damascene Catena Manuscripts ........................................... 2  
1.2 Outline of Part Two: New Computer Tools for Textual Scholarship ....................... 2  

2 Introduction to the Witnesses to the Catena of John of Damascus ................................... 5  
2.1 All Known Witnesses to John of Damascus’ Edition ...................................................... 5  
2.1.1 All Known Witnesses to the Catena of John of Damascus ........................................ 7  
2.2 Key Terms ......................................................................................................................... 8  
2.2.1 “Catena” and “Commentary” ................................................................................... 8  
2.2.2 “Lemma” and “Scholium” ....................................................................................... 9  
2.2.3 “Byzantine” and “Majority Text” ........................................................................... 10  
2.3 Descriptions of All Potential Members of Proposed Family ə15ə .................................. 10  
2.3.1 GA ə15ə ................................................................................................................... 11  
2.3.2 GA ə211ə ................................................................................................................ 14  
2.3.3 GA 15ə6 .................................................................................................................. 16  
2.3.4 GA ə18 and GA ə151 ............................................................................................ 17  
2.3.5 Grec 2296 (National Archive of Paris) ................................................................ 19  
   Non-continuous Text Witnesses ....................................................................................... 19  
2.3.6 .......................................................................................................................................... 19  
2.4 Introduction to Family ə15ə ............................................................................................. 22  
2.4.1 Family Features Beyond Textual Affinity ............................................................... 22  
2.4.2 The Significance of Family ə15ə ............................................................................. 26  
2.5 History of Research on GA ə15ə, GA ə211ə, and GA 15ə6 ........................................... 27  
2.6 Chapter Conclusion .......................................................................................................... 33  

3 Method ................................................................................................................................... 34  
3.1 What is a Textual Family? ............................................................................................. 34  
3.1.1 A Brief History of “Family” as a Term of Textual Relationship ............................ 34  
3.1.2 The Use of “Family” in this Thesis ....................................................................... 37  
3.2 Method for Determining Textual Relationships .......................................................... 38  
3.2.1 Selected History of the Quantitative Analysis Method for Demonstrating Relationships .......................................................................................................................... 38
3.2.2 Quantitative Analysis: Modified for Identifying Manuscript Families

3.3 Method for Collecting Manuscript Data: Computer Tools

3.4 Method for Determining whether GA 0150, GA 1506, and GA 2110 Comprise a Textual Family

3.4.1 Comparing Their Biblical Text

3.4.2 Comparing Their Scholia

3.5 Method for Determining if GA 0150 and GA 2110 are Exemplar and Copy

3.6 Explanation of the Critical Apparatus

3.6.1 How to Read the Apparatus

3.6.2 How Variation Units are Counted

3.7 Chapter Conclusion

4 Family Agreement Where All Members are Extant (Rom 13–1 Cor 4)

4.1 Family Agreement with the Majority Text Against the Reconstructed Text

4.2 Family Agreement Against the Majority Text

4.3 Exclusive Family Readings

4.4 Summary

4.4.1 Quantitative Observations

4.4.2 The Textual Character of Family 0150

5 Intra-Family Disagreements Where All Family Members are Extant (Rom 13–1 Cor 4)

5.1 GA 0150

5.1.1 Non-Family Readings

5.1.2 Full Spellings of Commonly Abbreviated Words

5.1.3 Singular and Coincidental Readings

5.1.4 Textual Character

5.2 GA 2110

5.2.1 Non-Family Readings

5.2.2 Singular and Coincidental Readings

5.2.3 Textual Character

5.3 GA 1506

5.3.1 Non-Family Readings

5.3.2 Singular and Coincidental Readings

5.3.3 Textual Character
8.6  User Interface ................................................................. 276
  8.6.1  Home page .............................................................. 276
  8.6.2  “About” Page ........................................................ 278
  8.6.3  “Published Collations” Page ..................................... 279
  8.6.4  User Authentication ................................................ 285
  8.6.5  User Profile ............................................................ 288
  8.6.6  “My Collations” ..................................................... 290
  8.6.7  “My Collations”: Edit Apparatus ............................... 297
  8.6.8  “Witnesses” ............................................................ 304
  8.6.9  “open-cbgm” .......................................................... 306

8.7  Conclusion ........................................................................ 316

9  Conclusion ........................................................................... 319
  9.1  Summary of Method ....................................................... 320
  9.2  Summary of Research Findings ....................................... 320
  9.3  A Digital Contribution ................................................... 322
  9.4  Further Research ........................................................... 323
  9.5  Final Remarks ............................................................... 323

Appendix: Full Collation of Family 0150 and others in Romans 13–1 Corinthians 4 ................. 325
Bibliography ........................................................................... 428

List of Tables

Table 1. Summary of All Known Witnesses the Edition of John of Damascus ..................... 8
Table 2. Initial Comparison of All Potential Members of Family 0150 using Text und Texwert .. 11
Table 3. List of Manuscript Witnesses to be Collated with the Damascene Manuscripts ......... 53
Table 4. Majority Text Readings in Family 0150 and Indicated Witnesses but not NA28 ....... 123
Table 5. Witnesses compared at all points of regularized variation .................................... 125
Table 6. All occurrences in which GA 0150 alone contains the full spelling of common nomina sacra ............................................................................. 132

List of Figures

Figure 1. GA 0150 folio 8r (top), CSNTM; GA 2110 folio 290v (bottom), BnF .......................... 23
Figure 2. GA 2110 folio 290r (top); GA 0150 folio 7r (bottom) ............................................. 24
Figure 3. GA 2110 folio 289v (top); GA 0150 folio 7r (bottom) ............................................. 25
Figure 4. ελθω προς, Rom 15:32 in 1506 (330v, line 1) ......................................................... 72
Figure 5. ελθω προς, Rom 15:32 in 1506 with reverse side text highlighted in red (330v, line 1) 72
Figure 81. Screenshot of Apatosaurus “/collation/” with “Upload Collation File” selected
Figure 82. Screenshot of Apatosaurus “/collation/” with verse selected
Figure 83. Screenshot of Apatosaurus “/collation/” with verse note text box opened
Figure 84. Screenshot of Apatosaurus “/collation/” with variation unit edit button selected
Figure 85. Screenshot of Apatosaurus “/collation/” with variation unit edit form opened
Figure 86. Screenshot of Apatosaurus “/collation/” with variation unit selected
Figure 87. Screenshot of Apatosaurus “/collation/” with reading edit form opened
Figure 88. Screenshot of Apatosaurus “/collation/” with reading history opened
Figure 89. Screenshot of Apatosaurus local stemma from “/collation/”
Figure 90. Screenshot of Apatosaurus local stemma from “/collation/” with a prior reading selected
Figure 91. Screenshot of Apatosaurus local stemma from “/collation/” with a prior and posterior readings selected
Figure 92. Screenshot of Apatosaurus local stemma from “/collation/” with a single edge (left) and three edges (right)
Figure 93. Screenshot of Apatosaurus “/witnesses/” with “Default Witnesses” tab selected
Figure 94. Screenshot of Apatosaurus “/witnesses/” with “My Witnesses” tab selected
Figure 95. Screenshot of Apatosaurus “/collations/” with the “Import to open-cbgm” button selected
Figure 96. Screenshot of Apatosaurus “/cbgm/” with “Manage Databases” selected
Figure 97. Screenshot of Apatosaurus “/cbgm/” with “Manage Databases” selected and a database opened
Figure 98. Screenshot of Apatosaurus “/cbgm/” with “Compare Witnesses” selected
Figure 99. Screenshot of Apatosaurus “/cbgm/” with “Find Relatives” selected
Figure 100. Screenshot of Apatosaurus “/cbgm/” with “Optimize Substemma” selected
Figure 101. Screenshot of Apatosaurus “/cbgm/” with “Local Stemma” selected
Figure 102. Screenshot of Apatosaurus “/cbgm/” with “Textual Flow” selected
Figure 103. Screenshot of Apatosaurus “/cbgm/” with “Global Stemma” selected
Figure 104. Screenshot of Apatosaurus “/cbgm/” with “Global Stemma” selected and the graph enlarged using the included viewer
Abbreviations

ANTF  Arbeiten zur neustamentlichen Textforschung
BNF   Bibliothèque nationale de France
BrillDAG  The Brill Dictionary of Ancient Greek
BT    The Bible Translator
CPG   Clavis Patrum Graecorum
CSNTM Center for the Study of New Testament Manuscripts
ECM   Editio Critica Maior
GRBS  Greek, Roman, and Byzantine Studies
INTF  Institut für Neustamentliche Textforschung
ITSEE Institute for Textual Scholarship and Electronic Editing
JSNTSup Journal for the Study of the New Testament, Supplement Series
NA28  Nestle-Aland 28th Edition
NovT  Novum Testamentum
NTS   New Testament Studies
NTTS  New Testament Tools and Studies
NTTSD New Testament Tools, Studies, and Documents
PTS   Patristische Texte und Studien
RBS   Resources for Biblical Study
TM    Travaux et Mémoires
TS    Texts and Studies
TS    Theological Studies
TuT   Text und Textwert
ZNW   Zeitschrift für die neustamentliche Wissenschaft
1 General Introduction

The central claim for which this thesis argues is this: There are three Greek New Testament manuscripts that demonstrate a sufficiently connective genealogical relationship to be considered a family. A new family whose archetypal text is a witness to the seventh-century text of Romans 13–1 Corinthians 4 used by John of Damascus. When one definitively connects nodes on the textual family tree, one sharpens the view of the broader tree. It is like connecting a group of puzzle pieces that belong to a much larger set: the connections compound progress as possibilities become impossibilities and potential matches become inevitable. I will demonstrate that three manuscript witnesses to the Pauline epistles should always be connected on any stemma that covers material for which the three manuscripts are all extant and overlap. These manuscripts are MS 61 of St. John the Theologian Monastery on Patmos, Grec 702 of the Bibliothèque Nationale in Paris, and B’ 89 of the Great Lavra Monastery. For convenience, I will refer to them by their Gregory-Aland designations: GA 0150, GA 2110, and GA 1506, respectively.

The research question, “Do these three witnesses constitute a textual family and witness to a near singular text?” and its affirmative answer raises related questions. If the witnesses are so similar, then might one or more of them be copies of the other? And, if an archetypal text can be identified for the family, where does it fit in the transmission of the New Testament Greek text? To be sure, the first question is dominant for this thesis, but the others are certainly of interest and will be addressed to a lesser degree.

Part One of this thesis answers the above questions and it is the primary scholarly contribution. Part One intends, therefore, to be capable of standing on its own. The method for detecting the degree of relationship and analyzing texts, however, is well suited to emerging computer tools. Indeed, this thesis includes new bespoke software that I developed and engineered to help answer these research questions. These new tools are introduced and explained in Part Two of this thesis. These two parts to the thesis are
sufficiently different to ensure that not many readers will be equally interested in both the traditional and technological components. Part One includes the argument, analysis, and conclusion. Part Two is provided both for readers who appreciate the technical details of the tools used and for those who wish to critically examine the tools. However, while digital tools were used, the results are presented in comprehensive detail so that anyone with traditional text critical skills may evaluate the findings.

1.1 Outline of Part One: The Damascene Catenae Manuscripts

Chapter two begins Part One by introducing all known witnesses to the catena by John of Damascus. The chapter shows that even a preliminary survey hints strongly at the existence of two subgroups among the catenae witnesses. One group, which I have named Family 0150, is notable because the family witnesses are strikingly similar and because their text is non-Byzantine despite the age of the earliest member: ninth century. Indeed, the focus of Part One is Family 0150 and not all the Damascene witnesses more generally. Chapter three explains the traditional—i.e., non-technological—methods employed to determine textual relationships. This includes an overview of quantitative analysis and its use by E.C. Colwell, Gordon Fee, Larry Hurtado, Gerd Mink, and Klaus Wachtel. Chapter four works carefully through a full collation of Romans 13–1 Corinthians 4 to analyze all significant places of variation in which each member of Family 0150 agrees. Chapter five investigates all readings across the same set of chapters in which the family members do not agree. Chapter six contains two smaller studies relevant to the research question at hand: the similarity and dissimilarity of the text of the catena among the larger Damascene group witnesses and the especially close relationship of GA 0150 and GA 2110.

1.2 Outline of Part Two: New Computer Tools for Textual Scholarship

Part Two begins with chapter seven, which introduces the software in the research for this thesis and the desktop application, Criticus, which I developed to be a both a point of interoperability between the existing tools and contribute several unique
functionalities itself. Chapter eight documents the web application, *Apatosaurus*, which I have planned, designed, and engineered all during the final two years of my doctoral studies. It is a web platform and virtual research environment that is the capstone of my technological contributions to the field of digital textual scholarship.
Part One:
The Manuscript Witnesses to the Catena of John of Damascus
2 Introduction to the Witnesses to the Catenae of John of Damascus

2.1 All Known Witnesses to John of Damascus’ Edition

The witnesses to an edition of text and commentary by John of Damascus comprise a small group of Pauline manuscripts which all share the alternating commentary of the Damascene as a primary feature. More specifically, all manuscripts of this group are catenae, “exegetical compilations accompanying a continuous biblical text.” The format of catena manuscripts varies, but in the case of those attributed to John of Damascus, all follow the same format: the biblical text is written first, then the commentary follows in an alternating pattern through an unabridged biblical text. Each unit of text and commentary is numbered; this is helpful since the blocks number in the hundreds for Romans alone. The catenae of John of Damascus have been difficult for scholars to identify because John of Damascus made extensive use of John Chrysostom, leading some to treat them as Chrysostom commentaries. This has led many researchers to (understandably) misidentify John Chrysostom as the sole source for several, not recognizing the role that John of Damascus exercised in editing Chrysostom’s homilies on

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3 Von Soden recognized only 2110 as a catena of John of Damascus, while he assumed that 0150 was Chrysostom, and only the Gospels in 1536 have been labeled (Hermann Freiherr von Soden, Die Schriften des Neuen Testaments [Göttingen: Vandenhoek and Ruprecht, 1911], 1:262, 279.) Despite being correctly identified by von Soden, 2113 (along with 0151) was later misidentified as Chrysostom catenae (Bruce Morrill and John Gram, "Parsing Paul," in Commentaries, Catenae and Biblical Tradition, ed. Hugh A. G. Houghton, vol. 13 of Texts and Studies 3 [Piscataway: Gorgias, 2016], 109.).
Paul's letters and interjecting the relevant scripture into the text of the manuscript. However, this characterization of John of Damascus as an editor of Chrysostom is not true for the entire corpus; the commentary on Ephesians, Philippians, and Colossians contains much material that is, apparently, unique to John of Damascus. Therefore, it is right to distinguish between Chrysostom's homilies on Paul, and a distinct edition that was the product of John of Damascus, even if he used a single source extensively. There are eight manuscripts which belong to the group.

One can identify all eight catenae either by synthesizing the publications below, or by querying the online Pinakes catalog to display all witnesses containing Clavis Patrum Graecorum (CPG) number 8379, “Commentarii In Epistulas Pauli” by “Iohannes Damascenus.” The entry for CPG 8379 does not, however, list any publications other than Lequien’s 1712 edition of GA 2110.

The most complete and accurate accounting in print for the Damascene catenae is that of Robert Volk in his critical edition of John of Damascus's commentary on Paul. He lists and knows of seven, four of which are continuous texts and have Gregory-Aland (GA) designations: 018, 0150, 2110, and 1506. He adds to these Grec 2875 (twelfth cent.) and Grec 2296 (seventeenth cent.), both held by the National Library of Paris, and one manuscript held by the Vatican Library, Vat. Gr. 876 (tenth cent.). Volk rejects the latter three from his critical edition for two reasons. (1) He finds Grec 2875 and Vat. Gr. 2296 unhelpful because they are a severe summary of the Damascene's catena and biblical text and, therefore, unsuitable for his critical edition of the commentary and biblical text. Grec 2875 is, for example, a brief collection of selected excerpts from Paul's letters and the...

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6 Mauritiu Geerard, *Clavis Patrum Graecorum*, vol. 3 of *Corpus Christianorum* (Turnhout: Brepols, 1979), 524. For a discussion of Lequien, see section 1.5 below.
accompanying commentary but compressed to only ten folia, 129–139. (2) Volk rejects Grec 2296 because it is a seventeenth-century copy of GA 2110 on paper, which renders it redundant because 2110 is well preserved today. However, Volk does not list GA 0151, which can be added to these manuscripts; it seems to have been first suggested as a catena of John of Damascus in the tradition of 018 by Theodora Panella.

### All Known Witnesses to the Catena of John of Damascus

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Holder’s Designation</th>
<th>GA Number</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>IX</td>
<td>Moscow: State Historical Museum</td>
<td>Sinod. Gr. 97</td>
<td>018</td>
<td>James, 1–2 Peter, 1–3 John, Jude; Catena of John of Damascus on Rom, 1–2 Cor, Gal, Eph, Phil, Col, 1–2 Thess, Heb, 1–2 Tim, Titus, Philm</td>
</tr>
<tr>
<td>IX</td>
<td>Patmos: St. John the Theologian Monastery</td>
<td>MS 61</td>
<td>0150</td>
<td>John of Damascus catena: Rom 13:5–16:27, 1–2 Cor, Gal, Eph, Phil, Col, 1–2 Thess, Heb, 1–2 Tim, Titus, Philm</td>
</tr>
<tr>
<td>IX</td>
<td>St. John the Theologian Monastery</td>
<td>MS 62</td>
<td>0151</td>
<td>John of Damascus catena: Rom, 1–2 Cor, Gal, Eph, Phil, Col, 1–2 Thess, Heb, 1–2 Tim</td>
</tr>
<tr>
<td>X</td>
<td>National Library of Paris</td>
<td>Grec 702</td>
<td>2110</td>
<td>Chrysostom’s Commentary on Matt and John; Hesychius; Titus of Bostra; John of Damascus catena: Rom, 1–2 Cor, Gal, Eph, Phil, Col, 1–2 Thess, Heb, 1–2 Tim, Titus, Philm</td>
</tr>
</tbody>
</table>
| X    | Vatican Library | Vat. Gr. 876 | None | Oribasius’s Medical Collections (3–4); Hippocrates’ Letter to King Ptolemy (4–5); Carmina Moralia by Gregory of Nazianzus (5–7v); John Zonaras, Lexica (9–111); Questions and Responses by various authors (112–114); Excerpts from the Catena of John of Damascus (114–115v); A

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9 Further, the scribal habits of a seventeenth-century scribe are of little interest in the field of Greek New Testament textual criticism.

It will be helpful to briefly define a few key terms. The first pair of terms that require clarification are “catena” and “commentary.” Which term is the best fit for the above Damascene manuscripts? This is not a question without some debate, which is why a strict distinction will not be made throughout this thesis. Neither the primary nor secondary research questions demand an argument for one term over another. The nature of the biblical and extrabiblical material can be accurately described, therefore, the use of terms can be clearly defined as they pertain to this thesis.

Generally, Hugh Houghton and David Parker state that a commentary is the work a “single author” and a catena—Latin for “chain”—is “usually assembled from

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"See the entry in the Pinakes catalog, https://pinakes.irht.cnrs.fr/notices/cote/67507/.
multiple sources." Gilles Dorival argues for a much stricter definition of "catena," saying, "in my opinion, catenae always offer authors' names (or author lemmata); a compilation without names is not a catena, but a commentary, even if its sources are patristic fragments of various authors." Houghton and Parker seem to be happy labeling this work of John of Damascus as a catena, but according to Dorival they are commentaries. For Dorival, "catena" is a technical term for compilations in which the sources are explicitly cited, but Houghton and Parker use the "traditional, fuller sense." I have chosen to follow Houghton and Parker for the sake of clearly highlighting the way in which the Damascene manuscripts are different from other commentary manuscripts. They cannot be accurately described as the sole product of either Chrysostom or John of Damascus. John of Damascus was a compiler and editor of John of Chrysostom, having selected and omitted based on his own personal choices. Therefore, describing the Damascene manuscripts as catenae is a useful distinction for the discussion in this study. John of Damascus edited extracts from Chrysostom; to refer to the witnesses as John of Damascus or Chrysostom commentaries hides more than it reveals. Additionally, Georgi Parpulov includes GA 018, GA 0150, GA 0151, and GA 2110 as witnesses to the same catena group, ecp.1.iv.

2.2.2 "Lemma" and "Scholium"

The traditional term for the biblical text in the manuscript which is the subject of the commentary is the "lemma." The use of this term should help avoid the confusion that might result with the terms "text," "biblical text," or "scriptural text." In the case of the Damascene catenae, the lemma is a biblical text that would be continuous and without

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" Houghton and Parker, "Commentaries, Catenae, and Biblical Tradition," n.3.
lacuna if it were not for the interruptions of alternating commentary. As for the units of commentary that correlate to a lemma, these will be referred to as scholia. All the manuscripts in this study explicitly label the lemmata and scholia. The lemma is introduced with κεί, an abbreviation for κείμενον, which means “text,” especially of Scripture. The scholia are labeled ερ, an abbreviation for ἑρμηνεία, which can mean “interpretation,” “explanation,” or “exposition.”

2.2.3 “Byzantine” and “Majority Text”

I make a distinction between these two terms even though they can be used interchangeably in different contexts. Throughout this thesis I use “Byzantine” to refer to a textual character and a set of readings, some of which are early, and others of which arose much later in time.

I conceive of “Majority Text” as something that can be automatically calculated from transcriptions. It is simply the result of taking the most popular reading at any given variation unit across all witnesses. There are, of course, places where the majority of witnesses are evenly divided between readings, making it impossible to have a clear majority.

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18 E.A. Sophocles, *Greek Lexicon of the Roman and Byzantine Periods* (New York: Charles Scribner’s Sons, 1900), 656.

19 BDAG, 393; see also BrillDAG, “ἐρμηνεία.”
2.3 Descriptions of All Potential Members of Proposed Family 0150

Agreements higher than 80% are shaded in green and agreements lower than 65% are shaded orange.

<table>
<thead>
<tr>
<th>Epistle</th>
<th>018 and MT</th>
<th>0151 and MT</th>
<th>018 and 0151</th>
<th>0150 and MT</th>
<th>0150 and 2110</th>
<th>0150 and 1506</th>
<th>0150 and 1506</th>
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<td>Philippians</td>
<td>6/11</td>
<td>7/11</td>
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<tr>
<td>Colossians</td>
<td>9/10</td>
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<tr>
<td>1–2 Thessalonians</td>
<td>8/9</td>
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<tr>
<td>Pastorals and Philemon</td>
<td>19/21</td>
<td>7/8</td>
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*Table 2. Initial Comparison of All Potential Members of Family 0150 using Text und Texwert*

It is by conscious decision that the three codices are listed below in the order of GA 0150, GA 2110, and GA 1506, instead of a straight numerical order as is custom when listing manuscripts. First, this is closer to their chronological and genealogical order. Second, GA 2110 has been miscategorized and given a GA designation that indicates it is a minuscule manuscript.

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This figure is misleading because the Teststellen involve the famously difficult ending of Romans. 1506 has more variation at the end. For example, it omits entirely all of Paul’s greetings in chapter 16 since the scribe was only concerned with preserving the lemmata which received commentary. The Teststellen are also limiting because in Romans 0150 is only extant from 13:5 onwards. A complete collation shows that 1506 has a very high agreement with 0150, while showing signs of contamination.
2.3.1 GA 0150

Contents

0150 is the Gregory-Aland designation for a majuscule manuscript which is held by the Monastery of Saint John the Evangelist in Patmos, Greece, shelf number 61. It is a near complete manuscript of the 14 letters comprising the Pauline corpus except for Romans, which commences in the middle of 13:5. The first twelve chapters have apparently been lost; what remains is 151 leaves of well-preserved parchment in the following order: Rom, 1 Cor, 2 Cor, Gal, Eph, Phil, Col, 1 Thess, 2 Thess, Heb, 1 Tim, 2 Tim, Titus, and Philm. On the final folio there is a title of another work, περί ὑποκατάστασις, which Parpulov has identified as CPG 8211, “On Predestined Terms of Life” by Germanos I, Archbishop of Constantinople. However, there is no other text aside from the attribution and title. It has been dated by INTF to the ninth century and listed as tenth century in the Pinakes catalog. The lemmata, the biblical text divisions, are written exclusively in clean and consistent majuscule script, while the scholia, the commentary, are written in cursive minuscule.

Provenance

There is no explicit and external documentation of its history prior to its arrival at St. John the Theologian Monastery on Patmos. A few things, however minor, may be said concerning GA 0150’s history. It seems quite unlikely that the manuscript was copied at the monastery in which it now resides. The monastery of Saint John the Theologian was founded around 1088, but it was not until after 1093 that monks began to reside continually...

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22 “Manuscript GA 0150,” Csntm.Org, n.d., http://csntm.org/Manuscript/View/GA_0150. All future references to 0150, unless otherwise stated, will be to images graciously provided by CSNTM.
on Patmos.” Even if GA 0150 was dated to the tenth century, it would still have been copied at least a hundred years before being brought to the monastery on Patmos. It is not possible to say with any certainty how long 0150 has been the property of the Patmos monastery, however, there is a paper roll inventory that was compiled by the monks in 1200 that briefly described 330 manuscripts possessed (or loaned) by the monastery that may include GA 0150.25 Astruc’s transcription helpfully expands the abbreviations: βιβλί(oν) τοῦ Δαμασκηνοῦ Ἰω(άννου) ἀντερμηνευμα εἰς τ(ὴν) ἑρμ(η)ν(ειαν) τοῦ Χρ(υσοστό)μ(ου) τ(ῆς) πρὸς Ρωμαι(ον) ἐπιστολ(ὴς) ἐχον τὰ ρητα ὡς λιτόγραφα, ἐν (δὲ) τῷ τέλει τοῦτο, (καὶ) πρὸς Τιμόθεον.27 The meaning of this entry is roughly, “A book of John of Damascus, an appropriation of the interpretation of Chrysostom, the text of the epistle of Romans is written in majuscule, at the end of this is Timothy.”28 Of any letters of Paul, or anything attributed to Chrysostom, this is the only entry which says the codex is λιτόγραφα, or, “written in majuscule.”

There are issues when connecting GA 0150 with this inventory entry. It is not clear whether the above majuscule codex includes only the letters of Romans and Timothy, or whether this indicates the range Romans to Timothy. GA 0150 has 14 epistles and Timothy does not fall at the end of the codex, though it is the antepenultimate epistle. GA 0150 ends with 2 Timothy, Titus, and Philemon. Titus and Philemon take up only a few leaves, so it is possible for the cataloger to have missed the final two books—the error could have been made more likely by the peculiar order of the epistles.

One could entertain the possibility that this entry refers instead to GA 0151, however, only John Chrysostom is identified as the author of the scholia in the beginning of GA 0151. For this entry to refer to 0151, it must be the case that the community knew

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28 Translation mine.
more of GA 0151 than is explicitly stated in its pages, and that the cataloger noted it as such. A similar problem occurs with GA 0150, however, because the beginning of 0150 is missing as we know it today. The first 12 chapters of Romans are gone along with the title and attribution that likely adorned the first leaf. It is impossible to know when these chapters were lost, but it is quite possible to know what the title and attribution would likely have said, given GA 0150’s remarkable agreement with 2110—whose title page is extant. GA 2110 identifies its contents on the first folio of the Damascene section: ἐκ τῆς καθόλου ἐρμηνείας ἱωάννου τοῦ χρυσοστόμου ἐκλογαὶ ἐν ἐπιτομῇ ἐκλεγεῖσαι παρὰ ἱωάννου Δαμασκηνοῦ, “From the whole commentary of John Chrysostom, selections summarized and chosen by John of Damascus” (folio 252r). This description lines up well with the description in the 1200 inventory. If it is not this manuscript, then it is likely a very similar one. If nothing else, this demonstrates that Damascene codices such as GA 0150 were present on Patmos at least as early as 1200.

2.3.2 GA 2110

Description

GA 2110 is remarkably like GA 0150—a fact explored in more detail below in chapter six. Exactly like GA 0150, the biblical text of GA 2110 is clearly majuscule text from beginning to end without ever resolving to minuscule as is the case with GA 018 and GA 0151. That GA 0150 and GA 2110 were categorized differently appears to be a mistake, but an understandable one because the other material in the codex which contains GA 2110 are other documents both biblical and non-biblical that are written solely in minuscule script. However, since Gregory-Aland designations are intended to attach to the material document as it was originally conceived, we should consider GA 0150 and GA 2110 in the same category, whatever that may be.

2110 is the GA designation for folios 252–434 as found in Grec 702, the shelf number for a codex held by the National Library of France, Paris. When referring to the entire codex, I will use “Grec 702.” The first section of Grec 702 contains the commentary of John
Chrysostom on the Gospel of Matthew (folios 1–122). Chrysostom is identified as the author of the commentary on the top of folio 122. I have not examined these pages except for a cursory inspection and identification of content, though it does seem that the same scribe who began copying the Damascene’s catena beginning on folio 252 was also responsible for all that led up to it. Then a series of shorter sections with majuscule titles follow on folios 122–126. John Chrysostom’s commentary on the Gospel of John begins abruptly on folio 127 without any title or introduction. Folios 200–208 contain the debate concerning whether the time of the crucifixion was the third or sixth hour by Hesychius. The commentary of Titus of Bostra begins on folio 208 with a clear title and continues until folio 252, at which point the remaining portion is known to New Testament text critics as GA 2110, which contains the same fourteen letters of the Pauline corpus as α150: Rom, 1 Cor, 2 Cor, Gal, Eph, Phil, Col, 1 Thess, 2 Thess, Heb, 1 Tim, 2 Tim, Titus, and Phlm. INTF has dated 2110 to the tenth century. 

Little concerning the provenance of Grec 702 is known. The existence of its editio princeps demonstrates that it has been held by the National Library of Paris since at least 1712. Just as GA 018 was moved from a monastery in Athos to a library in Moscow, it seems likely that GA 2110 also moved from monastery to national library, but which monastery is unknown. Its relation to GA 0150 may hint at a Patmian origin.

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39 εὐσεβίου τοῦ παμφίλου (folio 122r–122v); τοῦ εν εὐφυίας ισιδωρίου του υπεραγιου του περιτης του εσχημεν ναας του γονντων πρεςβυτερων (123r–123v); του αυτου περιτων τριων ημερων ουκοι της ταφης του ευαγιον αναστασεως θεο αναγνωτη (123v–124r); ευσεβίου τον παμφίλου (124r–126v).


36 See section 1.5 below on Lequien’s edition.


38 Again, as with GA 0150, accepting that only speculation is possible, one might consider the exemplar(s) needed to create Grec 702 and whether they were present at Patmos. According to the 1200 inventory, a copy of Chrysostom’s commentary on Matthew was present, which, after Paul’s letters, is the largest section (Astruc, “L’Inventaire,” 23). If GA 0150 is posited as the exemplar for the Damascene section, then there are 305 of 434 folios for which can be accounted.
Basis for the Exclusion of the Second Hand: Eph, Phil, Col, 1–2 Thess, Heb, 1–2 Tim, Titus, Philm

It is clear when viewing Table 2 that GA 2110 abruptly changes textual affiliation between Galatians and Ephesians. From Romans through most of Galatians, GA 2110 follows the text of GA 0150 very closely. Towards the end of Galatians, a new hand takes over the copy work and a different kind of text follows—one that is demonstrably more Byzantine. Hugh Houghton and Amy Myshrall also detected this shift in Galatians using the “chapter-by-chapter breakdown in the CBGM interface.”

Houghton and Myshrall find, however, that the shift does not map perfectly to the change in hands. While the second hand takes over at “Gal 3:15 (fol. 360v),” the textual “discontinuity occurs in Gal 5:10 or shortly afterwards.” Something like GA 0151 was used as an exemplar starting near Gal 5:10. Therefore, it is only the text of GA 2110 from Romans through Galatians that belongs to Family 0150—but only confirmed in this thesis from Romans 13:5–1 Corinthians 4:15.

2.3.3 GA 1506

GA 1506 is the only true minuscule of the family being proposed. Like GA 2110, it is a manuscript that contains other material which is mostly irrelevant to this study. The first section of the codex is the text of all four Gospels with the commentary of Theophylact (folios 4–258). This is followed by “Miscellaneous writings of Nicholas of Methone” (folios 258–267), writings of Basil of Caesarea (folios 267–295), writings of Ansenios (folios 295–298), John Chrysostom’s Pascha (folios 301–305), writings of Epiphanius of Salamis (folios 305–306), and a hagiography (305–306). The final section is that which contains the text of Romans and 1 Corinthians 1:1–4:14 along with the same scholia found in GA 018, GA 0150, GA 0151, and GA 2110. Fortunately, the scribe of GA 1506

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inscribed the date at the end of the Gospels section, writing ϊω κη, which in Arabic numerals is 6828. This is the year that the manuscript was copied according to the Byzantine version of the Julian calendar, or 1320 in the Gregorian calendar. There is no documentation concerning the provenance of GA 1506. Unfortunately, none of the Athos libraries have any known medieval inventories such as those at Patmos.37

### 2.3.4 GA 018 and GA 0151

**Descriptions**

GA 018 is dated to the ninth-century by INTF and was moved from a monastery in Athos to Moscow.38 It contains a catena on the Catholic Epistles (CPG C176), the catena of John of Damascus on Paul's letters, but it is missing Acts.39 Little concerning GA 0151 is known. It is also dated to the ninth century and has been held by the Monastery of Saint John the Theologian on Patmos as long as records exist.40 Unlike GA 018, GA 0151 only contains the catena of John of Damascus on Paul. The other difference between the two is that while the lemmata of GA 0151 are written entirely in majuscule script, the lemmata of GA 018 only begin in majuscule and continue in minuscule script.41 Besides having a similar text, there are other similarities: both are the only Damascene catenae to be written in two columns; the two codices have identical lemmata and scholia numbers throughout; both are attributed to Chrysostom without explicit mention of John of Damascus in their titles; Panella believes both to be a "shortened form" of John of Damascus's scholia.42 However, I have not found evidence of this in GA 0151 in the chapters I examined (see chapter six).

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Basis for Exclusion from Family 0150

GA 018 and GA 0151 differ from the 0150 family of Damascene manuscripts in several, GA 0150 would also attest to John of Damascus by name if it were not lacunose important ways which support their exclusion from the family, as well as from further study in this thesis. (1) GA 2110 and GA 1506 explicitly identify John of Damascus in the opening title to Romans. Presumably for the first twelve chapters of Romans, including the title folio. GA 018, instead, mentions only Chrysostom in the following titular line preceding Romans, του εν αγιοις προς εμων ιαννου του Χρυσοστομου ερμηνεια εις τον αγιον αποστολον. (2) GA 018 and GA 0151 seem to be a recension that is different in both the scholia and the lemmata. Concerning the scholia of GA 018, Volk says that it is an abbreviated form which demonstrates a “deliberate intervention by an editor.” Concerning the lemmata, whereas Family 0150 has a very similar text that often agrees at otherwise singular readings, GA 018 and GA 0151 demonstrate a similar Byzantine text, but not a notable number of special agreements. Table 2 lists the number of agreements over the number of total shared test passages (Teststellen) where each manuscript is extant. The purpose of this data is to demonstrate the validity of rejecting GA 018 and GA 0151 as members of family 0150 and that further research is not needed concerning GA 018 and GA 0151 as far as the goal of this thesis is concerned.

This table illustrates several important points of relationship between the Damascene manuscripts. First, it should be noted that the Alands have classified both GA 018 and GA 0151 as Category V manuscripts, meaning that they are, in the estimation of the Alands, unambiguously Byzantine. The Alands categorize GA 1506 in Paul as a Category II (Egyptian), and both GA 0150 and GA 2110 as Category III (mixed). These conclusions

\[43^\text{“sich der Gedanke vom bewussten Eingriff eines Zensors aufdrängt,” Volk, Die Schriften Des Johannes von Damaskos, 8.}
\[46^\text{Aland and Aland, The Text of the New Testament, 121, 133, 134.}
generally hold true when looking at the collected data above, but a complete collation of overlapping material suggests that GA 0150, GA 2110, and GA 1506 should be considered members of the same family in Romans and 1 Corinthians and likely in 2 Corinthians as well.

The key piece of data to point out is that the text of GA 0150, GA 2110, and GA 1506 is clearly of a different transmission tradition than the text of GA 018 and GA 0151. The fact of the close relationship of GA 018 and GA 0151 has been known at least since the publication of Text und Textwert, but Panella is the first, as far as I am aware, to suggest in print that GA 0151 is not only remarkably similar to GA 018 in its lemmata, but also shares the same scholia of John of Damascus. This means there are two distinct kinds of text and commentary within the Damascene group that were equally transmitted and whose members are equally early. Both Volk and Panella blame scribal activity for the differences between the two groups. Without further examination into GA 018 and GA 0151, it seems most likely that they represent a contaminated version of the Damascene tradition, which is better preserved in GA 0150, GA 2110, and GA 1506.

2.3.5 Grec 2296 (National Archive of Paris)

Grec 2296 is a mid-seventeenth-century copy of GA 2110 on paper by François Combefis. It is held by the National Archive in Paris where its shelf number is M 838. As a direct copy that post-dates the printing press, it is generally not valuable for studying scribal habits for the purpose of recovering the initial text. However, as a legitimate—if very recent—copy of 2110, it is likely a true member of Family 0150 in Romans, 1–2 Corinthians, and Galatians. However, since 2110 is well preserved, Grec 2296 is of little use. Additionally, there are no images of 2296 available to view remotely. This manuscript will be entirely unexamined due to difficulty of access and that it is unnecessary to consult.

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47 Panella, “Resurrection Appearances,” 122. The online Pinakes catalog also identifies GA 018 and GA 0151 as witnesses to the same commentary, “Iohannes Damascenus, Commentarii In Epistulas Pauli.”

2.3.6 Non-continuous Text Witnesses

Grec 2875 (National Library of Paris) and the Basis for its Exclusion from Family 0150

Grec 2875 is a codex of 318 leaves, ten of which contain John of Damascus’s edition of commentary on Paul’s letters: leaves 129–139. In the space of these ten leaves, there are selections of both the scholia and accompanying lemmata from John of Damascus’s edition of Romans, 1–2 Corinthians, and Galatians. Both the lemmata and the scholia are written in minuscule; the former is written in red ink while the latter is written in black ink. The combination of faded red ink and the limitations of digitized microfilm make it difficult to identify the entire text present, I have transcribed all but a few passages from the lemmata. According to its catalog listing, this manuscript dates to the thirteenth century. At the top of folio 129 the title reads [ἐκ τοῦ] καθόλου ἑρμηνεῖαι τοῦ Χρυσοστόμου ἐκλεγῆσαι [παρὰ τοῦ] ἁγιωτάτου Δαμασκηνου καὶ πατέρων ἡμῶν, “[From] the whole commentary of Chrysostom, selected by the Holiness of Damascus and our father.”

While the source material used by the scribe and editor of Grec 2875 is clearly identifiable as John of Damascus’s edition, it is also the case that John of Damascus’s scholia and lemmata have been edited by either abbreviating the commentary or combining shorter lemmata and severely abbreviating the combined scholia. There are also examples of a single lemma and accompanying scholium being transferred completely with little editing.

The lemmata of Grec 2875 follow the Byzantine text exactly apart from only two readings. One of these is an agreement with GA 0150 against both the NA28 and the Byzantine text in 1 Cor 1:25. Grec 2875 reads ἐχαροτερόν for σοφώτερον (NA28 and Byz). This reading is shared by all members of family GA 0150 but not GA 0151. Unfortunately,


50 “Grec 2875.”
ο18 is lacunose here. Grec 2875 and family ο15ο are apparently the only witnesses to this variant according to the apparatuses of NA28 and Tischendorf. This reading will be discussed later in relation to family readings of family ο15ο. The other variant in Grec 2875 is ζητουσι for αἰτοῦσιν a few verses earlier in 1 Cor 1:22. This is a simple scribal error of harmonization to context. The full Byzantine text is Ἰουδαῖοι σημεῖον αἰτοῦσιν καὶ Ελληνες σοφίαν ζητοῦσιν. The scribe or editor of Grec 2875 merely repeated ζητοῦσιν in both positions and dropped the movable ν.

Aside from these, the text of Grec 2875 never agrees with family ο15ο when it departs from the Byzantine text form. In this way, it is more similar to GA ο151 and GA ο18. Therefore, it is primarily on textual grounds that Grec 2875 is excluded from further examination as a potential member of family ο15ο. This manuscript is even further from the proposed family than GA ο18 and GA ο151 because it has been more severely edited. Indeed, Grec 2875 represents an edition of John of Damascus’s catena that is as removed as John of Damascus’s edition is removed from Chrysostom.

Vat. Gr. 876 (Vatican Apostolic Library) and the Basis for its Exclusion from Family ο15ο

As with Grec 2875, only a small portion of this codex is relevant to the text of John of Damascus’s catena. The Damascene portion is incomplete; all that remains is some of the lemmata and scholia of Romans found on folios 114–115v. According to Codices Vaticani Graeci, folio 114 contains a title identical to Grec 2875 ἐκ τοῦ καθόλου ἑρμηνεῖαι τοῦ Χρυσοστόμου ἐκλεγεῖσαι παρὰ τοῦ άγιωτάτου Δαμασκηνοῦ καὶ πατρός ήμῶν, “From the whole commentary of Chrysostom, selected by the Holiness of Damascus and our father.” The date given by the Codices Vaticani Graeci for the Damascene section is fourteenth-century, though Volk lists thirteenth in his brief description of the manuscript.

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51 Constantine von Tischendorf, Novum Testamentum Graece, ed. Caspar Rene Gregory and Ezra Abbot (Lipsiae: Giesecke and Devrient, 1894).
53 Schreiner, Codices Vaticani Graeci, 30; Volk, Die Schriften des Johannes von Damaskos, 9.
Since a physical inspection is necessary to evaluate this manuscript, I must rely on secondary sources to determine whether it requires further investigation for the purpose of this thesis. The online catalog for the library lists only four potential bibliographic entries for sources related to Vat. Gr. 876, however each of these is interested in other portions of the codex and none of them are concerned with the Damascene section. It appears that Volk has inspected the manuscript as he is able to comment on the text. According to Volk, the text is the same abbreviated form as Grec 2875, “Dabei handelt es sich um den identischen knappen Text wie in unserer Hs. 5 [Grec 2875].” Since the titles of both Grec 2875 and Vat. Gr. 876 are identical, it is likely true that they represent the same heavily edited edition of John of Damascus's catena. Therefore, these two shortened editions cannot be members of family 0150, but rather they are their own editions and distinct from John of Damascus's edition, just as John of Damascus's edition is distinct from Chrysostom’s homilies.

2.4 Introduction to Family 0150

2.4.1 Family Features Beyond Textual Affinity

Of the five continuous text Damascene catenae that comprise the group, it will be argued that three may be separated from the group and considered as a family regarding their lemmata, scholia, and paratextual features. These three are GA 0150, GA 2110, and GA 1506. Although GA 0150 and GA 2110 contain a complete Pauline corpus, only the extant portions that include Romans, 1–2 Corinthians, and Galatians may properly be described as belonging to the same family. This is because GA 1506 only contains Romans and the first few chapters of 1 Corinthians, and GA 2110 is the product of at least two exemplars and two scribes: one for Romans, 1–2 Corinthians, and part of Galatians; another for the rest of the corpus. In relation to the lemmata of GA 2110, the second hand and second exemplar make for a distinctly different kind of text—one that agrees far more

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54 Volk, Die Schriften des Johannes von Damaskos, 9.
often with the Majority Text. Therefore, GA 0150 is the only witness to the kind of text exemplified in the family from Galatians to Hebrews. However, one member does not a family make. Therefore, Family 0150 is a group of three manuscripts, of which at least two are extant for every passage from Romans, 1–2 Corinthians, and Galatians.

Quantitative analysis of the collation of these manuscripts follows in chapters 4–5, but something of the relationship between these three manuscripts can be briefly noted here. The textual character of the manuscripts is notable for its frequent deviation from the Majority Text. However, they do not frequently agree with witnesses such as Vaticanus or P46 either. When Vaticanus or Sinaiticus differs from the Majority Text, these three Damascene manuscripts will side with the famous majuscules slightly less than half of the time. There are also readings that would be singular if not for the other members. For GA 0150 and GA 2110, the agreement between their paratextual features is particularly striking. Both images below show the stichoi and hypothesis for Romans in GA 0150 (upper) and GA 2110 (lower).  

55 "The hypothesis (ὑπόθεσις) is a prologue or a brief introduction to a book," (Bruce M. Metzger, Manuscripts of the Greek Bible: An Introduction to Greek Palaeography [Oxford: Oxford University Press, 1981], 43).
These images show clearly how the similarities of GS 0150 and GA 2110 extend even to the layout and ornamental features. To highlight some of the similarities: (1) Both manuscripts have the same *stichoi* count of τν̅, or 350. (2) Both manuscripts have the same *hypothesis*. (3) The large alpha of the first line of the *hypothesis* is enlarged and ornamented in nearly the same way. (4) The ἐγραφη following the *stichoi* number is abbreviated using exactly the same majuscule ligatures. (5) Both manuscripts use a *staurogram* before υποθεσις.

There are also many similarities between the manuscripts’ paratextual features in the body of the lemmata. See, for example, the following images for a comparison of identical marginal notes.

![Figure 2. GA 2110 folio 290r (top); GA 0150 folio 7r (bottom)](image)

In this section, the same symbol is written above the same word to draw attention to a marginal note. The only difference between the notes is that in GA 0150 the note is written vertically.
In this example, while the marginal note is not fully preserved in GA 2110 (upper), it is enough to recognize that it is the same as found in the same pericope in GA 0150.

A feature shared by GA 0150, GA 2110, and GA 1506 is the clear divisions between the lemmata and scholia. Not only do all the lemmata and scholia sections have the same division boundaries, but they are numbered identically with the result that GA 0150, GA 2110, and GA 1506 have the same final number. This demonstrates that the method of transmission for these catenae was to copy from one assembled manuscript to another—as opposed to combining the lemmata from one manuscript with the scholia of another. It is likely the case that the form and selection preserved in Family 0150 reflects closely that which the Damascene produced and published. Further, in each manuscript the distinction between lemma and scholium is made plain. In the case of GA 0150 and GA 2110, the scholia are written in majuscule and the lemmata in minuscule. In GA 1506, distinct colors of inks are used: black for scholia; red for lemmata. All three members are also single column manuscripts, whereas GA 018 and GA 0151 have two columns.
2.4.2 The Significance of Family 0150

The significance of identifying family 0150 has an impact upon two related fields. Primarily, this study is a contribution for those involved in New Testament textual criticism. The text of family GA 0150 is not generally Byzantine and offers a window into a type of text used in Palestine during the time of the Umayyad caliphate. In a time when the Byzantine form was becoming the majority, here is an accurate transmission of a different tradition that stretched from the eighth to the seventeenth centuries. Therefore, analysis of the text of family 0150 provides another insight for understanding contamination and how texts during the ninth century were moving toward the Byzantine form, especially in the case of GA 2110, whose text represents a stark change in textual affiliation before and after Galatians 5. Family 0150 demonstrates a text that has the kinds of contaminations expected of a witness 'on the way' but not yet having arrived as GA 018 and GA 0151 did.

Second, while Volk, along with Lequien, were concerned primarily with presenting the scholia of John of Damascus in their editions, this textual family gives to Byzantine and Patristics scholars not only the most accurate form of the Damascene’s scholia in Rom 13–15, but also the New Testament of text Rom 13–1 Cor that were available to him. In a real sense, then, Family 0150 preserves a portion of John of Damascus’s Bible.

As the best witness to the text of Rom 13–1 Cor 4 of John of Damascus, family 0150 is also important for tracing the development of Chrysostom’s Pauline text. The source for most of the Damascene’s scholia is John Chrysostom, who is considered to have used a text that would become the Byzantine tradition of witnesses. There are many quotations of Paul preserved in the Damascene’s catenae. It may be asked whether it is possible that in these commentary chains there is an eighth-century witness to Chrysostom’s text of Paul? This is especially important considering the text of Chrysostom

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56 Louth, St John Damascene, 3.
in Romans may not be as stable as traditionally imagined and assumed. As an editor who repurposed Chrysostom’s text, the study of the Damascene’s use of Chrysostom ought to be consulted toward this endeavor.

2.5 History of Research on GA 0150, GA 2110, and GA 1506

Little has been written and or published concerning these witnesses. The most well-known and relevant publication was an edition of John of Damascus’s catenae on the Pauline letters edited by P. Michaelis Lequien in 1712. Lequien states only one witness that serves as the basis of his edition: “2331,” which is an old designation for that which the National Library in Paris now calls Grec 702 (GA 2110). While Lequien made no use of any other witnesses to John of Damascus’s catena, he did note correlations between the Damascene material and that of John Chrysostom. Lequien’s edition is a transcription of the biblical text and commentary in one column and a Latin translation in a second adjacent column. As a transcription of GA 2110, it is potentially helpful, but it suffers from having standardized the text with the result that nomina sacra are unabbreviated and spelling variants are not presented. Additionally, Volk has provided several examples that demonstrate the unreliability of Lequien’s edition, showing that there are numerous occasions in which Lequien has presented readings which do not correspond to GA 2110 nor any other available witness to John of Damascus’s catena. Until recently, Lequien’s edition of John of Damascus’s commentary was the only one printed.

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60 Lequien, Ιωαννου του Δαμασκηνου, ix; The old shelfmark, “Reg. 2331” is stated visible on a flyleaf and “2331” was written on the first page of text (“Gallica: Grec 702,” *Bibliotheque Nationale de France*, 2015, https://gallica.bnf.fr/ark:/12448/btv1b10721497x).

The most significant piece of relevant research, however, is Volk's critical edition. Whereas Lequien used only GA 2110, the witnesses which serve as the basis for Volk's edition are GA 018, GA 0150, GA 2110, and GA 1506. GA 2110 is of chief importance for Volk because it is the only manuscript that preserves nearly the entirety of John of Damascus's catena on the Paulines; GA 018 is the least valuable because it had a "careless scribe." Though Volk does not discuss GA 018 in detail, it is clearly an outlier of the four manuscripts regarding its biblical text—more likely it represents a conscious effort by a community to bring the lemmata of John of Damascus's catena into agreement with a preferred text. The Greek text of both the commentary and biblical text sections is printed and clearly differentiated; the biblical text is in bold and the commentary is in italics. The apparatus has up to three tiers: In the first tier, Volk supplies citations of sources of John of Damascus's commentary from John Chrysostom in both the editions of Field and Migne. The second tier lists which witnesses are extant for the given material; the third and bottom tier notes variants between the four manuscripts used. Volk's collation is more careful than Lequien, though it is not a comprehensive collation. It is detailed enough to note movable nus, but it does not seem to record other spelling variations such as itacisms or interchanges between ò and ω, nor does it record nomina sacra. The attention paid to moveable nu is confusing considering that other significant variant readings are not mentioned at all. Perhaps the most curious feature of Volk's edition is that occasionally all textual witnesses disagree with the reading chosen for the text. Additionally, it is not a comprehensive transcription of marginal notes, nor does it record line breaks or hand

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62 "durch Nachlässigkeiten des Schreibers nicht der zuverlässigste Zeuge," (Volk, Die Schriften des Johannes von Damaskos, 1.)

63 See section 1.5 for more.

64 Field, Ioannis Chrysostomi Interpretatio Omnium Epistularum Paulinarum; PG 60–63

65 See section 6.2.1 for a collation of the scholia that includes Volk. Some examples cited by Volk himself: at scholium Rom. 13:5|Θ, Volk reads θι but all three of his witnesses (GA 0150, GA 1506, and GA 2110) read θ (p. 123); at scholium Rom. 13:13|ζ, Volk lacks μ, but all three witness and GA 0151 include it (p. 126); At scholium 15:25|μ, Volk adds ι but all three witnesses lack it (p. 138). Other minor variation such as ω/υ vowel changes does not receive comment, but standardization of spellings is normal practice.
changes. Nonetheless, Volk’s edition is of supreme importance both for studying these manuscripts and for noting John of Damascus’s use of John Chrysostom. However, for the purposes of this thesis, a more complete transcription is needed, one that records structure such as line breaks and punctuation as well as marginal notes—especially when manuscripts share the same marginalia.

Volk also provides some analysis of both the transmission of the scholia and biblical text as well as the Damascene’s use of Chrysostom. One may ask whether there was a time when John of Damascus’s scholia originated separately from any biblical text and that the two were combined later. While this possibility cannot be entirely ruled out, Volk rightly points out that there is currently no manuscript evidence that can suggest such a thing; all manuscripts have intertwined the commentary and biblical text in an interlinear fashion, which means that all extant witnesses to the commentary and text must have been copied as a whole document and not a synthesis of commentary and biblical text.66

Concerning John of Damascus’s use of John Chrysostom, Volk says that it can be viewed as a purposeful and careful summary, omitting moral excursions and further examples from scripture and human life.67 It has been known since Lequien’s editio princeps of GA 2110 that John of Damascus acted more as an editor of Chrysostom’s commentary than a commentator in his own right. However, Volk helpfully notes that in the letters of Ephesians, Philippians, and Colossians, John of Damascus does not make use of Chrysostom’s relevant literature.68 Instead, the scholia connected to these books in manuscripts GA 0150, GA 2110, and GA 1506 appear to be material that originates with John of Damascus himself.

It has been taken for granted up to this point these manuscripts come ultimately from John of Damascus. Only J. M. Hoeck has briefly suggested that the catena

66 Volk, Die Schriften des Johannes von Damaskos, 2.
67 Volk, Die Schriften des Johannes von Damaskos, 3.
68 Volk, Die Schriften des Johannes von Damaskos, 3.
tradition associated with John of Damascus does not also originate with him. Hoeck doubts the scholia’s authenticity because of the dissimilarity of the biblical text. However, as Volk points out, Hoeck’s skepticism is not based on a study of the manuscripts, but upon Lequien’s edition which indeed has a “singular text” as it does not always accurately preserve the reading of GA 2110. Further, why should one expect John of Damascus used a text that would be more recognizable? Indeed, a major conclusion of chapter four is that Family 0150 may be exactly what we should expect of a text from the seventh or eighth centuries.

The final substantive piece of research conducted on any of these manuscripts is the unpublished master’s thesis by Matthew J. Hama, “A Critical Edition of Codex 0150.” Hama is generally excellent and helpful. There are discussions of the manuscript, the text, and the scribe that span about 40 pages. The bulk of the thesis is a transcription of the biblical text of GA 0150 that is compared against both the NA28 and the Robinson-Pierpont edition of the Majority Text. The transcription of the biblical text is comprehensive; it attempts to record most details including spelling, *nomena sacra*, punctuation, and marginalia, but not line breaks. Concerning the scholia, there is very little analysis and very few transcribed sections. The appendices of the thesis are impressively robust. All variants recorded as footnotes in the transcription in the main body of the thesis are presented again in table form: two exhaustive lists; one collated against the Robinson-Pierpont text and the other against the NA28. There are also exhaustive lists of *nomena sacra*, incipits, symbols, and uncertain words. Perhaps the only

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70 Die von Hoeck vorgebrachte Skepsis beruht noch nicht auf einem Studium der Handschriften, sondern noch allein auf der Ausgabe Lequens; und diese bietet an vielen Stellen einen in der Tat singulären Text, (Volk, *Die Schriften Des Johannes von Damaskos*, 2).

71 Matthew J. Hama, “A Critical Edition of Codex 0150 Including Its Textual and Reception History” (Master’s Thesis, Trinity Western University, 2017), https://twu.arcabc.ca/islandora/object/twu%3A353(solrNav%5Bid%5D=8796a7d25e50b6fd1b25&sorlNav%5Bpage%5D=0%solrNav%5Boffset%5D=0).

detail not recorded are the locations of line breaks. Knowledge of line breaks is important for evaluating whether GA 0150 and GA 2110 may be exemplar and copy or sibling manuscripts.

It is curious that GA 0150 and GA 2110 each have editions of their text, yet these manuscripts have received very little—if any—attention in textual criticism. GA 1506, on the other hand, has no edition or any substantive published studies, yet it is a consistently cited witness in the NA28. As a cited witness, it has mentions in commentaries and other studies that interact with the textual data for a specific reading; in these it is little more than a reading and a date.

Since GA 0150 and GA 2110 have become recognized as catena manuscripts by those working on the COMPAUL project associated with the Institute for Textual Scholarship and Electronic Editing (ITSEE) at the University of Birmingham, they are discussed briefly in a variety of contexts in a collection of papers that served as one of the results of the COMPAUL project, Commentary, Catena and Biblical Tradition edited by Hugh Houghton. Indeed, my first interest was in GA 0150, but this resource first alerted me to the possible link between GA 0150 and GA 2110. It is the most current statement on catena manuscripts, yet the ways in which GA 0150 and GA 2110 are characterized is inconsistent from author to author, showing that research on New Testament catenae is in its initial stages and some topics lack consensus.

Bruce Morrill and John Gram examine how the biblical text of Romans 12 is divided into sections for comment across several dozen manuscripts. In examining their

73 NA28, 64.
observations of GA 2110, I noted several errors. (1) GA 2110 is both grouped with Chrysostom commentary manuscripts and the authors state that GA 2110 and GA 1506 contain the commentary of Chrysostom.76 Since John of Damascus used Chrysostom as his source for his Romans commentary, it would be an understandable mistake if the full truth of GA 2110 had not been known since Lequien’s edition of 1712 which clearly identifies John of Damascus as the compiler and editor of the commentary on the Pauline letters contained in the manuscript.77 Additionally, it has already been demonstrated that Volk’s critical edition of 2013 identified GA 018, GA 0150, GA 2110, and GA 1506 as being witnesses to the same tradition. Finally, the introductory title to both GA 2110 and GA 1506 explicitly identify John of Damascus as the editor. (2) It is claimed that neither GA 0151, GA 2110, nor GA 1506 have divisions that are numbered.78 In reality, every section of Romans 12 in GA 0151, GA 2110, and GA 1506 is numbered legibly and identically.79

Theodora Panella interacts with manuscripts GA 0150 and GA 2110 more substantively in her chapter in the same book. Fortunately, Panella is aware of Volk, but unfortunately, she was not able to consult it for her paper.80 Therefore, Panella demonstrates independently that there is a significant affinity between GA 0150 and GA 2110, “both have the same ruling pattern, the same number of lines, and the same numbering system; the lemmata are written in majuscule and the comment in minuscule. Although further research is needed, the hands appear to be identical and it seems highly likely that these are exemplar and copy, probably by the same scribe.”81 The relationship of GA 0150 and GA 2110 will be discussed in more detail in chapter six. For now, it will suffice to say that GA 0150 and GA 2110 were certainly not copied by the same scribe, and whether

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77 Lequien, Ιωαννου Του Δαμασκηνου; Lequien, Ιωαννου Του Δαμασκηνου, vol. 2.
79 The section numbers for Rom 12 in both 2110 and 1506 are as follows: ΟΒ, ΟΓ, ΟΔ, ΟΕ, ΟΣ, ΟΖ, ΟΗ, ΟΘ, Π, ΠΑ, ΠΒ, ΠΓ, ΠΔ, ΠΕ, ΠϚ, ΠΖ, ΠΗ, ΠΘ, Ϙ; converted to Arabic numbers the sequence is 72–90. The same numerals are found in 0151, with the addition of a hundreds’ place numeral so that the numbers are 272–290.
81 Panella, “Resurrection Appearances,” 121.
they are sibling manuscripts or very close cousins is not clear. What they are not, however, is exemplar and copy.

2.6 Chapter Conclusion

This chapter set the stage for the rest of Part One which focuses on text and manuscript research. The text under examination is that of Paul as known to John of Damascus and the accompanying commentary extracts. The Damascene sourced the scholia heavily from John Chrysostom, but John of Damascus left his mark on the scholia through edits and selection. In this chapter, I also introduced all known manuscript witnesses to the edition by John of Damascus. From among the whole group, three manuscript witnesses stand out both for their affinity to each other and for the non-Byzantine character of their text. It is these three—GA 0150, GA 2110, and GA 1506—that best represent the form of the text most likely to be closer to the archetypal Damascene edition. After all, is it more likely that a uniformly Byzantine text as found in GA 0151 was edited heavy-handedly to become idiosyncratic and full of rare readings, or is it more likely that a text with a demonstrably earlier text and one whose witnesses share many special agreements was edited towards the Byzantine form and not away from it? I argue here and in later chapters that the latter is true. And this is what makes the family text important: it is a text that can be connected to a person, a location, and a time. Finally, in this chapter we addressed previous research on these manuscripts, such as it is. As with any text critical study, meticulous methods are required. Therefore, in the next chapter I will outline and explain the method employed for evaluating whether GA 0150, GA 2110, and GA 1506 are a “family.”
3 Method

Since the primary objective of part one of this thesis is to demonstrate that GA 0150, GA 2110, and GA 1506 represent a textual family in at least the material over which they overlap, it is necessary to discuss: (1) what is meant by “family”, and (2) how to determine textual affinity between texts.⁸

3.1 What is a Textual Family?

Using the term “family” is not a requirement, indeed, I could refer to a “group of closely related witnesses” or some other term or phrase that is equally accurate. However, in the field of New Testament textual criticism, “family” has a long history of use, and it is its history that I wish to evoke. Text critics have long recognized that a set of significant readings might mark a group, but any group will have nested levels of subgroups that share other connective readings. I will begin with a brief survey of the term followed by a statement about how the term is used in relation to this thesis.

3.1.1 A Brief History of “Family” as a Term of Textual Relationship

Surveying the literature reveals that within the context of New Testament textual criticism, “family” has two meanings: a technical term for groups of especially related texts, and as a general way of expressing relation without any commitment to making a claim about degree and type. It is typically easy to identify which meaning is being employed in context. Whenever the term is defined, however, there appears to be a consensus. That is, when someone goes as far as to explain what they mean by family, they have a limited sense in mind.

Perhaps one of the earliest text critics to use the language of “family” when referring to groups of texts was Johann Albrecht Bengel, who spoke of “familias” as one of

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⁸Volk, *Die Schriften des Johannes von Damaskos*, vol. 7.
three levels of relation subordinate to what he called “syzygias.” For Bengel, syzygia was the large category under which texts could be further delineated using the terms familiae, tribus, and nations. Nearly two hundred years after Bengel, Ernest C. Colwell sought to clearly define three “magnitudes” of groups: (1) the largest group of related manuscripts he preferred to call “text-type” instead of the more common and ambiguous “text” which was apparently more common at the time. (2) “For the medium-sized group we propose the use of the term ‘clan.’” (3) Colwell’s definition of the most “homogenous” group, “families,” is perhaps the most explicit and detailed definition offered. To call a group of manuscripts a “family,” Colwell advised,

A family is a group of manuscripts so closely related that the text of the archetype can be reconstructed by the use of the genealogical method applied to manuscripts rather than to readings. Members of a family seldom contain mixed texts. Members of a family are not widely separated from each other by missing generations.

Regarding such groups as the “Neutral” or “Syrian” texts, Colwell says, “these texts are in no sense families, and the title should never be applied to them.” Colwell even goes on to say that according to his criteria, Family 1 and not Family 13 is a true family. Barbara and Kurt Aland also describe a textual family as a group with the highest level of relationship, “In the course of time the private copying of texts produced a teeming variety of small textual families (mother manuscripts and their children).” Unlike Colwell, however, the Alands

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84 Bengel, *Apparatus Criticus Ad Novum Testamentum Criseos Sacrae Compendium, Limam*, § XXVI.
are happy to use the term when describing the “well-known textual families” of Family 1 and Family 13.\textsuperscript{91}

Alternatively, when text critics are looking for a term to use express relation in the most general sense, “family” is a common choice. Metzger and Ehrman, for example, use “family” inconsistently and usually in opposition to Bengel, Colwell, and the Alands by speaking of the “Byzantine family of witnesses” or by describing the use of Teststellen for relegating manuscripts to “textual families (Western and Byzantine).”\textsuperscript{92} The use of “families” in this manner is even more puzzling when, after describing Bengel’s different levels of relation, they write, “Scholz came to adopt essentially Bengel’s division into two main families, which he called the Alexandrian and the Constantinopolitan.”\textsuperscript{93} And just as curious, “For the related question of how to locate a new witness within one of the previously established textual families, Colwell proposed a singular procedure.”\textsuperscript{94} Yet Colwell does not refer to “established textual families” but to “the largest groups: the ‘texts’ or Text-types.”\textsuperscript{95} The inconsistency is probably due to the ongoing dismantling of the very idea of text-types and a desire to use a more flexible term which does not commit the author to any level of coherence among a group of related manuscripts.\textsuperscript{96}

The use of “family” to both describe a group for which any additional division is not helpful and as a term for the largest possible group of witnesses is made possible by the flexibility of genealogical terms. For some, “family” may bring to mind the image of a mother and her children, but for others it may conjure the image of a large group of people who shared a distant ancestor. This hints at the reason that the term “family” has become

\textsuperscript{92} Metzger and Ehrman, \textit{Text of the New Testament}, 237.
\textsuperscript{93} Metzger and Ehrman, \textit{Text of the New Testament}, 169.
\textsuperscript{94} Metzger and Ehrman, \textit{Text of the New Testament}, 234.
such a useful term. Manuscript witnesses, like humans, can be related and yet show profound differences from each other. Yet we intuitively recognize the difference between siblings and distant cousins. So, are GA 0150, GA 2110, and GA 1506 siblings or cousins?

3.1.2 The Use of “Family” in this Thesis

It is the traditional sense of “family” as articulated by Bengel, Colwell, and the Alands that concerns this thesis and the claim that GA 0150, GA 2110, and GA 1506 comprise such a family. Other examples of families with a similar relationship include the Purple Codices, about which Elijah Hixson argues that the group shared an exemplar, and the well-known Family 1 and Family 13. In this study, I am claiming that these three witnesses form a family in a way that is very similar to the other established examples of families. Didier Lafleure has helpfully proposed criteria for acceptance into family 13 by noting key features that are shared by its members. The first two criteria have to do with the relocations of John 7:52–8:11 and Luke 22:43–44. The third criteria is the omission of Matt 16:2–3. The fourth criteria is that most of Family 13 manuscripts “have liturgical texts after the four Gospels.” Finally, most of the Family 13 minuscules included “added material” such as “The Lives of the Apostles” and “The Nicene rule for Easter.”

This thesis will demonstrate that proposed Family 0150 has the same kinds of relationship as the other families. (1) All members of Family 0150 share a high level of textual coherence with regard to their lemmata, including many exclusive family readings. (2) All members of Family 0150 share some paratextual features while GA 0150 and GA 2110 share all paratextual features. (3) In every member of Family 0150, the biblical text is

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accompanied by the commentary edition by John of Damascus. (4) The discrete units of lemmata with accompanying scholia are numbered, and the numbers match all members of Family 0150. In GA 0150 and GA 2110, there is additional text such as the hypothesis. (5) In every member of Family 0150, the text is written in a single column and the lemmata and scholia are clearly differentiated. Therefore, to the same degree that Family 13 is a “family,” Family 0150 is proposed. Additionally, there is little doubt about the reading in the archetype of the family based on a genealogical study, which satisfies Colwell’s test.

The definition of “family” for this thesis, then, is a group of textual witnesses in which: (1) each witness is more closely related to every other family member than any non-family witnesses when counting reading agreements and disagreements; (2) each member shares features beyond the biblical text; (3) the archetypal text or origin point can be reconstructed by comparing only the family witnesses.

3.2 Method for Determining Textual Relationships

Having defined the use of the term “family” as it concerns closely related groups of witnesses, it is now the goal to explain the method by which any claim of textual affinity may be made. The method will be used for proving that GA 0150, GA 2110, and GA 1506 constitute a textual family, and it will be used to describe the place of Family 0150 in the Greek textual transmission of Paul’s letters. Since this is a comprehensive study of the overlapping material, methods which attempt to characterize manuscripts by sampling may be discarded. These include the Claremont Profile method and the Teststellen method used in the Text und Textwert series of New Testament Greek manuscript collations.

3.2.1 Selected History of the Quantitative Analysis Method for Demonstrating Relationships

As demonstrated in the discussion above (3.1), text critics have sought to group manuscripts according to their textual agreement for over 300 years. The methods

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employed to group witnesses by their textual similarity have varied and developed over
time. Since the second half of the twentieth century saw a paradigmatic leap forward
concerning methods, this thesis is mainly concerned with developments from that time
until now.

E. C. Colwell

Prior to Colwell’s groundbreaking studies, “There was no agreed standard as to
what constituted sufficient agreement to demonstrate group relationships among
manuscripts,” but Colwell “provided the methodological breakthrough upon which
virtually all subsequent study of New Testament manuscript relationships has built.”

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Eldon Epp rightly referred to the predominant method as one that “contained a serious
flaw,” namely, of “determining kinship of MSS by comparing their shared agreement in
variants differing from the textus receptus—an external standard—without regard for their
shared variants that agreed with the textus receptus.”

104 Likewise, Bart Ehrman has said,
“Only within the past four decades have scholars become united in their disavowal of the
age-old method of determining textual affinities by comparing agreement in variation
from the Textus Receptus.”

105 In the words of Colwell and his co-author, Ernest Tune, “The
use of these data has usually taken the form of ‘the total number of agreements in
variations from Stephanus,’ or ‘the percentage of agreements in the total variations from
Stephanus.’”

106 Essentially, the problem with the traditional method was that (1) agreement

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103 L. W. Hurtado, “P45 and the Textual History of the Gospel of Mark,” in The Earliest Gospels: The


was published earlier as; Bart D. Ehrman, “Methodological Developments in the Analysis and Classification of New

106 E. C. Colwell and Ernest W. Tune, “Method in Establishing Quantitative Relationships between Text-
(Leiden: Brill, 1969), 56; Published earlier as E. C. Colwell and Ernest W. Tune, “The Quantitative Relationships
Between MS Text-Types,” in Biblical and Patristic Studies in Memory of Robert Pierce Casey, ed. J. Neville Birdsall and
Robert W. Thompson (Freiburg: Herder, 1963), 25–32.
with the base text was not considered significant and (2) the methods guiding the selection of variants were not consistent across studies.

Colwell and Tune lay out the solution to these problems in the form of a brief statement of their proposed quantitative method. They summarize their proposal in three points: (1) The method is more comprehensive than the usual methods (at that time) because the “total amount of variation is taken into account—not just the variants from the text used as a ‘norm’.” (2) “...the gross amount of agreement and difference in the relationships of manuscripts must be large enough to be significant.” (3) Finally, “all variants must be classified as either genetically significant or not.”

Colwell and Tune call for a more comprehensive method on the one hand, but on the other they proceed to propose various limitations. While they call for the “total amount of variation” to be “taken into account,” this applies only to specific selections of text rather than, for example, entire books. Further, these sections should contain “Double, Triple, or Quadruple Readings.” Colwell and Tune define these multiple readings as places of variation in which each of the different readings sides with established “text-types.” Most of Colwell and Tune’s chapter on quantitative relationships is dedicated to defending this point: that the sample text should contain multiple readings. Without stating it outright, this is a significant limitation that the authors have built into the method since it precludes complete collations across large sections up to an entire book. Even so, Colwell and Tune recommend that the text section be long enough to include hundreds of variation units, “the more the better.”

They offer further limits to the method by prescribing different categories of variants which should be excluded from calculation. Colwell and Tune recommend discarding variants which are common “since such agreement was probable as
coincidence, either in common scribal error, in spelling habits, or the like." A second limitation to the method occurs between collation and tabulation. Wherever a variation unit is identified based on a unique reading in one, two, or three manuscripts, this variant is excluded. Colwell and Tune defend this suggestion in three points: (1) Unique variants “tell us nothing about manuscript relationship since they leave a manuscript unrelated to others”; (2) “They inflate the quantitative relationship of the other manuscripts”; and (3) unique readings “have a high probability of being no more than scribal error.” For the purpose of tabulation, “All manuscripts with singular readings are treated as if they had lacunae at these places.” Then every agreement that one manuscript has with another is counted and totaled. The result, according to Colwell, is a “reasonably accurate picture of the quantitative difference between individual manuscripts.”

Though most recent studies disagree with much of Colwell’s method, his essays demonstrated the need for text critics to standardize their methods of demonstrating textual affinity between manuscripts and of identifying the boundaries of “text-types.” Perhaps the most important impact of Colwell’s scholarship was to finally bring an end to the use of ‘variations from the TR’ as a way of describing quantitative relationships between manuscripts.

_Gordon Fee_

While Colwell and Tune’s method is foundational to what followed, it underwent refinement at the hands of many scholars. Most notably and importantly for the purposes of this thesis is the further development by Gordon Fee and Larry Hurtado, the contribution of Gerd Mink, and the criticism of Klaus Wachtel. Fee credits Calvin Porter as one of the first scholars to compare each manuscript with every other instead of

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counting variations from an external source. Ultimately, Fee judged Porter’s method as a good preliminary start, but inadequate to the task of accurately describing the quantitative relationship between texts. Fee adopts Colwell and Tune’s method since it is more robust and developed than Porter’s, but with careful differences.

First, whereas Colwell and Tune believed that one ought to discriminate for readings that are genealogically significant prior to counting, Fee “suggests that ‘weighing’ may be done after counting. Such a process of weighing will look at the number and kinds of significant agreements which are involved in the count.” Fee’s innovation, then, is to include all variation units including singular readings except spelling variants in the quantitative analysis and then make observations concerning so-called “significant” readings after the initial analysis. For the purpose of this thesis, Fee’s observation is especially helpful because this thesis is not concerned with locating the proposed family of manuscripts within an established “text-type,” but rather to prove that all three are sufficiently and genetically related so as to be properly described as a textual family. Therefore, even the minor readings which Colwell and Tune would discard prior to analysis may be genealogically significant when used to establish the relationship of three closely related manuscripts. To choose between analyzing all variation units and only significant variations units is a false dichotomy; one may establish broad genealogical relationships using the former but use the latter for describing more specifically the nature of the relationships.

Second, Fee chooses a different selection of manuscripts to compare because his goal was to show the relationship specifically of codex Sinaiticus to other early manuscripts rather than the relationship of “text-types.” Therefore, rather than a broad selection of manuscripts chosen because they represent “text-types,” Fee has selected

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manuscripts which are comparably early to Sinaiticus with the exception of his inclusion of the *Textus Receptus* (TR) as a representative of the majority of later manuscripts. One aspect of Fee’s use of the TR seems questionable, “any singular agreement between the TR and only one of the others was not included in the number of variation-units counted.” On the one hand, Fee criticizes Colwell and Tune for disregarding singular readings, but on the other hand Fee disregards readings that are both common in the later manuscripts and which occur—however rarely—in the early manuscripts. Fee argues that by not including agreements between the TR and one other early manuscript, the total percentage number indicating agreement between manuscripts will be more meaningful. He notes that even the inclusion of a few later manuscripts can increase the appearance of relationships.

For example, Fee found that codices Vaticanus and Bezae agreed in 16.4 percent of the counted variation units using a narrow selection of manuscripts. But when five later majuscules were added, the percentage increased to 33.3 percent. The addition of manuscripts to the total tabulation does not change the actual relationship between Vaticanus and Bezae, but it does increase the number of places in the text that are checked and counted. The increase in percentage did not, however, change Fee’s finding that of the collated manuscripts, Vaticanus and Bezae had the lowest agreement.

*Larry Hurtado*

Like Fee, Hurtado utilized Colwell and Tune’s quantitative method of analyzing manuscript relationships “with certain refinements,” but for the purpose of locating the text of GA 032 and GA P45 within the established “text-types.” As with all methods in the Colwell-Tune lineage, Hurtado compared each selected manuscript with every other instead of comparing each to an external standard. Although Hurtado has selected a group of representative witnesses, he acknowledges that “it would be ideal to collate a MS against

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all other textual witnesses,” but this was impossible.” As with Colwell and Fee, Hurtado said that “the quantitative relationship of any two MSS can be expressed as the percentage of the total number of variation-units at which the two MSS have the same reading.”

One of Hurtado’s important contributions was to note that quantitative analysis is best performed on an entire book of the New Testament but “the counting of agreements should be done chapter by chapter.” That a whole book should be analyzed makes good sense on the grounds that texts were transmitted in the form of whole books, corpora, and complete Bibles. Hurtado states that counting readings in sections should enable the detection of “any shift in the textual relationship of witnesses from one part of a book to another,” or what has come to be known as block mixture.

Hurtado follows Colwell and Tune on singular readings by rejecting them from the count for the same reasons. The chief concern seems to be that any singular reading will increase the percentage of agreement between the other manuscripts because they do not, by definition, also share the singular reading. Hurtado also seems to follow Colwell and Tune by accepting the premise that the percentage number of agreements can have an objective interpretation. In this case, Hurtado claims that his study proves “basically the same” as Colwell and Tune suggested: any two witnesses that agree in 70 percent of the variation units and are separated from other witnesses by at least 10 percentage points can said to belong to the same “text-type.” This is as dubious as Fee’s choice to reject agreements between the TR and one another manuscript before counting them. It seems more accurate to treat all percentage figures as relative to each other and useful only in an extremely limited context. Otherwise, one may be tempted to pre-judge variants so that a desirable range of percentages will result from the tabulation. All the choices going into the process of selecting variants are subjective, therefore, figures will also be subjective and

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121 Hurtado, *Text-Critical Methodology and the Pre-Caesarean Text*, 10 note 49.
relative. Hurtado seems to acknowledge this later when he says that subjectivity is only removed when comparing any two witnesses “used in the study” that are compared without an external source.125 It would be helpful if Hurtado had stated more explicitly the limitations of his method.

By choosing to weigh variants after counting them, Hurtado follows Fee in breaking from Colwell and Tune. However, as noted above, some variants are weighed prior to counting, namely, spelling variants and singular readings. Hurtado’s purpose for counting variants first is “to avoid as much as possible any subjectivity in determining the quantitative relationship of MSS.”126 Once the quantitative relationship has been determined, the goal is to examine individual variants and determine their importance “for demonstrating a textual relationship.”127

**Gerd Mink, and Pre-Genealogical Coherence**

The Coherence-Based Genealogical Method (CBGM) is a multifaceted tool developed by Gerd Mink for the purpose of reconstructing the initial text of a contaminated textual tradition.128 While the CBGM has several steps in its process, only the first step need be discussed in relation to the quantitative relationship of texts: pre-genealogical coherence.129 Pre-genealogical coherence is primarily a tool for analyzing the percentage agreement between an exceptionally large number of manuscripts in order to determine whether a reading is coherent, i.e., it is consistently found in witnesses which

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125 Hurtado, *Text-Critical Methodology and the Pre-Caesarean Text*, 12.

are closely related and does not demonstrate evidence of cycling among readings within a tradition.

As with the above methods, each manuscript is compared against all others and not against a single external standard. And like those methods that share a lineage with Colwell and Tune, Mink’s method for quantifying relationships counts only places of variation, i.e. agreement between all manuscripts is not counted. Tommy Wasserman and Peter Gurry are correct to emphasize this point, because it means that the percentages denoting the level of agreement between texts will always be relative. These percentage numbers have meaning only in relation to each other and when the upper and lower limits are clearly defined.

Perhaps Mink’s greatest innovation is the nature of readings that are included in pre-genealogical coherence. The only readings that Mink does not count are the common spelling differences found among the manuscripts. Mink includes all other readings including singular readings with one exception: nonsense readings are corrected by the editors if it is clear to them what the scribe meant to write. This makes the qualitative analysis of Mink’s pre-genealogical coherence less subjective than previous methods because far less “weighing” occurs prior to counting. This is underscored by the Mink’s decision to count all variation units equally no matter how long, short, or how genealogically significant they appear.

What makes Mink’s further development of quantitative analysis helpful for the purpose of this thesis is that, unlike Colwell and Hurtado, Mink is not concerned with identifying the “text-type” to which a manuscript belongs, but rather relating manuscripts

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130 By “all,” I mean all Greek witnesses that have been identified to have relatively low agreement with the Majority text in addition to a handful of Majority text witnesses selected to represent the Majority text.

131 Wasserman and Gurry, Introduction to the CBGM, 40.


133 Wasserman and Gurry, Introduction to the CBGM, 39. Note that this is only strictly true of pre-genealogical coherence. When setting relationships in the local stemma, for example, an editor may mark some readings as more connective than others. This is critical to identifying the most likely potential ancestors of a witness.
to each other. However, pre-genealogical coherence and the rest of the CBGM was designed to handle massive amounts of data, but this thesis is concerned primarily with the relationship between a small group of manuscripts. Still, Mink’s principles are sound, and his method is the best foundation for constructing a method for accomplishing the goal of this thesis.

**Klaus Wachtel**

Klaus Wachtel has provided a helpful assessment and critique of Colwell’s method for grouping manuscripts in the published form of a paper he delivered at the Lille Colloquium in 2000. His criticisms were formative for the development of the method used in this thesis, so a summary of his assessment is warranted. Since Colwell’s chief goal was the identification of “text-types” and locating manuscripts within a “text-type,” Wachtel’s interaction with Colwell is centered within this context, i.e., the grouping of large numbers of manuscripts in an extensive tradition. Still, Wachtel’s assessment is useful for informing the method of this thesis which seeks to demonstrate the relationship of only a few manuscripts.

When assessing Colwell’s quantitative analysis method Wachtel finds three of Colwell’s points “promising”: (1) “A broad cross-section of manuscripts must be used”; (2) “The selection of text used should be large enough to give several hundred places of variation—the more the better”; (3) Manuscripts should be compared to each other as opposed to comparing them against an external standard. The component shared by these three points is Colwell’s call for as much data as possible: (1) include representatives from all varieties of text, (2) as large a text as possible, and (3) all manuscripts are

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compared with all other manuscripts. At this point Wachtel and Colwell agree that a method for quantitative analysis is better when more data is gathered and included.

As one may have predicted, the points by which Wachtel is less convinced concern limitations on the readings to be included and counted in the analysis. Colwell does not count: (1) “readings which occur commonly in manuscripts as the result of scribal error or habit, even if supported by more than one manuscript”; (2) “places where the vast majority of manuscripts agree and each of the few disagreeing manuscripts has a unique reading”; (3) “those places where all manuscripts divide into groups of manuscripts which support two or more variant readings, which at least two supporting each variant.”

Wachtel notes that after these readings have been culled, Colwell was left with “one half of the total variation units in a sample of 13 manuscripts.” The result of such limitations are, as Wachtel rightly accuses, a method which “reduces full collations to Teststellen collations.”

Yet there is one more important decision that Colwell and Tune have made to further eliminate readings, “All manuscripts with singular readings are treated as if they had lacunae at these places. ...if the first-hand is a singular reading, the corrected reading is recorded as if it were the first-hand reading.” Wachtel’s critique of this is direct, “This cannot be methodologically sound and may even be regarded as a violation of logic.”

Wachtel recognized that just because a reading is found in only one manuscript does not mean that the reading was not more common—its existence as a singular reading might be an accident of history, “The one witness we have may be the last document left from a once strong strand of transmission.” Wachtel suggests that Colwell may have prejudged
which readings would count in order to arrive at “his presupposed framework of text-types.”

3.2.2 Quantitative Analysis: Modified for Identifying Manuscript Families

The differences between the present study and those of the surveyed practitioners of quantitative analysis are significant enough that a further revision of the method is required to fit the need. Colwell’s goal was locating manuscripts within previously identified “text-types,” therefore, he was far more discriminatory against readings which did not have strong and obvious genealogical implications. Fee’s goals were closer to mine, since he sought to relate manuscripts of a similar time period, but the diversity and distance of the manuscripts involved prodded him to also discriminate against readings which he thought would be insignificant in such a context. Hurtado’s focus was GA P45 and GA 032 and whether they belonged to the same “text-type” since no one seems to have suggested that they have a family-level resemblance. Finally, the place of pre-genealogical coherence in the CBGM is a promising method that might indicate the existence of especially related groups of manuscripts, but it is also a tool developed for the purpose of relating any and every manuscript. While Mink’s pre-genealogical coherence is, in practice, the most useful for demonstrating family relationships, it is also too restrictive concerning the variants it excludes from the count.

As many Variation Units as Possible

The development of quantitative analysis from Colwell to Mink involves the growing belief that more data is better than less data. This is even more true in the case of applying quantitative measurements to proposed manuscript families. We expect to find multi-word agreements and other types of especially connective variation unit agreements in related manuscripts, but we ought also to expect agreement in variants involving even one letter or simple transposition. If a manuscript family shares an exemplar, time period,

\[ \text{\textsuperscript{142} Wachtel, “Colwell Revisited,” 42.} \]
geographical location, and context, then one might expect to find agreement concerning even the so-called insignificant variants—insignificant insofar as they are excluded as such by the above surveyed methods. The only way to know for sure is to look and to count. For the collations of GA Ω150, GA 2110, and GA 1506, the operating principle is that all variants are significant and in need of examination. Even nonsense readings are important because a scribal error in a prior manuscript may be evidence for an anomaly in a manuscript that may be its Abschrift. These small changes are admittedly less valuable when comparing manuscripts that are separated by many generations and unknown descent. In the case of manuscripts suspected to have a similar date and origin, however, even small differences may show genealogical and directional links.

Singular and Rare Readings

The discrimination against singular readings has not been as thorough as it has been against spelling variants. Colwell and Hurtado eliminated singular readings from their analysis because of the perceived negative impact upon the overall quantitative relationships of the manuscripts. A singular reading will, by definition, lower the quantitative measure of its relationship with all other manuscripts. This presumes too much and does not justify their exclusion. On the contrary, all singular readings are only potentially singular. That is, they are singular regarding our limited knowledge of the manuscripts—knowledge that is far from comprehensive. Today's singular reading may well be tomorrow's dual reading. Whether by means of collation of known manuscripts, or by discovery of new manuscripts, singular readings may easily become simply rare readings.

Consider the impact of excluding singular readings upon a manuscript which contains many singular and rare readings. The degree to which this manuscript is an anomalous outlier is hidden from view. An anomalous manuscript is less related to all other witnesses, and this should be reflected in percentage agreements. Further, the only reason that one should be concerned about the reading of one witness raising the
percentage agreements of the others is the misguided belief that percentage numbers are objectively meaningful. On the contrary, quantitative analysis is always relative, and the numbers are useful and meaningful, but only as they are compared within that study and tabulation. Once one is aware of the upper and lower bounds, then one can make use of percentage agreements. Therefore, singular readings will be read, counted, and considered.

Related to singular readings are those found only in the proposed family of manuscripts. When a reading is supported by all members of Family 0150 extant at that point, this will be referred to as an exclusive family reading. These readings are particularly useful for demonstrating and describing the nature of the relationship between family members. In order to establish an exclusive family reading, every effort will be made to verify that it is a reading not shared by any other manuscripts. This will include consulting critical apparatuses such as Tischendorf, von Soden, the CNTTS apparatus, the NA28 and UBS5 apparatuses, and the inspection of manuscripts containing the relevant material and whose images are available to a limited degree. The identification of singular readings within the family members will be established in the same way. The goal of identifying singular and exclusive family readings is for analysis and comment, but never for discrimination from counting.

As Many Witnesses as Possible

In order to establish that GA 0150, GA 2110, and GA 1506 comprise a textual family, it is necessary to compare them against as many witnesses as possible. The alternative would be to presume their family status and compare their texts only with each other. This alternative would be exceedingly subjective. The sounder course is to first establish a special relationship beyond doubt and then conduct a more detailed analysis of the members in relation to the other members. Ideally, the manuscripts to be compared

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would include every known manuscript containing some or all of Romans–1 Corinthians. Such an immense undertaking would reveal not only how well the proposed family coheres with itself, but also how the family’s text fits into the larger transmission history. Since the primary objective of this thesis is to prove that GA 0150, GA 2110, and GA 1506 comprise a family, then a selection of manuscripts will be sufficient. The result of comparing dozens of manuscripts rather than hundreds is that a family relationship may be determined, but the degree of confidence to which Family 0150 can be located within the global stemma is limited. The collation will reveal variation units which can then be checked in our available critical apparatuses. Therefore, while the collation will be limited to a dozen or more manuscripts, the analysis of readings will consider all available evidence.

The selection of manuscripts to be included in the quantitative analysis should be as broad and diverse as possible for the purpose of identifying as many potential variation units as possible. It would also be preferable to include other known and suspected manuscript families. Then it should be possible to establish upper and lower levels of relationships. If GA 0150, GA 2110, and GA 1506 prove to be each other’s closest relationship of those included, then they can be said to have a special relationship. For example, if they are family members, then we should expect that they will have a higher percentage agreement than GA 06 and GA 010.

The following is a list of the witnesses to be included in a comprehensive collation and quantitative analysis along with GA 0150, GA 2110, and GA 1506 (see Table 3 below). It is influenced in no small part by the availability of transcriptions at the outset of my research in 2019.
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<tr>
<th>Siglum</th>
<th>Date</th>
<th>The Transcription or Edition Used for Computer Collation</th>
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<tbody>
<tr>
<td>P46</td>
<td>III</td>
<td>IGNTP[^145]</td>
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<tr>
<td>01</td>
<td>IV</td>
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<td>02</td>
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<td>04</td>
<td>V</td>
<td>IGNTP</td>
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<tr>
<td>06</td>
<td>VI</td>
<td>Romans: IGNTP; 1 Corinthians: Tischendorf</td>
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<tr>
<td>010</td>
<td>IX</td>
<td>Romans only: IGNTP</td>
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<tr>
<td>012</td>
<td>IX</td>
<td>Romans only: IGNTP</td>
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<td>33</td>
<td>IX</td>
<td>IGNTP</td>
</tr>
<tr>
<td>1739</td>
<td>X</td>
<td>IGNTP</td>
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<tr>
<td>0151</td>
<td>IX</td>
<td>Romans &amp; 1 Corinthians: my transcription</td>
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<table>
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<tr>
<th>Critical Editions</th>
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<tr>
<td><strong>NA28</strong></td>
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<td><strong>RP</strong></td>
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**Table 3. List of Manuscript Witnesses to be Collated with the Damascene Manuscripts**

### 3.3 Method for Collecting Manuscript Data: Computer Tools

The collaboration between INTF, IGNTP, and ITSEE has resulted in a standard method for encoding digital transcriptions of manuscripts.[^147] These institutes have adopted TEI as the schema and format. TEI was developed with the non-exclusive focus for “the encoding of documents in the humanities and social sciences, and in particular on the

[^144]: As assigned by INTF, “INTF Liste.”
representation of primary source materials for research and analysis." The advantage of this format over a plain text (or word processor) file is that it allows the human transcriber to tag and identify elements of the transcription. For example, *nomina sacra* are tagged as such, which allows their inclusion in collations to be toggled on and off. Tracking additional hands of a manuscript, corrections, and editorial notes from the software user are all examples of things that can be tagged and encoded into the TEI transcription.

While it is possible to adhere to the IGNTP transcription guidelines by typing the TEI encoded transcription by hand, it is fortunate both ITSEE and INTF provide the *Online Transcription Editor* free and available on the web. The transcription editor is normally used by those working with the IGNTP and INTF online through a web browser. For this thesis, I have used the standalone version that can be used offline and run locally in a browser without being connected to the internet. The advantage of the *Transcription Editor* is that it does not require encoding the text tags by hand. Rather, one simply highlights a portion of text, then selects the appropriate tag from various menus. The *Transcription Editor* can export the file created as an XML file that matches the format of that used for the IGNTP and ECM transcriptions.

Once these transcriptions are collected, the next step is to prepare them for collation. Once again, there is a useful piece of software, *CollateX*, that has been developed for comparing multiple textual witnesses. This collation software takes JSON formatted collations as input. The TEI encoding standard is best for displaying and interacting with transcriptions, therefore, it is not counterproductive to end up with the same transcription encoded into two different standards: TEI for display and interaction from scholars, JSON

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for use in computerized analysis. This does require, however, TEI transcriptions to be converted to JSON. I have engineered software for this purpose and explained it in detail in chapter seven. I did not use CollateX directly, however, but rather through the Collation Editor, which provides a user interface for CollateX and adds many features around editing and correcting the initial output of CollateX. See section 7.1.3 for a more detailed description and history of the Collation Editor.

After collation, the interpretation of the data will continue in a familiar way. First, as a summary, I will follow Fee’s example and create a spreadsheet with all manuscript designations displayed horizontally and down vertically on the top and bottom. Then the agreement between each of the manuscripts will be placed in the corresponding cell. Second, the manuscripts can be listed in order of agreement, one list per manuscript. For example, the first list will begin with GA 01, and then list all other collated manuscripts in order of agreement. These two representations of the data ought to clearly communicate the degree of relationship between GA 0150, GA 2110, and GA 1506 as compared with the other manuscripts. However, this is merely an overview. A detailed discussion of actual readings must follow. This is the topic to which chapters four and five are devoted.

To check the transcriptions for accuracy, I included the IGNTP transcriptions in my collation as 0150-IGNTP, 1506-IGNTP, and 2110-IGNTP. At every point of disagreement between my reading and the reading of the IGNTP, I consulted the images. In many cases I agreed with the IGNTP reading and then consolidated to a single witness. There are a few places, however, where I maintain a distinction between my readings and the IGNTP transcriptions. These are indicated by footnotes in chapters four and five. In the full collation in the appendix, there are both footnotes and I have left the IGNTP transcriptions as separate witnesses so that it is clear from viewing the apparatus which belongs to the
IGNTP and which belongs to me. To check the accuracy of my transcription and collation of the scholia, I checked my initial collation against both the text and apparatus of Volk.

3.4 Method for Determining whether GA 0150, GA 1506, and GA 2110 Comprise a Textual Family

Methods of relating manuscripts that produce a quantitative measure are generally concerned with the biblical text of those manuscripts to the exclusion of all other features. Indeed, the focus of this thesis will involve examination of the biblical text preserved in GA 0150, GA 2110, and GA 1506. However, since I am claiming that these manuscripts have a special relationship—one that goes beyond the biblical text—then it will be necessary to expand the traditional methods to include analysis not only of the biblical text, but of the paratextual features as well.

3.4.1 Comparing Their Biblical Text

Once the agreements and disagreements have been identified, an examination will follow. While I have argued that all agreements whether seemingly significant or insignificant are potentially connective, i.e., genealogically significant, it is the obviously significant and striking readings that warrant inspection. Exclusive family readings are especially interesting for their connective value, but it is also important to study readings which show some relationship with other texts.

In the following chapter, I will examine all family readings. For clarity of discussion, family readings have been divided into three categories: (1) family agreement with the Majority Text against the NA28; (2) family agreement against the Majority Text; and (3) exclusive family readings (agreements against all other known witnesses).

Chapter five contains the analysis of intra-family disagreements of the lemmata for each of the three manuscripts. Intra-family disagreements occur in two forms: (1) readings that disagree with at least one member and agree with at least one non-family witness, and (2) singular or coincidental readings.
3.4.2 Comparing Their Scholia

By comparing the lemmata of the members of Family 0150 to each other and to a broad selection of manuscripts, a special relationship can be demonstrated. However, these manuscripts share an additional and highly connective feature. The commentary, in any form, is only found unabbreviated in five manuscripts. On its own this is proof of close relationship given that the commentary was prepared and edited in the eighth century, while the earliest members are from the ninth century. It might be reasonable to conclude that close examination of the scholia is unnecessary and perhaps even redundant.

On the contrary, examination of the commentary may be the best method for untangling the relationship between Family 0150 and the corrupted Damascene catenae, GA 018 and GA 0151. While only five manuscripts preserve the unabridged catena of John of Damascus, GA 018 and GA 0151 preserve lemmata that have been heavily edited to conform to the Majority Text. Was it merely the lemmata that have been altered in GA 018 and GA 0151, or were the scholia also edited?

To better understand the lemmata, it is important to prepare digital transcriptions that may be collated. The transmission tradition of the text of Paul is far more extensive and varied than the transmission of John of Damascus's catena, therefore, analysis of the latter need not be as thoroughgoing as the former.

In chapter six, I will compare the scholia of GA 0150, GA 2110, and GA 1506 with the scholia in GA 0151 in Romans 13:5–15:33; GA 018 is lacunose where the other four witnesses have overlapping material. This should reveal whether or not the scholia text of the proposed family is as cohesive as the lemmata. Of interest will be family readings against GA 0151 and disagreements between family members.

3.5 Method for Determining if GA 0150 and GA 2110 are Exemplar and Copy

Since the idea that GA 0150 and GA 2110 may be an exemplar and copy by the same scribe has been raised, it is important to test the claim. As discussed earlier in Chapter two (section 2.5), Panella noted similarities between GA 0150 and GA 2110 and
claimed that it is “highly likely that these are exemplar and copy.” To be clear, this has not been proven, nor has it been substantively argued. Yet, Alan Farnes—citing Panella—has included GA 2110 as an *Abschrift* of GA 0150 in a table of *Abschriften*. Farnes presents GA 0150 and GA 2110 as exemplar and copy as if the matter is settled. The same can be said of Farnes’s inclusion of GA 018 and GA 0151 as exemplar and copy. These four manuscripts are undoubtedly related, but the degree to which each is related has yet to be proven nor has it even been substantively explored. Whether the two manuscripts are exemplar and copy, or sibling *Abschriften* of the same *Vorlage*, it may not be possible to say. On the other hand, it may be possible to collect enough scribal data from the manuscripts to indicate in which direction the probability leans. The following are the steps and principles guiding the investigation. The following method is generally in agreement with Farnes’s suggestions for identifying *Abschriften*.

*Where Both are Extant*

Two manuscripts can only be compared where each is extant. As already explained, GA 2110 is divided into two. Romans, 1–2 Corinthians, and some of Galatians is a strong match for GA 0150, but from Ephesians to the end it is a different type of text written by a different hand. Finally, since GA 0150 is lacunose from Romans 1:1–13:4 and GA 1506 is lacunose after 1 Corinthians 4, then the only material over which the three witnesses overlap is Romans 13–1 Corinthians 4. If time permitted, it would be preferable to carefully inspect GA 0150 and GA 2110 across Romans, 1 Corinthians, 2 Corinthians, and Galatians. Since the main goal is to study the witnesses as a family, however, limiting close analysis to the overlapping material will be sufficient to make many observations and draw several important conclusions.

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Nomina Sacra

If *nomina sacra* developed and expanded over time, then we should expect GA 0150 and GA 2110 to express more similar or identical conventions if they were copied from the same exemplar. Yet changes in *nomina sacra* do not necessarily mean that one is not the exemplar of the other by a different scribe. In order to answer this question, all *nomina sacra* will be examined, catalogued, and discussed throughout Chapters 4–6.

Dual Readings

If two manuscripts are suspected of being exemplar and copy or sibling *Abschriften*, then a remarkably similar text is a given. More than that, one should expect to find dual readings—readings found in no other manuscripts. Elijah Hixson has shown that singular readings in sixth-century codices were more often inherited from their exemplar than they were a novel creation of the scribe. Therefore, it is reasonable to expect GA 0150 and GA 2110 to share dual readings. If GA 2110 is a copy of GA 0150, then otherwise singular readings in GA 0150 should be identifiable in GA 2110.

Corrections

Hixson's and Farnes's studies of *Abschriften* have suggested that the analysis of scribal corrections is important. Hixson's main point is that the analysis of singular readings and corrections offers a fuller picture of the scribal tendencies present in a given manuscript. Farnes suggests searching for evidence that the scribe of a suspected *Abschrift* has mishandled corrections in the *Vorlage* or indicated in any way that the text of the *Vorlage* was uncertain. This principle can be expanded. All places of uncertainty in the exemplar—whether by correction or scribal mistake—should be checked in the parallel sections of the suspected copy. If there are anomalies in these places, then this is evidence

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of direct copying. While this is methodologically sound, it is unfortunately the case that GA 0150 has very few corrections; what few it has are almost certainly corrections by the first hand and not easily misinterpreted. Therefore, while these will be noted in chapters 4–6, they will not prove especially useful for answering this question.

Paratextual Features

Paratextual features that are shared by all the members are evidence for their family relationship, but paratextual features shared only by GA 0150 and GA 2110 may be evidence of something even closer. The paratextual symbols and notes are brief and sparse enough that a brief examination of each one is reasonable. The study of the paratextual features has the potential to indicate whether GA 0150 and GA 2110 originated in the same community, and the nature of that community.

3.6 Explanation of the Critical Apparatus

3.6.1 How to Read the Apparatus

The appendix contains the full collation of the lemmata in Family 0150 against GA 0151 and the witnesses listed above in Rom. 13:5–15:33 and 1Cor. 1:1–4:15. The layout of the apparatus will be familiar to those who have used the ECM. The first level heading identifies the verse, e.g., “ROM. 13.7.” Below that, the basetext is displayed with an index number below every word. The first word of the basetext will always have an index of “2” and all remaining words will increase by 2 with the result that all words in the basetext are identified by an even number. The spaces between the words in the basetext, therefore, are implicitly indexed with odd numbers. This enables precise reference to both words in the basetext that belong to variation units, but additions to the basetext can be equally declared with precision. For example, a variation unit whose index is “3” is additional material not in the basetext and inserted between the first and second word. Naturally, index “1” can be used to indicate text added to the start of the verse. It is equally simple to indicate content added to the end of the verse.
If there are any variations present in the verse in the collated witnesses, these are laid out below the basetext. The number or range of numbers on the far left corresponds to the basetext indices. Under each of these are the reading names, types (if any), text and finally the witnesses to that reading are listed. The reading types given are abbreviated: “om” for omission—which does not, by itself, imply scribal motive; “lac” for lacunose; “ns” for nomen sacrum; “lig” for when I am uncertain how best to expand a ligature; “vid” for unclear but apparent readings; and by far the most used, “subr” for subreadings—an umbrella term for orthographical. Noting these insignificant variations makes it easier to browse the apparatus and pay attention to the more noteworthy readings.

By convention, I have named “subr” and “ns” readings after their parent reading and added an “r” suffix.59 So, reading “ar” is a subreading of reading “a” and should normally be considered as equivalent to reading “a” until study of that reading proves otherwise. For example:

a. - εσθιοντι // 01, 02, 03, 04, 06, 0150, 0151, 33, 1506, 1739, 2110, NA28, RP

ar. subr αισθεινοντι // 010, 012

The types of subreadings present in the apparatus include spelling differences related to vowel length, e.g., ι and ω fluidity along with itacisms such as ι, ει, and η interchanges. The “subr” reading type also identifies minor consonant variation such as κγ for γγ and variation on single and double consonants such as ρρ and λλ, and, of course, moveable nu.

Note that the presence of a reading type label applies to the relationship between readings, not the individual reading on which it is placed. By my own convention, it is not possible for a subreading to exist without a parent reading. The “subr” label is not meant to identify non-lexical spellings, but to point out that the reason for a variation at a given point is due to minor spelling differences. It is possible for neither the parent nor

59 The “r” is for “regularized. For example, “ar” acknowledges that it is different from reading “a,” however once regularization is applied, “a” and “ar” will be equivalent.
child reading to have the lexical spelling. The same is true of *nomina sacra*. Consider the following example:

a. - πνευματι // 03

b. - ns πνευματι // 03

In this example the basetext “a” reading is the abbreviated form while GA 03 exhibits the full spelling. In this case, the second reading, “ar”, has the type, “ns,” not because reading “ar” is a *nomen sacrum*, but because “ns” explains the reason for the difference between “a” and “ar.” We could imagine that there are many readings that are different from reading “a” for different reasons. This illustrates why the type is always added to the child reading and why the type applies to the relationship between two readings and not to the reading itself.

The exception to the convention that the type is always placed on a child reading concerns when text is lacking. For example:

a. om // 01, 02, 03, 04, 06, 010, 012, 0150, 0151, 33, 1506, 1739, 2110, NA28, RP

b. - τοις καθαροίς // 01-c2

When a reading has no text, it must have a type so that omitted text can be differentiated from a lacunose witness. In the case of the “om” and “lac” reading types, these show how a reading relates to all others in the variation unit.

### 3.6.2 How Variation Units are Counted

For calculating agreement percentages between witnesses, one can either include everything or discriminate. I have decided to discriminate and omit many variants from the calculation when I believe those variants do not represent a text but rather are exceedingly fluid and prone to change back and forth between generations. When gathering variation units for counting, I first collapse all the subreadings and *nomina sacra* readings into their parent readings. For example:

a. - υμεῖς // P46, 01, 02, 04, 0150, 0151, 33, 1506, 1739, 2110, NA28, RP

b. - ημεῖς // 03
There are three readings in this variation unit, but after applying regularization rules there will only be two. GA 06 will be counted among the reading "a" witnesses. Here is another common occurrence:

\[a. \quad - \quad \alpha\lambda \lambda // \text{P46, 01, 02, 03, 04, 0150, 0151, 33, 1506, 1739, 2110, NA28, RP}\]

\[ar. \quad \text{subr} \quad \alpha\lambda\lambda\alpha // 06\]

In this case there are two readings, but after regularization there is only one reading, that is, all witnesses agree. When this happens, I disregard the entire variation unit from the count.

After regularization, the next steps are straightforward: count agreements between witnesses and divide from that number the total variation units for which both witnesses are extant. The result of this will be the percentage agreement between two witnesses across all regularized variation units.

3.7 Chapter Conclusion

This chapter laid out the method for the research that follows in chapters 4–6. It began with a history of the use of the term “family” within the context of text and manuscript studies. While the term can be used at times to refer to groups of manuscripts in broad sense, any time that someone has defined the term, it always refers to a group of especially related manuscript witnesses. In the context of this thesis, “family” is used in the same sense that Colwell defined it and as used commonly for other special relationships such as Family 1 and Family 13. More important than defining the term, however, is the method for determining what would constitute a group with a special relationship. The method chosen is quantitative on the one hand: counting every variation unit in the overlapping material; and analytical on the other: examining and evaluating each reading. Indeed, the chosen method will count all variants and then examine each one. A brief explanation of the computer tools for collecting this data was provided because they are discussed at length in chapters seven and eight. The brief explanation in this chapter is provided for readers who care only for the research on Family 0150 and not for the new
tools that were developed and submitted along with this thesis. Finally, a method for determining whether GA 0150 and GA 2110 might be exemplar and copy.

The following chapters feature both quantitative summaries and analysis of individual readings. I have argued above that previous quantitative methods err when numbers and sums are presented as if they have objective meaning. Therefore, the analysis of individual variation units will be provided first, and then followed by quantitative observations and summaries. This will, hopefully, help to place the quantitative conclusions firmly in the context to which they are relative. So, while I followed Fee and weighed variants after counting, it is the weighing that will precede the counting in the following chapters.
4 Family Agreement Where All Members are Extant

(Rom 13–1 Cor 4)

This chapter explores readings in which all members of Family 0150 are extant, and in which all members agree. The only portion of Paul’s letters to which all members witness is Rom 13:5–15:33 and 1 Cor 1:1–4:15. Outside of this section, only two of the three are extant. In Rom 1:1–13:4, GA 1506 and GA 2110 are extant. In 1 Cor 4:15ff, 2 Cor, and Gal, GA 0150 and GA 2110 are extant. Not only do these triple family readings provide evidence for the type of relationship shared by the family members, but these readings are likely indicative of the text found in the archetype that originated with John of Damascus himself. The traditional tools of textual criticism can facilitate the recovery of the archetypal text in cases where the family members disagree. Reconstruction is unnecessary, however, for the following readings.

The following discussion excludes minor variants if they: involve only itacism, movable nu, or another spelling variant that does not theoretically impact a word’s morphological identity. For example, the substitution of ἐνγύτερον for ἐγγύτερον in GA 06 at Rom 13:11 is an insignificant spelling difference because the former does not have an entry in a lexicon and changes nothing morphologically or syntactically. All readings, however minor, have been recorded in the comprehensive collation but common orthographical and other minor differences have been filtered out of the analysis below.

The basetext used for the following chapter is the NA28. The Robinson-Pierpont 2018 (RP) edition of the Byzantine text is used to represent the Majority Text. In the event that the Majority Text as cited by the NA28 critical apparatus differs from the RP, then “MT” will serve as the siglum representing the Majority Text cited by the apparatus. This is rare and only occurs when the Majority Text is itself split.

The first section documents and comments on the agreement of Family 0150 with the Majority Text against the reconstructed text as found in the NA28. The Second
section documents and comments on variation units in which Family 0150 reads against the Majority Text. The third section documents and comments on readings found exclusively in Family 0150.

4.1 Family Agreement with the Majority Text Against the Reconstructed Text

This section is not a listing of all Byzantine readings, but specifically when the text of the NA28 and Majority Text disagree and when Family 0150 agrees with the Majority reading. For the purposes of this thesis, the text of the NA28 will represent the reconstructed Ausgangstext but not necessarily the text of the Damascene archetype. This section can be viewed as documenting how far along the path from Ausgangstext to the Byzantine text is Family 0150.

Rom 13:9 τὸ γὰρ οὐ μοιχεύσεις, οὐ φονεύσεις, οὐ κλέψεις, οὐχ ἐπιθυμήσεις, καὶ εἰ τις ἔτέρα ἐντολή, ἐν τῷ λόγῳ τούτῳ ἀνακεφαλαίοταί ἐν τῷ ἀγαπήσεις τὸν πλησίον σου ὡς σεαυτόν. τῷ λόγῳ τούτῳ]

a. text P46, 01, 03, 06, 010, 012, 1739
b. τουτω τω λογω 0150, 2110, 1506, 02, 0151, 33 (τουτο), RP

Family 0150, along with the Majority Text places the pronoun ahead of the verb. We might speculate that the Majority Text reading emphasizes the pronoun, “...it is summed up in this (statement)” instead of emphasizing “statement,” τῷ λόγῳ. Even without a strong impact on meaning, or a low level of connectivity, it is a legitimate variant.

Rom 14:4 σὺ τις εἰ ὁ κρίνων ἀλλότριον σικέτην; τῷ ἰδίω χυρίῳ στήξει ἢ πίπτει· σταθήσεται δέ, διευνατεί γὰρ ὁ κύριος στήξει αὐτόν.

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When witnesses are cited in the apparatus, all sigla will be Gregory-Aland designations unless a siglum refers instead to an edition or language tradition, e.g., Latin, Bohairic, etc. If a siglum has not been previously defined and is not inherently clear, then it is exactly as it is cited in the NA28 critical apparatus.

Accents will not normally be added to original transcriptions except in cases when accents are the only differentiator between readings.
While there are three readings attested at this point of variation in the witnesses listed, they easily divide into two significantly different readings. The majority of witnesses read an adjective, δυνατός, and other witnesses read the third-person singular verb δυνατεῖ instead. Among those witnesses that have the adjective, they split over whether to include or lack ἔστιν. The addition of ἔστιν is only one of potential minor emphasis. Without or without ἔστιν, δυνατός γὰρ ὁ κύριος is easily interpreted since δυνατός is in the first predicate position, “for the lord is able.” Both forms of the word are demonstrably early, but only the reading in Family 0150 seems to continue into the second millennium of copying activity.

κύριος ]

Metzger comments that θεός was probably introduced by copyists who were “influenced by θεός” in the previous verse. One might also suggest that the source of harmonization is from κυρίῳ from only a few words before the variation in question. The better explanation, perhaps, is that changing κύριος to θεός clarifies the sense of the passage. In the earlier clause κυρίῳ refers to a human lord τῷ ἰδίῳ κυρίῳ στήκει ἢ πίπτει, “to one’s own lord one stands or falls.” In the final clause of the verse the referent is divine δυνατεῖ γὰρ ὁ κύριος στήσαι αὐτόν, “for the Lord is able to make him stand.” A repeated κύριος leaves the final clause potentially ambiguous but substituting θεός clarifies the meaning. Family 0150 witnesses to the reading in the Majority Text, but it is not clear if the

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reading was an inevitable smoothing typical of the later witnesses, or if it came by way of those witnesses traditionally described as "Western" (GA 06, GA 010, GA 012, Old Latin, Vulgate, etc.).

**Rom 14:6** ὁ φρονῶν τὴν ἡμέραν κυρίῳ φρονεῖ· καὶ ὁ ἐσθίων κυρίῳ ἐσθίει, εὐχαριστεῖ γὰρ τῷ θεῷ· καὶ ὁ μὴ ἐσθίων κυρίῳ οὐκ ἐσθίει καὶ εὐχαριστεῖ τῷ θεῷ.

φρονεῖ]

a. *text* P46, 01, 02, 03, 06, 010, 012, 1739

b. φρονεῖ καὶ ὁ μὴ φρονῶν τὴν ἡμέραν καὶ οὐ φρονεῖ 0150, 2110, 1506, 04cvid, 0151, 33, RP

The majority of witnesses added a logical balancing phrase. The addition follows the same structure as the preceding clause but with negations, "the one who does not observe the day does not observe it for the Lord." It is a reasonable explanatory expansion. The majuscules of Family 0150 are among the earliest—perhaps the earliest—extant witnesses containing the addition. Other than Family 0150, the earliest witnesses are the corrector of GA 04, GA 020, and GA 025, the latter two of which are dated to the ninth century according to the Kurzgefasste Liste. The full family agreement strongly indicates that the addition was already part of the tradition received by John of Damascus in the late seventh/early eighth century.

**Rom 14:22** σὺ πίστιν [.yy] ἔχεις κατὰ σεαυτὸν ἔχε ἐνώπιον τοῦ θεοῦ.

.yy]

a. *text* 01, 02, 03, 04, 048

b. om 0150, 2110, 1506, 06, 010, 012, 33, 1739, RP

The full Greek continuous manuscript support for the inclusion of yy is given above. There are, apparently, no minuscule witnesses to its inclusion. Family 0150 reads along with the vast majority of witnesses in lacking the relative pronoun. Metzger

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a163 INTF, "INTF Liste."
comments that omission of ἂν allows σὺ πίστιν ἔχεις to be taken as either a question or a statement, while its inclusion limits it to a statement.\footnote{Metzger, A Textual Commentary on the Greek New Testament, 470.}

\underline{Rom 15:4} ὀσα γὰρ προεγράφη, εἰς τὴν ἡμετέραν διδασκαλίαν ἐγράφη, ἵνα διὰ τῆς ὑπομονῆς καὶ διὰ τῆς παρακλήσεως τῶν γραφῶν τὴν ἐλπίδα ἔχωμεν.

\(\text{ἐγράφη }\)

\begin{enumerate}
\item \textit{text} 01, 03, 04, 06, 010, 012, 1739
\item προεγραφη 0150, 2110, 1506, 01\textsuperscript{ερ}, 02, 0151, 33, RP
\end{enumerate}

Family 0150 agrees with the Majority Text by harmonizing ἐγράφη with προεγράφη, having occurred only five words earlier. The Majority Text reading creates symmetry of the sentence, “For whatever was written previously was written previously for our instruction.” This reading is more explicit and more verbose than, “For whatever was written previously was written for our instruction.”

\underline{Rom 15:15} τολμηρότερον δὲ ἐγραψα ὑμῖν ἀπὸ μέρους ὡς ἐπαναμιμητικῶς ὑμᾶς διὰ τὴν χάριν τὴν δοθείσαν μοι ὑπὸ τοῦ θεοῦ

\(\text{ὑμῖν }\)

\begin{enumerate}
\item \textit{text} 01, 02, 03, 04, 1739
\item ὑμῖν αδελφοί 0150, 1506, 2110, P46, 01\textsuperscript{ερ}, 06, 010, 012, 0151, 33, RP
\end{enumerate}

Both the absence and the inclusion of ἀδελφοί is demonstrably ancient, though the editors of the NA28 and UBS5 believe that it is more likely to have been added. Metzger states that it is less likely for ἀδελφοί to have been omitted, apparently seeing no stylistic improvement as is typical of the Byzantine tradition.\footnote{Metzger, A Textual Commentary on the Greek New Testament, 473.} However, as many have argued, the earliest scribes of the New Testament were more likely to omit words and phrases than
add to the text.\textsuperscript{66} The inclusion in GA P46 should cast doubt on the argument that ἀδελφοί was added instead of its accidental omission in earlier manuscripts in which simple omissions were more common.

Rom 15:17 ἔχω οὖν [τὴν] καύχησιν ἐν Χριστῷ Ἰησοῦ τὰ πρὸς τὸν θεόν.

\begin{enumerate}[a.]
\item text 03, 06, 010 (τεν), 012, 0151
\item lack 0150, 2110, 1506, P46, 01, 02, 33, 1739, RP
\end{enumerate}

In the NA28, τὴν is enclosed in brackets to indicate that its inclusion has no certainty. This is likely because GA 01 and GA 03 split. It is especially interesting regarding manuscripts which contain the catena of John of Damascus because this is a rare case in which GA 0151 agrees with a minority against a majority which includes Family 0150. It is unsurprising, then, that this unusual alignment occurs at a place in which the earliest witnesses are uncommonly divided: GA P46, GA 01, GA 02 against GA 03, GA 04, GA 06.

Rom 15:32 ἵνα ἐν χαρᾷ ἐλθὼν πρὸς υμᾶς διὰ θελήματος θεοῦ συναναπάυσωμαι ὑμῖν.

\begin{enumerate}[a.]
\item text 01\textsuperscript{c2}, 02, 04, 010, 33, 1739
\item ἐν χαρᾷ ἐλθὼν 0150, 2110, 1506\textsuperscript{id}, P46, 03, 06, 012, 0151, RP
\item ελθὼν ἐν χαρᾷ 01
\end{enumerate}

There is a word order variant in 01, but the most significant difference among the variants is the reading of ἐλθὼν, an aorist participle, or ἔλθω, an aorist subjunctive. Although the critical text has selected the reading in 02 and 04, ἔλθω is supported not just by the majority of later witnesses but also by GA P46, GA 03, and GA 06.

\textsuperscript{66} See especially James R. Royse, 
Scribal Habits in Early Greek New Testament Papyri
It is worth noting that the images for GA 1506 at this point are very difficult to read. The IGNTP transcription reads ἐλθὼν but with the ν marked as uncertain. It is not clear if a discrete character is uncertain, or if there is the hint of a ligature which would imply a ν. Since I cannot make out any evidence of a ν, I have treated the reading here as a family reading, but I have not counted it for the purpose of percentage agreements.
See Figure 6 (above) for an unedited image of the word in question. Some of the illegibility is from visible text from the reverse-side of the folio. Figure 7 highlights the reverse-side text in red which allows one to be sure of which handwriting is front-facing. Finally, see Figure 8 for an example of a π in GA 1506. What has been taken as a ν in GA 1506 is more likely to be the bulbous and left-most stroke of the π. Therefore, GA 1506 probably agrees with its earlier family members GA 0150 and GA 2110.

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1 Cor 1:14 Παύλος κλητός ἀπόστολος Χριστοῦ Ἰησοῦ διὰ θελήματος θεοῦ καὶ 
Σωτῆνης ὁ ἀδελφὸς

Χριστοῦ Ἰησοῦ ]

a. text χυ̅ i̅ υ̅ P46 (χρ̅ ν̅), 03, 06, 33
b. υ̅ χυ̅ 0150, 2110, 1506, 01, 02, 1739, RP

While Family 0150 sides with the Majority Text concerning the word order, this reading is not demonstrably later, being found in GA 01 (fourth century).

1 Cor 1:25 ὡς τὸ μωρὸν τοῦ θεοῦ σοφότερον τῶν ἀνθρώπων, ἐστίν καὶ τὸ ἀσθενές τοῦ θεοῦ ἵσχυρότερον τῶν ἀνθρώπων δὲ τῶν ἀνθρώπων]

a. text P46, 01, 03
ar. τῶν ἀνων 02, 04, 33, 1739
b. τῶν ἀνθρώπων ἐστίν 0150, 01ρ2
br. τῶν ἀνων ἐστίν 2110, 1506, 02ρ, 0151, RP
c. ἐστίν τῶν ἀνθρώπων 06

All members of Family 0150 follow the Majority Text and add ἐστίν, though GA 0150 does not use the abbreviated form of ἀνθρώπων as found in GA 1506 and GA 2110. The addition of ἐστίν is witnessed at least as early as the sixth century in GA 06.

1 Cor 1:28b τὰ μὴ ὄντα

τὰ ]

a. text P46, 01, 02, 04, 06, 33, 1739
b. καὶ τὰ 0150, 2110, 1506, 01ρ2, 03, 04ρ3, 0151, RP

Family 0150 agrees with the Majority Text, but it is also important that it agrees with GA 03. Sometimes Family 0150 simply reads with the Majority Text against all the early witnesses. However, it is equally likely that when Family 0150 agrees with the Majority Text, it also agrees with a demonstrably ancient witness such as GA 03, the
second corrector of GA 01, and GA P46. The accumulation of similar agreements may indicate that the archetypal text of Family 0150 is based on an ancient text (fourth century), even if it is not based on the earliest text.

1 Cor 1:30b  δός ἐγενήθη σοφία ἡμίν ἀπό θεοῦ

σοφία ἡμίν ]

a. text P46 (ἡμέν), 01, 02, 04, 06, 33, 1739
b. ἡμίν σοφία 0150, 2110, 1506* (*μν), RP
c. σοφία ημών 03
d. ὑμίν σοφία 0151

In this instance, Family 0150 agrees with the majority of witnesses, though the difference between the majority and earliest witnesses is only one of word order. Except, however, in the case of GA 03, which changes the case of ἡμίν to the genitive ἡμῶν, “our wisdom” instead of “wisdom to us.” The word order change between the earlier witnesses and the Majority Text is a minor alteration, but it is very likely that the archetype of Family 0150 contained the later order. It seems that the copyist of GA 1506 skipped the η but corrected it with (what seems to be) the same red ink. The ink and shape of the η imply that it is a correction by the first hand. The impetus for the mistake is likely the η ending of ἐγενήθη which immediately precedes the word in GA 1506.

1 Cor 2:1b  ἦλθον οὖ καθ’ ύπεροχήν λόγου ἡ σοφίας καταγγέλλων ὑμῖν τὸ μυστήριον τοῦ θεοῦ

μυστήριον ]

a. text P46* vid, 01, 02, 04
b. μαρτυριον 0150* 2110, 1506, 01*, 03, 06, 0151, 33, RP

The choice between μαρτύριον and μυστήριον is a very difficult one because each one has good early support, and each makes sense in the context. As for its usefulness in tracking the relationships of the members of Family 0150 to one another and to non-family members, the IGNTP transcription records μυστήριον for GA 0150 but this is incorrect.
witnesses, it is helpful and straightforward. Again, we see that when GA 01 and GA 03 split, Family 0150 has a tendency to side with GA 03. Another way to frame this observation is that when Family 0150 witnesses a reading in the Majority Text, it tends to be a demonstrably early reading.

1 Cor 2:10 ἡμῖν δὲ ἀπεκάλυψεν ὁ θεός διὰ τοῦ πνεύματος. τὸ γὰρ πνεῦμα πάντα ἐραυνᾶ, καὶ τὰ βάθη τοῦ θεοῦ ἀπεκάλυψεν ὁ θεὸς

a. text (δ,ζ) P46, 01, 02, 03, 04, 06, 33, 1739
b. οδ,ζ απεκαλυφεν 0150, 2110, 1506, 044, 049, 0151, RP

Family 0150 witnesses to a word order variant common only among the majority of witnesses dated to the ninth century and later. GA 0150 and GA 2110 are among the earliest—if not the earliest—witnesses to contain this reading. The tradition and archetype witnessed by Family 0150 is likely of key importance for tracing the development of what would become the Majority Text at this point of variation.

πνεύματος

a. text πν̄ς P46 (πνευματος), 01, 02, 03 (πνευματος), 04, 33vid
b. πν̄ς αυτου 0150, 2110, 1506, 01c, 06, 0151, RP

Family 0150 adds αὐτοῦ, which clarifies the identity of the spirit ἡμῖν δὲ ἀπεκαλυφεν ὁ θεός διὰ τοῦ πνεύματος αὐτοῦ, “God revealed through his spirit.” This is a reasonable clarification since the identity of the “spirit” is named πνεῦμα τοῦ θεοῦ, “spirit of God” in the following verse.

εραυνα

a. text P46, 01, 02, 03, 04
b. ερευνα 0150, 2110, 1506, 06, 33, 1739, RP

Technically a spelling difference, it cannot rightly be considered along with other minor differences such as itacisms because each spelling is a legitimate and correct spelling. The lexicons treat these as alternative spellings of the same word; however, each
spelling is apparently cordoned to a historical period. It is peculiar, then, that the earliest demonstrable reading, ἐραυνά, is considered to be the later form, while the reading found in seemingly all but the earliest handful of witnesses is considered by the lexicons to be the earlier form.⁷⁷

1 Cor 2:15 ὁ δὲ πνευματικὸς ἀνακρίνει [τὰ] πάντα

Family 0150 agrees with the Majority Text against the reconstructed text in the NA28. However, in this instance, both the presence and absence of μέν is demonstrably early. The absence can be dated at least to the third–fourth century because of the reading in GA P46, and the presence of the particle is at least as early as the fourth century because of its presence in the first corrector of 01 and the first hand of GA 03. Grammatically, the presence of μέν created a correlative relationship with δέ. It is not obvious which reading is smoother. Since the presence of the particle is early, this variation unit is not necessarily useful when counting Byzantine readings in Family 0150. The NA28 apparatus incorrectly cites GA 1506 as a witness for reading (a). I have documented my reading of GA 1506 in comparison to the NA28 and noted that the UBS5 correctly cites GA 1506.⁷⁷

1 Cor 3:1 Κἀγώ, ἀδελφοί, οὐκ ἡδυνήθην λαλῆσαι ὑμῖν ὡς πνευματικὸς ἀλλ’ ὡς σαρκίνοις, ὡς νηπίοις ἐν Χριστῷ

Family 0150 agrees with the Majority Text against the reconstructed text in the NA28. However, in this instance, both the presence and absence of μέν is demonstrably early. The absence can be dated at least to the third–fourth century because of the reading in GA P46, and the presence of the particle is at least as early as the fourth century because of its presence in the first corrector of 01 and the first hand of GA 03. Grammatically, the presence of μέν created a correlative relationship with δέ. It is not obvious which reading is smoother. Since the presence of the particle is early, this variation unit is not necessarily useful when counting Byzantine readings in Family 0150. The NA28 apparatus incorrectly cites GA 1506 as a witness for reading (a). I have documented my reading of GA 1506 in comparison to the NA28 and noted that the UBS5 correctly cites GA 1506.⁷⁷

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⁷⁷ See BDAG 389 and MGS ἐραυνά.

Little can be said for this simple word order variant except that it is an indication that the text of Family 0150 at this verse has been influenced by later witnesses. This becomes more important and apparent in the next variation unit (see below).

\[\text{σαρκίνοις}\]

a. text P46, 01, 02, 03, 04, 06, 33
b. σαρκικοῖς 0150, 2110, 1506, 04\textsuperscript{c3}, 06\textsuperscript{c3}, 0151, RP

Family 0150 joins the majority of later witnesses and substitutes \textit{σαρκικοῖς} for \textit{σαρκίνοις}. The two words are very similar in several respects. First, both words appear very similar; they differ by a single letter, and in some scripts the \(\kappa\) and \(\nu\) appear similar as well. Second, their meaning is very similar. While the author of 1 Corinthians may have understood the distinction, it is likely that the later copyists did not.\textsuperscript{172} The reading found in the earliest witnesses (reading a) could have been changed both because it had become synonymous with \(\sigma\alphaρκικοῖς\) and to harmonize to the use of \(\sigma\alphaρκικοῖ\) later in 1 Cor 3:3. In 1 Cor 3:3, however, the reconstructed text of the NA28 and the Majority Text agree against a small handful of witnesses including GA P46 and GA 06. So, there is little variation among the witnesses in 3:3, but many witnesses both early and late split at 3:1.

1 Cor 3:10a  
Κατὰ τὴν χάριν τοῦ θεοῦ τὴν δοθείσαν μοι ὡς σοφὸς ἀρχιτέκτων θεμέλιον ἔθηκα ἔθηκα

a. text P46, 01, 02, 03, 04, 33, 1739
b. τεθεικα 0151, RP
br1. τεθικα 01\textsuperscript{c2}, 06
br2. τεθηκα 0150, 1506, 2110, 04\textsuperscript{c3}

There are at least four known readings at this place of variation, but only two readings after regularization: the aorist and perfect conjugations of \(τίθημι\). The earliest extant manuscripts contain the aorist \(ἔθηκα\) “I laid,” but Family 0150 along with the

\textsuperscript{172} BDAG, “σαρκικός,” 914.
majority of witnesses instead use the perfect tense τέθεικα “I have laid.” The perfect tense might read more smoothly to some readers since the effect—that a foundation exists—is picked up in 3:10b, ἀλλος δὲ ἐποικοδομεῖ, “and another is building on to it.” The present tense action of ἐποικοδομεῖ likely pairs better when following a perfect tense verb. The reading in the perfect tense was already part of the tradition in the sixth century based on its presence in GA06. Its secondary nature as a smoothed reading, however, is most probable.

1 Cor 3:12a  εἰ δὲ τις ἐποικοδομεῖ ἐπὶ τὸν θεμέλιον χρυσὸν
           
           θεμέλιον ]
           a.  text P46, 01, 02, 03, 04
           b.  θεμέλιον τοῦτον 0150, 2110, 1506, 01, 04, 06, 0151, 33, 1739, RP

All witnesses except for those listed in support of reading (a) above support the addition of τοῦτον, including the three members of Family 0150. The longer reading (b) is more explicit and would likely have been considered by its readers to be stylistically superior. While reading (a) is found in the earliest dated handful of witnesses, reading (b) clearly took hold early and came to dominate from the moment it appears on the transmission record.

1 Cor 3:13c  καὶ ἐκάστου τὸ ἔργον ὑποίον ἐστὶν τὸ πῦρ [αὐτῷ] δοκιμάσει
           
           αὐτό ]
           a.  text 02, 03, 04, 33
           b.  lack 0150, 2110, 1506, P46, 01, 06, 0151, RP

Since the decision between the absence and inclusion of αὐτό was sufficiently difficult, the editors of the NA28 placed it in square brackets to indicate doubt about the word’s inclusion. The complications are apparent: (1) GA 01 and GA 03 are split; (2) GA P46

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73 The IGNTP transcriptions cite GA 0150 as reading αὐτό. On the contrary, the lack of αὐτό is unmistakable, especially when viewing the CSNTM images.
supports the shorter reading, but we know that papyri often err on the side of brevity, especially concerning redundant words.\(^3\) While both readings are demonstrably ancient, it is the shorter reading that is transmitted to the Majority Text. What judgement can be made concerning which is the smoother reading? Concerning transcriptional probability, one might argue that that either the independent and accidental or purposeful omission is more likely than the independent addition of αὐτό in the earliest extant manuscripts. \(^4\) Both readings are found in both very early and late dated manuscripts.

For Family 0150, the importance of this reading is mostly related to their intra-family agreement. Yet it is worth noting that while the absence is found in the majority of all witnesses, it should not be considered as a Byzantine reading since it is the reading found in two of the oldest extant manuscripts. Both readings existed early, and it is not surprising that the non-redundant reading is better represented in the manuscript record.

1 Cor 4:2a  
\[\text{wódε λοιπὸν ζητεῖται ἐν τοῖς οἰκονόμοις, ἵνα πιστὸς τις εὑρεθῇ.}\]

\[\text{wódε }\]

a. \text{text P46, 01, 02, 03, 04, 06, 33, NA28}

b. \text{ο δὲ 0150, 2110, 1506, 0151, RP}

Although Family 0150 agrees with the majority of later witnesses, the family text itself may be the earliest witness. GA 0150, GA 2110, along with GA 020 are the earliest dated witnesses to the reading ὁ δὲ, all being dated to around the ninth century. This is one of the indicators that the character of Family 0150’s text is one which is more closely aligned with witnesses that predate the sixth century yet display evidence of being created alongside the type of text which would become dominant after the ninth century.

1 Cor 4:6b  
\[\text{ἵνα ἐν ἡμῖν μάθητε τὸ μὴ ὑπὲρ ἃ γέγραπται,}\]

\[\text{ά γέγραπται }\]

a. \text{text P46, 01 (γεγραπτε), 02, 03}

---

b. ο γεγραπται 06

c. α [γεγραπται] [φρονειν] 04<sup>vir</sup>

d. ο γεγραπται φρονειν 0150, 2110, 1506, 0151, 33, RP

This variation unit could be divided into two distinct units: the case and number of the relative pronoun, and the presence or absence of φρονεῖν. The addition of φρονεῖν is demonstrably early, being potentially found in GA 04 based on the space available.

1 Cor 4:11 ἀχρί τῆς δρτί ὄρας καὶ πεινώμεν καὶ βιψώμεν καὶ γυμνιτεύομεν καὶ κολαφιζόμεθα καὶ ἀστατούμεν

γυμνιτεύομεν ]

a. text 01, 02<sup>c</sup>, 03<sup>c</sup>, 04

ar. γυμνιτεύομεν 03, 06

b. γυμνιτεύομεν 0150, 2110, 1506, P46, 0151, 33, 1739, RP

c. lack 02

Family 0150 agrees with the reading of the Majority Text; however, this cannot be considered a Byzantine reading since both readings are demonstrably ancient and broadly spread. Indeed, the reading of the majority of witnesses is arguably the most demonstrably ancient because of its presence in GA P46. Both readings seem to have spread from the early centuries, but ultimately reading (b) won dominance. The difference in meaning is nuanced, "we are poorly clothed (γυμνιτεύομεν)" versus "we are barely clothed (γυμνιτεύομεν)." Both seem an equal fit to the context since they subjects are also described as homeless, ἀστατούμεν. One must also ask to what degree readers of this text made a distinction between the two options in light of common spelling variations. The vowels ι, ει, and η are so often interchanged that it is difficult cite any witness with confidence without first quantifying a given witness's tendency towards spelling options.

1 Cor 4:14 Οὐκ ἐντρέπων ὑμᾶς γράφω ταῦτα ἀλλ' ὡς τέχνα μου ἀγαπητὰ νουθετῶν.
Difference between the two main reading options is the single letter ν. The difference in meaning is more significant. The reading in the text follows GA 01, GA 02, and GA 04, “I am not writing to shame you but to instruct (νουθετῶν) you as my beloved children.” In this reading, νουθετῶν is related to the main verb γράφω and grammatically equivalent to ἐντρέπων. Not “shaming” ἐντρέπων, but “instructing.” The reading of the Majority Text and of Family 0150 uses an indicative rather than a participle, “…but as my beloved children I am instructing (νουθετῶ) you.”

In reading (a), both sides of the sentence are balanced and dependent upon γράφω. But in reading (b), the second clause contains its own main verb. The place of reading (c) is not immediately apparent. If it is meant to be a third-person singular subjunctive, it is not clear what the subject would be. It is noticeable, then, that the only witness to reading (c), GA P46, was corrected to agree with reading (b). Therefore, it may be most plausible that reading (b) is prior since reading (a) can be explained as an attempt to harmonize the second clause with the first. With the support of GA P46 and GA 03, the reading in Family 0150 and the Majority Text is arguably the most ancient extant reading.

4.2 Family Agreement Against the Majority Text

While this section will include readings in which Family 0150 agrees with the NA28 against the Majority Text, it is also common for Family 0150 to side with a few other known witnesses against both editions. This section documents both scenarios.

Rom 13:7 ἀπόδοτε πάσιν τὰς ὀφειλάς ἀπόδοτε ]

a. text 1506, P46 01, 02, 03, 06
Aside from the orthographical difference, Family 0150 agrees with the reading in the text and against most other witnesses, including the second corrector of Sinaiticus. The addition of οὖν in the Majority Text and GA 0151 strengthens the connection between 13:7 and the previous verse, “(6) For because of this you pay taxes ... (7) Therefore, give to all what is owed.” It is easier to explain why the conjunction would have been added than removed. In Family 0150 we find an early reading transmitted into the ninth century.

Rom 13:8 Μηδεν μηδέν όφείλετε εί μη το αλλήλους ἀγαπάνυ
άλληλους ἀγαπάν]
   a. text 0150, 2110, 1506, P46, o1, o2, o3, o6, o10, o12, 1739
   b. ἀγαπάν αλληλους 0151, 33, RP

While there seems to be rather little so say about the significance of this word order variation concerning its interpretive value, there is clearly a divide between the earliest witnesses and the vast majority of later witnesses. Again, we find a minor early variant preserved by Family 0150 and not GA 0151.

Rom 13:9 το γάρ ου μοιχεύσεις, ου φονεύσεις, ου κλέψεις, ουκ ἑπιθυμήσεις, καὶ εἰ τις ἑτέρα ἐντολή, ἐν τῷ λόγῳ τοῦτο ἀνακεφαλαιοῦται [ἐν τῷ]- ἀγαπήσεις τὸν πλησίον σου ὡς σεαυτόν.
   οὐ κλέψεις ]
   a. text P46, o2, o3, o6, o10, o12, o151, 33, 1739, RP, pm
   b. ου κλέψεις ου ψευδομαρτυρησεις 0150, 2110, 1506, o1 (ψευδομαρτυρησις), pm

This is a common variant; according to the NA28 critical apparatus, the majority of manuscripts are split. Family 0150 witnesses the longer reading against the text of the NA28 and the RP edition of the Byzantine text.

ἔτέρα ]
   a. text P46, o1c, o3, o6, o10, o12, o151, 1739, RP
b. \( \varepsilon \tau \rho \alpha \varepsilon \tau \nu \iota \nu \) 0150, 1506, 2110, 01, 02, 33, 1962

GA 0150, GA 1506, and GA 2110 add \( \varepsilon \tau \nu \iota \nu \) after \( \varepsilon \tau \rho \alpha \). This is, apparently, a rare reading supported by only four other known witnesses. However, two of these witnesses are quite significant: GA 01 and GA 02. This is particularly connective for the family witnesses.

\[ \sigma \varepsilon \alpha \upsilon \tau \omicron \nu \]

a. \textit{text} P46, 01, 02, 03, 06, 0150\(^c\), 1739, 2110\(^c\), \textit{pm}, RP

b. \( \varepsilon \alpha \upsilon \tau \omicron \nu \) 0150, 2110, 1506, 010, 012, 0151, 33, \textit{pm}

The majority of witnesses again split at this point of variation. Both readings must, therefore, make good sense in the minds of most readers. The reading in Family 0150, \( \varepsilon \alpha \upsilon \tau \omicron \nu \), may have arisen because of the repeated sigma in \( \omega \varepsilon \sigma \varepsilon \alpha \upsilon \tau \omicron \nu \). When one sigma is skipped in \textit{scriptio continua}, the reader is presented with either \( \omega \varepsilon \sigma \varepsilon \alpha \upsilon \tau \omicron \nu \) or \( \omega \varepsilon \varepsilon \alpha \upsilon \tau \omicron \nu \). Regardless of which sigma was accidentally omitted, the reader would naturally see the latter as the obvious reading. The effect on the meaning is minimal. Indeed, there is a correction in GA 0150 that adds the second sigma above the line. There is nothing to indicate that it is not an immediate correction by the first hand: (1) the color matches the ink of the main text, (2) the shape of the lunate sigma matches the first hand, and (3) the ink of the added sigma appears to be fading at the same rate as the surrounding letters. GA 2110 exhibits an identical correction. Although the microfilm images do not preserve color, the corrected sigma is the same narrow shape that is typical in GA 2110 for both sigma and epsilon. Therefore, it is possible that the exemplar for GA 0150 and GA 2110 contained some deficiency at this point. The distribution of witnesses for both readings may also imply that we should expect to see independent fluidity at this point in the text.

\[ \text{Figure 7. GA 0150, Folio 4v, line 4} \]
Rom 13:11  
 Kai tòutò eídōtes tòn kaiρóν, òti òra ἡδη ὑμᾶς ἐξ ὕπνου ἐγερθῆναι, νῦν γὰρ ἐγγύτερον ἡμῶν ἡ σωτηρία ἢ ὅτε ἔπιστεύσαμεν.

ηδη ὑμᾶς ]

a. **text 01, 02 (ηδει), 03, 04**

b. ηδη ἡμας 0150, 2110, 1506, P46, 01ε, 06, 1739

c. ἡμας ηδη 010, 012, 0151, 33 (ηδει), RP

The critical apparatuses are not in agreement concerning the citation of witnesses to each reading. It is not entirely clear at this point which reading is supported by the majority of witnesses. There are certainly three well-attested readings: (a) ἡδη ὑμᾶς, surely contained in GA 01, GA 03, and GA 04; (b) ηδη ἡμας, surely contained in GA 0150, GA 2110, GA 1506, GA 01ε, and GA 06; (c) ἡμας ηδη, surely contained in GA 0151 and GA 33 (ηδει). These witnesses and readings have been confirmed. When looking at the standard critical apparatuses, however, it is apparent that witnesses have not been cited with precision.

The NA28 apparatus cites GA 010, GA 012, GA 019, GA 044, and GA 1175 as witnesses to reading (b). The UBS5 apparatus cites these same witnesses as witnesses to reading (c). Upon consulting the images, I have confirmed that UBS5 has correctly cited GA 010 and GA 012, so it can be tentatively presumed that it has correctly cited the others for this reading as well. The UBS5 apparatus cites GA 33 as a witness to reading (b), but GA 33 has been confirmed to support reading (c). Both critical apparatuses cite the Majority Text as support for reading (b), though the RP edition supports reading (c). Data from the CNTTS apparatus suggests that the majority of witnesses do, in fact, support reading (c). Of a total of 32 minuscules cited for the three readings, 24 support reading (c). The CNTTS data is more consistent with the findings of this study, therefore, Family 0150 agrees against both the Majority of Witnesses and the reading in the text of the NA28.
This point of variation seems to be genealogically significant for placing the text of Family 0150 in a larger context. If we take for granted that reading (a) is the initial text, then the following local stemma may be constructed.

At this point of variation, Family 0150 can be viewed as a midway point to the final form of the Byzantine text. Reading (c) could have arisen from either (a) or (b).

**Rom 13:14**  
\[\text{ἀλλ' ἐνδύσασθε τὸν κύριον Ἰησοῦν Χριστὸν καὶ τῆς σαρκὸς πρόνοιαν μὴ ποιεῖσθε εἰς ἐπιθυμίας \]  
\[\text{ἐπιθυμίας }\]  
  a. text P46, 01, 03, 06, 0151, 1739, RP  
  b. ἐπιθυμιαν 0150, 2110, 1506, P46, 02, 04  
  c. ἐπιθυμιαις 010 (ἐπιθυμειαις), 012 (ἐπιθυμειαις), 33  

All of Family 0150 agree with perhaps only five other witnesses at this point. A small minority witnesses the singular accusative form, while the majority take the plural accusative form. The difference in meaning is negligible, “do not do deeds leading to the lusts of the flesh” or “lust of the flesh.” What is genealogically significant, however, is that all three family members agree on the change, and that this reading was known at least as early as the third century.

**Rom 14:3**  
\[\text{ὁ ἑσθίων τὸν μὴ ἑσθίοντα μὴ ἐξουθενεῖτω, ὁ δὲ μὴ ἑσθίων τὸν ἑσθίοντα μὴ ἅρπεν, ὁ θεὸς γὰρ αὐτὸν προσελάβετο} \]  
\[\text{ὁ δὲ }\]  
  a. text 0150, 2110, 1506, P46, 01, 02, 03, 04, 06
While the substitution of καί for δέ may be insignificant, the contextual details add interest to the reading. (1) The earliest manuscript of which we are aware that reads καί may be the second corrector of Sinaiticus, potentially from around the seventh century.\(^{77}\) Aside from this, all other citations are found from the ninth century and later (GA 044, GA 049, GA 33). (2) If it were not for Family 0150, the latest known manuscript witness to ὁ δέ would be 06 (sixth century). (3) The conjunction καί seems to be the harder reading. In Romans 14:1–5 there are five conjunctions and all of them are δέ. The variant reading in in 14:3 is the only place of significant disagreement among the witnesses. Further, ὁ δέ was used in the previous verse, ὁ δὲ ἀσθενῶν λάχανα ἐσθίει. There is a natural agreement in structure between 14:2, “but the one who is weak” and 14:3, “but the one who does not eat.” The minority reading is smoother and is a better fit for the context.

Rom 14:5 δές μὲν γὰρ κρίνει ἡμέραν παρ’ ἡμέραν, δές δὲ κρίνει πάσαν ἡμέραν· ἐκαστὸς ἐν τῷ ἰδίῳ νοὶ πληροφορεῖσθω.

\[ \text{γάρ } \]

a. text 0150, 2110, 1506, 01, 02, 04\(^{a}\), Old Latin, Vulgate

b. lack P46, 01\(^{b}\), 03, 06, 010, 012, 0151, 33, 1739, RP

Both readings are found in diverse textual traditions and both readings are found in related texts (GA 01 and GA 03, Sahidic and Bohairic). The three members of Family 0150 agree against the majority of Greek witnesses while agreeing with the majority of Latin witnesses. Since it is possible that this variant arose in multiple contexts independently from one another, it may not shed light on the textual affinity of Family 0150 to other textual streams. However, taken with other evidence, it further indicates that there is a genealogical relationship between GA 0150, GA 2110, and GA 1506.

Rom 14:6  ὁ φρονῶν τὴν ἡμέραν κυρίῳ φρονεῖ· καὶ ὁ ἐσθίων κυρίῳ ἐσθίει, εὐχαριστεῖ γὰρ τῷ θεῷ· καὶ ὁ μὴ ἐσθίων κυρίῳ οὐκ ἐσθίει καὶ εὐχαριστεῖ τῷ θεῷ.

εὐχαριστεῖ γὰρ ]

a. text 01 (εὐχαριστεῖ), 02, 03 (εὐχαριστεῖ), 06, 010, 012, 0151, 33, 1739, RP

b. καὶ εὐχαριστεῖ 0150, 2110, 1506, P46

The total number of known witnesses for the reading of Family 0150 is given above. It is a rare minority reading upon which all members of Family 0150 agree. The reading itself is likely the result of harmonization with καὶ εὐχαριστεῖ in the following clause. Since it is found in GA P46 and no other known intervening witnesses, it might be a case of independent and unrelated variation for the same reason. On the other hand, this is not the only case in which Family 0150 and GA P46 are among a very small group of witnesses to a rare variant (see Rom 13:14 above). While this variant is clearly evidence for a familial relationship among the family members, it may indicate that it did not arise in GA P46 and the family independently.

Rom 14:9  εἰς τούτο γὰρ Χριστὸς ἀπέθανεν καὶ ἐζησεν, ἵνα καὶ νεκρῶν καὶ ζώντων κυριεύσῃ.

ἀπέθανεν καὶ ἐζησεν ]

a. text 0150, 2110, 1506, 01, 02, 03, 04, 1739

b. ἀπέθανεν καὶ ανεστη 010, 012

c. ἀπέθανεν καὶ ανέστη καὶ ἔζησεν 0150, 33

d. καὶ ἀπέθανεν καὶ ανέστη καὶ ἔζησεν 0150, 33, RP

e. ἔζησεν καὶ ἀπέθανεν καὶ ανεστη 06

The majority of witnesses add to the first half of the verse, “For this result, Christ both died and rose” and lived.” All members of Family 0150 agree with the earliest known witnesses by taking the shorter and harder reading, “For this result, Christ died and lived.” Some witnesses (e.g., GA 010 and GA 012) substitute ἀνέστη for ἔζησεν, making explicit the implicit “lived again” sense that ἔζησεν carries in this context. In the case of Family 0150,
the shorter and harder reading survived into the inception of the family and through to the fourteenth century in the latest member, GA 1506.

**Rom 14:10**  
Σὺ δὲ τί χρίνεις τὸν ἄδελφόν σου; ἢ καὶ τί ἐξουθενεῖς τὸν ἄδελφόν σου; πάντες γὰρ παραστησόμεθα τῷ βήματι τοῦ θεοῦ,  

toῦ θεοῦ ]

a. *text* τοῦ 2110, 1506, 01, 02, 03, 04, 06, 010, 012, 1739  
b. τοῦ χῦ 01, 04, 0151, 33, RP  
c. τω ὑω 0150

While not a true family reading, it is important to notice that all three family members agree that the noun is θεός rather than χριστός as found in the majority of witnesses. The two main options have the noun in the genitive case, but GA 0150 alone puts it in the dative case. “All three members of Family 0150 agree against χριστός in any noun case.

**Rom 14:14**  
οἶδα καὶ πέπεισμαι ἐν κυρίῳ Ἰησοῦ ὅτι οὐδὲν κοινὸν ἔχει, ἐκεῖνῳ κοινόν.  

έαυτοῦ ]

a. *text* 0150, 2110, 1506, 01, 03, 04, 1739  
b. αὐτοῦ 02, 04, 06, 010, 012, 0151, 33, RP  

In this context, the reflexive pronoun ἐαυτοῦ merely makes the function of αὐτοῦ more explicit. The reading found in the Majority Text is capable of functioning as a reflexive and adding emphasis on its own.”

**Rom 14:15a**  
eἰ γὰρ διὰ βρώμα ὁ ἄδελφός σου λυπεῖται, σύκετι κατὰ ἀγάπην περιπατεῖς;  

γὰρ ]

---

176 See 4.1.2 in the following chapter.  
177 Reflexives such as ἐαυτοῦ “have surrendered some of their original function to the simple personal pronoun in the NT (as in Hellenistic)”, (BDF §283).
a. text 0150, 2110, 1506, 01, 02, 03, 04, 06, 010, 010, 1739

b. δέ 0151, 33, RP

This variation unit concerns the choice of conjunction with which to connect Rom 14:14 and 14:15. Verse 14 contains two distinct phrases; the choice of conjunction seems to determine for which phrase verse 15 functions as the connected thought. The previous verse states that (a) Paul is convinced that nothing is unclean but (b) food is unclean for the person who thinks it is unclean.

The majority of witnesses seem to connect verse 15 to 14a by substituting δέ for γάρ, “14 I know and am persuaded that nothing is unclean in itself ... 15a but at the same time”⁵⁸ if your brother is grieved because of the (unclean) food, you cease walking according to love.” If, on the other hand, δέ is meant to connect 14b to 15, then it must be functioning to continue the thought in 14b, “14b ... the one who considers something to be unclean, for that person (it is) unclean. 15a And if your brother is grieved because of the (unclean) food, you cease walking according to love.”

Family 0150 (along with all of the earliest known witnesses), use γάρ to connect the two sentences. In this case, all of verse 15 seems to be a consequence of 14b, “14b ... the one who considers something to be unclean, for that person (it is) unclean. 15a For this reason⁷⁹, if your brother is grieved because of the (unclean) food, you cease walking according to love. Do not destroy the one for whom Christ died with your food.” The true meaning value of this variation unit seems to be in determining the relationship between verses 14 and 15. The reading in Family 0150 connects 14b to 15, while the Majority Text reading likely connects 14a to the following verse.

Rom 14:16 μὴ βλασφημείσθω οὖν ὑμῶν τὸ ἀγαθὸν.

[ ὑμῶν ]

a. text 01, 02, 03, 04, 0151, 33, 1739, RP

⁵⁸ See BDAG, δέ, 3 and 4.a
⁷⁹ See BDAG, γάρ, 1.a
b. \(\eta μ\omegaν\) 0150, 2110, 1506, 06, 010, 012, 044, Syriac (and Peshitta), Sahidic, Vulgate

Here Family 0150 is in unanimous agreement against both the Majority Text and the critical text. Even so, the Greek and versional evidence for the second-person plural pronoun \(\eta μ\omegaν\) is noteworthy; it demonstrates that \(\eta μ\omegaν\), while relatively rare in the Greek witnesses, is well-supported and spread widely throughout the versions. Outside of Family 0150, the latest and only other known minuscule witness is 1245 (twelfth century). This is not a reading that entered into the Byzantine text, although it was apparently well-known enough to have done so.

The early witness support for the reading of Family 0150 is better than the NA28 apparatus indicates, which lists only GA 06, GA 010, GA 012, and GA 044 as the earliest Greek witnesses. GA P46\textsuperscript{vid} should be added to this list, with the result that Family 0150 witnesses to a demonstrably ancient reading and probably the most ancient known reading.

The reason that GA P46 is not cited in the apparatus is likely because the editors believe it supports \(\omicron\mu\omegaν\). The folio in which the reading appears survives only as a single vertical strip with an average of three or four legible characters on the left margin. INTF has transcribed the surviving part of Rom 14:16 as \(\omicron\nu \upsilon\mu\omegaν\). Only the upper left portion of the crucial vowel is visible.

|Figure 9. Rom 14:16 in GA P46 (Folio 18v, line 17)|

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The images above (figures 11–13) show several examples of both η and υ in GA P46. Note how the upper left stroke of the upsilons in the same fragment of GA P46 are lighter relative to any vertical stroke. Note also that the upper left stroke of the upsilons immediately begins moving horizontally to the right. In contrast to this pattern, the visible ink of the last letter in Figure 11 is a strong stroke descending vertically downward. It is a much better match for the left stroke of η than it is a match for υ. Therefore, a more accurate transcription of the extant portion of Rom 14:16 in GA P46 is: οὖν η[μων].

With the support of witnesses such as GA P46, GA 6, and diverse versions, the added witness of Family 0150 is sufficient for questioning whether ὑμῶν belongs to the initial text. Indeed, ἡμῶν has a few things to commend it and ὑμῶν fits the typical smoothing and harmonizing tendencies already observed in the previous examples. It could be that ὑμῶν was substituted because it was perceived to fit the context in which the
previous two pronouns in the immediate context were also second person. One could consider ἡμῶν to be the harder reading because the nearest conceptual match for a first-person plural is the verb in verse 13, Μηκέτι οὖν ἀλλήλους χρίνωμεν, “Therefore, let us no longer judge one another.” The closer context of verse 16 is dominated, conceptually, by second and third person ideas.

Rom 14:18 ὁ γάρ ἐν τούτῳ δουλεύων τῷ Χριστῷ εὐάρεστος τῷ θεῷ καὶ δόκιμος τοῖς ἀνθρώποις.

tούτῳ ]

a. text 0150, 2110, 1506, P46, 01, 02, 03, 04, 06, 010, 012, 1739

b. τούτοις 01c2, 06ακε2, 0151, 33, RP

Family 0150 sides with the more ancient witnesses, although the manuscript support for each reading is significant. It seems that by changing the singular τούτῳ to the plural form ties τούτοις δουλεύων τῷ Χριστῷ, “one who serves Christ in these things” (14:18) with τὰ τῆς εἰρήνης διώκωμεν “we pursue the things of peace” (14:19). Family 0150, on the other hand, seems to connect τούτῳ δουλεύων τῷ Χριστῷ, “the one who serves Christ in this way” (14:18) with the command earlier, “One must not revile what is good to us.”

Rom 14:21 καλὸν τὸ μὴ φαγεῖν κρέα μηδὲ πιεῖν ὅλον μηδὲ ἐν ὧν ὁ ἀδελφός σου προσκόπτει.

end ]

a. text 0150, 2110, 1506, 01, 02, 04, 1739, Bohairic, Peshitta

b. add ἡ σκανδαλίζεται ἡ ασθένει 03, 06ακε2, 0151, 33, Harklensis, Sahidic, RP

br1. ἡ σκανδαλίζεται ἡ ασθένει 01c2

br2. ἡ σκανδαλίζεται ἡ ασθένει 06

br3. ἡ σκανδαλίζεται ἡ ασθένει 010, 012

This variation unit divides many recognized textual groupings such as GA 01 and GA 03, the Syriac versions, and the Coptic versions. Family 0150 sides with the minority of witnesses which contain the shorter reading.
Rom 14:23

Family 0150 joins the Majority Text in adding the doxology section after 14:23. However, Family 0150 (along with GA 02, GA 020, GA 104, GA 459) also adds the doxology after 16:23. That this occurs in GA 02 demonstrates that the confusion concerning the placement of the doxology was already being dealt with in different ways, at least as early as the fifth century.

Rom 15:2 ἕκαστος ἡμῶν τῷ πλησίον ἀρεσκέτω εἰς τὸ ἀγαθὸν πρὸς σίκοδομήν· ἡμῶν

Here is another instance of Family 0150 agreeing against both the Majority Text and the critical text, although it is far from being an exclusive family reading since it agrees with several well-known witnesses. Only a few verses earlier, at 14:16, Family 0150 agreed against the Majority Text and the critical text by reading ἡμῶν instead of ὑμῶν, the opposite of the present variation unit. The first-person pronoun seems better fitted to the context since 15:2 continues the thought from 15:1 which begins Ὁφείλομεν δὲ ἡμεῖς οἱ δυνατοὶ τὰ ἀσθενήματα τῶν ἀδυνάτων βαστάζειν, “Now we who are strong are obligated to pick up the weak.”

Rom 15:3 καὶ γὰρ ὁ Χριστὸς οὐχ ἑαυτῷ ἤρεσεν, ἀλλὰ καθὼς γέγραπται· οἱ ονειδισμοί τῶν ονειδιζόντων σε ἐπέπεσαν ἐπ' ἐμὲ.

ἐπέπεσαν
Family Ω150 agrees with all the early manuscripts. The only majuscule known to contain the Majority Text reading is a correction in GA 06. While this change is not among the common spelling variations that have been excluded from the present chapter, it does seem to be quite minor: the Majority Text forms the word as a second aorist, but Family Ω150 has transmitted it as a first aorist. 

Rom 15:7  
Διὸ προσλαμβάνεσθε ἀλλήλους, καθὼς καὶ ὁ Χριστὸς προσελάβετο ἡμᾶς εἰς δόξαν τοῦ θεοῦ.

ήμας ]

Although the UBS5 apparatus gives the second person pronoun an ‘A’ rating for certainty, major English translations disagree. The NASB95 takes the pronoun to be first person and the NRSV selects the second person pronoun. Family Ω150 sides against both the Majority Text and the critical text by preserving the second person ἡμᾶς. While it is true that the majority of witnesses read ὑμᾶς, Family Ω150 is joined by a dozen Greek witnesses including GA 03, GA 06, and many lectionaries. Interestingly, this is an example of a variation unit which is supported both by a minority of witnesses and by the Textus Receptus. Both readings are demonstrably ancient and justifiable, so it is unsurprising to find that both were transmitted into the second millennium.

τοῦ ]

Although the vast majority of known witnesses lack the article, Family Ω150 sides with a small but important minority that includes it. The phrase δόξαν τοῦ θεοῦ and δόξαν

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\[a\] See LS 284 and BDAG 377.

\[b\] The UBS5 apparatus lists 147, 590, 597, 731, 884, 1159.
θεοῦ are not common in the Pauline corpus, so neither can be said to be more ‘Pauline’ than the other.\(^{\text{83}}\)

Rom 15:8  

λέγω γάρ Χριστὸν διάκονον γεγενήσαι περιτομῆς ὑπὲρ ἀληθείας θεοῦ, εἰς τὸ βεβαιώσαι τὰς ἐπαγγελίας τῶν πατέρων,  

γάρ Χριστὸν]

a.  

text o150, 2110, 1506, P46, o1, o2, o3, o4

b.  δὲ χὖ iv o151, 33, RP

c.  γὰρ iv χὖ o6, o10, o12

Family o150 and a dozen other Greek witnesses substitute one postpositive conjunction (γάρ) for another (δέ). It is interesting that the Majority Text contains δέ instead of γάρ since the latter seems to be a more dynamic and smoother reading. While δέ transitions to the next point, γάρ explains or gives the reason for the preceding thought. The relationship between 15:7 and 15:8 is at stake. For the Majority Text, verse 8 is a continuation, but in Family o150 and the critical text, 14:8 gives the reason that the readers and hearers are instructed to προσλαμβάνεσθε ἀλλήλους (14:7), ‘receive one another.’

Most witnesses contain both χριστὸν and ἰησοῦν, while the earlier witnesses and Family o150 lack ἰησοῦν. Since the family text does not show any patterns of preferring shorter readings, it is most likely that the ancient reading was accurately transmitted to John of Damascus in the eighth century.

Rom 15:11  

καὶ πάλιν καὶ εἰς τοὺς εὐθύνην τοῦ κυρίου καὶ ἐπαίνεσάτωσαν αὐτόν πάντες οἱ λαοί.  

πάντα τὰ ἔθνη, τὸν κύριον []

a.  

text (κὖ) o150, 2110, 1506, o1, o2, o3, o6, 1739

b.  τον κὖ πάντα τα εὔθυνη o4 vid, o10, o12, o151, 33, RP

\(^{\text{83}}\) Δόξαν τοῦ θεοῦ is found only in 2 Cor 4:15 (although here δόξαν is also articular); Δόξαν θεοῦ is found only in 1 Cor 10:31 and Phil 2:11. In every instance it is a prepositional phrase governed by ἐκ.
The Majority Text begins this phrase with αἰνεῖτε τὸν κύριον while other early witnesses end the phrase with τὸν κύριον. The reading in the Majority Text is demonstrably ancient, being found in GA 04 (fifth century). As is often the case, Family 0150 agrees with the small group of earliest known witnesses, including GA 06—which does not, in this case, agree with 010 and 012. As a word order variant, the meaning is affected only in minor ways. It may be that the reading in the text emphasizes who is praised, while the reading in the Majority Text emphasizes the one who is praised.

ἐπαινεσάτωσαν ]

a. text 0150, 2110, 1506, P46, 01, 02 (αιπενεσατωσαν), 03, 04, 06, 1739
b. ἐπαινεσάτε o10, o12, o151, 33, RP

The witness grouping for this variation unit is nearly identical to the previous variant in the same verse except that 04 has returned to support the familiar GA P46-01-02-03 group. This variant also has a more direct effect on translation. The Majority Text reads ἐπαινεσάτε, which is a second person plural imperative exactly like αἰνεῖτε from the previous phrase. It seems a classic instance of harmonization to the immediate context, “Praise the Lord all you Gentiles, and praise him all you peoples.” However, the minority of witnesses and Family 0150 that support the reading in the critical text use a third person imperative instead, “Let all the peoples praise him.”


τῆς ]

a. text 0150, 0151, 2110, 1506, 01, 03, 1739
b. om P46, 02, 04, 06, 010, 012, 33, RP

The majority of known witnesses both late and early support the absence of τῆς while a small minority including Family 0150 support its inclusion. The family reading agrees, notably, with GA 01 and GA 03 while the Majority Text is supported by early witnesses such as GA P46, GA 02, and GA 04—all of which are thoroughly non-Byzantine
in the Paulines. Interestingly, the family is accompanied by in this instance by GA 0151. It is notable because, in a rare event, GA 0151 agrees with Family 0150 against both the Majority Text and the critical text along with only a handful of other witnesses. GA 0151 is the only other extant (at this place) witness to the catena of John of Damascus and has been demonstrated to have been so thoroughly converted to the Majority Text that it bears little resemblance to Family 0150. The inclusion of τῆς certainly is the reading of the archetype of Family 0150, and therefore has been transmitted from witnesses such as 01 and 03 to John of Damascus.

δυνάμενοι καὶ ἀλλήλους ]

- text 0150, 2110, 1506, P46, 01, 02, 03, 04, 06c, 1739
- δυναμενοι και αλλους 0151, 33, RP
- αλληλους δυναμενοι 06, 06c, 010, 012

The translation value of this reading is significant; the Majority Text reads ἀλλος, “admonish others,” communicating that the readers are to admonish those outside the reading group; the critical text and Family 0150 read ἀλλήλους, “admonish one another,” seemingly indicating the audience is admonish in-group members. The earliest known witness to the Majority Text is GA 049 (ninth century) while ἀλλήλους is found in witnesses from the third to fifth centuries.

Rom 15:16 εἰς τὸ εἶναι με λειτουργὸν Χριστοῦ Ἰησοῦ εἰς τὰ ἑδνη, ἰερουργοῦντα τὸ εὐαγγέλιον τοῦ θεοῦ, ἵνα γένηται ἡ προσφορὰ τῶν ἑδνῶν εὐπρόσδεκτος, ἥγιασμένη ἐν πνεύματι ἁγίῳ.

Χριστοῦ Ἰησοῦ ]

- text χῦ ω 0150, 2110, 1506, 01, 02, 03, 04, 010, 012, 1739
- χῦ χῦ P46 (ἡν χῦ), 06, 0151, 33, RP

Family 0150 agrees with the minority of witnesses concerning the order of Χριστοῦ Ἰησοῦ. It is interesting that this variation unit is not included in the NA28 apparatus since the evidence is, arguably, evenly split. While the famous ancient pandects
GA 01, GA 02, GA 03, and GA 04 witness to χυ̅ιυ̅, the earliest witness to this passage, GA P46, along with GA 06 and the majority of witnesses reverse the order.

Rom 15:18 οὐ γὰρ τολμῆσω τι λαλεῖν ὃν οὐ κατειργάσατο Χριστὸς δι’ ἐμοῦ εἰς ὑπακοὴν ἑδνών, λόγῳ καὶ ἔργῳ,

τολμῆσω τι λαλεῖν [a. text 0150, 2110, 1506, 01 (λαλιν), 02, 04, 1739
b. τολμησω λαλειν τι 0151, 33, RP
c. τολμω τι λαλειν 01 (λαλιν), 03
d. τι τολμησω λαλειν P46
e. τολμησω τι ειπειν 06, 010, 012

This variation unit is marked by an uncommon variety of extant readings and ancient witnesses. This kind of variant is helpful for understanding the textual character of Family 0150 because it offers a glimpse into the kinds of witnesses with which the family might demonstrate an affinity. In this case, it is notable that GA 01 and GA 03 divide on this variant and that Family 0150 sides with GA 01. This is the sixth example of GA 0150 agreeing with GA 01 against GA 03 across Romans 13 through 15. Only once does Family 0150 agreeing with GA 03 against 01 in the same span. A pattern is certainly visible, one which indicates that the text of Family 0150 tends to favor GA 01 when it and GA 03 do not agree.

Rom 15:20 οὐτος δὲ φιλοτιμούμενον εὐαγγέλιζεσθαι οὐχ ὄπου ὑνομάσθη Χριστὸς, ἵνα μὴ ἐπ᾿ ἀλλότριον θεμέλιον οἰκοδομῆ, οἰκοδομῶ [a. text P46, 01, 02, 03, 04, 06, 0151, 33, 1739, RP
b. οἰκοδομησω 0150, 2110, 1506, 1735, 2523

15:23, see below.
It seems that the only other witnesses to agree with Family 0150 are GA 1735, held in the Mount Athos monastery alongside GA 1506, and GA 2523, held by the National Library of Greece. Grammatically, the present subjunctive is expected because the clause opens with the negation μὴ, yet Family 0150 substitutes the future indicative instead. The change seems stylistically inferior since μὴ is left negating an indicative verb. Overall, the sense is changed from, “in order that I would not build” to “in order that I will not build.”

Rom 15:23 νυνὶ δὲ μηκέτι τόπων ἐξων ἐν τοῖς κλίμασιν τούτοις, ἐπιποθίαν δὲ ἐξων τού ἐλθεῖν πρὸς ὑμᾶς ἀπὸ πολλῶν ἑτῶν,

πολλῶν ]

a. text P46, 01, 02, 06, 012, 0151, 33, 1739, RP
b. ἵκανων 0150, 2110, 1506, 03, 04
c. lack 010

d. ὡς ἂν ἐν

This is the first and only instance in Romans 13 through 15 in which GA 01 and GA 03 disagree and Family 0150 agrees with GA 03 against GA 01. Both readings can function as synonyms for “many,” though ἵκανος is more often used to communicate the idea of sufficiency and completeness—neither of which fit this context.**

Rom 15:24 ὡς ἂν πορεύωμαι εἰς τὴν Σπανιὰν· ἐλπίζω γὰρ διαπορεύόμενος ἔδασσασθαι ὑμᾶς καὶ ὑπὲρ ὑμῶν προσπεμφῆναι ἐκεῖ ἐὰν ὑμῶν πρῶτον ἀπὸ μέρους ἐμπλησθῆναι.

ὡς ἂν ]

a. text 0150, 2110, 1506, 01, 02, 03, 06, 012, 1739
b. ὡς ἂν 0151, 33, RP
c. ἐως ἂν P46
d. lack 010

Family 0150 exhibits the reading in the text while the main alternative reading in the Majority Text is the simple substitution of ἐὰν for ἂν. Little can be said for a

** See BDAG 472 and BrillDAG, “ἵκανος”
difference in meaning since ἐάν is known to have increasingly replaced ἂν as its functional equivalent.\textsuperscript{186} This being the tendency, it is reasonable to presume that ἂν is the earlier reading; indeed, the manuscript evidence aligns exactly with this.

Σπανίαν ]

a. *text* 0150, 2110, 1506, P46, 01, 02, 03, 04, 06, 010, 012, 025, 044, 81, 1739, 1881, 1962

b. Σπανίαν ἐλεύσομαι πρὸς υμᾶς 0151, 01\textsuperscript{72}, 33, RP

The majority of witnesses from the ninth century and later add ἐλεύσομαι πρὸς υμᾶς, “Whenever I may go to Spain, *I will come to you*, for I hope to see you on the way.” Perhaps the earliest witness to the addition is the second corrector of GA 01 (around seventh century), or GA 020 (ninth century). All others prior to the ninth century lack the balancing phrase. Family 0150 accounts for a third of all witnesses to the shorter reading that postdate the eighth century.

διαπορευόμενος ]

a. *text* 01, 03, 04, 06, 010, 012, 0151, 33, RP

b. πορευομενος 0150, 2110, 1506, P46, 02, 630, 1739, 1881

Family 0150 sides with a small group of witnesses that includes notable manuscripts GA P46, GA 02, and GA 1739 that lack the preposition in διαπορευόμενος. Instead of seeing the Romans “on the way” or “in passing,”\textsuperscript{187} in Family 0150 Paul hopes to see the Romans “while going.” This creates symmetry with πορεύωμαι of the previous clause in the same verse and it is enhanced by the shorter reading of the previously discussed variant.

Rom 15:27 ἐνδόξησαν γὰρ καὶ ὀφειλέται εἰσίν αὐτῶν· εἰ γὰρ τοῖς πνευματικοῖς αὐτῶν ἐχουνώνησαν τὰ ἔθνη, ὀφείλουσιν καὶ ἐν τοῖς σαρκικοῖς λειτουργῆσαι αὐτοῖς.

εἰσίν αὐτῶν ]

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\textsuperscript{186} BDF §107

\textsuperscript{187} See BDAG 235.
Earlier in Rom 15:14, Family 0150 and the same witnesses include τὴν while the Majority Text lack it. In this case, the opposite is true. The alignment of witnesses to both readings demonstrates that neither 15:14 nor here at 15:28 is the absence or presence of a single article merely arbitrary. Rather, even a minor change can be transmitted into a tradition with stability.

Family 0150 follows the earliest witnesses and lacks ἵνα. The later addition of ἵνα seems almost inevitable because (1) it makes explicit the sense of the subjunctive γένηται which governs the clause and (2) it is immediately preceded (same verse) and followed by (15:32) two other ἵνα-subjunctive patterns. It is such an obvious stylistic improvement, that its absence in Family 0150 must further indicate a stable transmission from the type of text exemplified in the earlier witnesses.
Aside from the singular reading in GA P46, the two major readings at this point of variation entail word order. There is a preference among the witnesses, going back to at least to the fifth century in GA 06, to place the conceptual indirect object τοῖς ἁγίοις after the verb, “that my ministry... might be acceptable to the saints.” This change brings γένηται into conceptual agreement with the previous subjunctive phrase ἵνα φυσθῶ ἀπὸ τῶν ἀπειθούντων, “that I might be rescued from those who are disobedient” and the following subjunctive phrase ἵνα ἐν χαρᾷ ἐλθὼν πρὸς ὑμᾶς, “in order that I might, in grace, come to you” (15:32).

Rom 15:32 ἵνα ἐν χαρᾷ ἐλθὼν πρὸς ὑμᾶς διὰ θελήματος θεοῦ συναναπαύσωμαι ὑμῖν.

The addition of καί smooths the reading of several clauses. It is the kind of addition that, while minor, has little reason to be deleted after being added. At this place of variation, Family 0150 has preserved an early text in all its members through to the fourteenth century. Other early and apparently secondary readings include the substitution of χυ καί and χυ καί, for θεοῦ and even the combination χυ καί for θεοῦ.
As with the above example, all three members of Family 0150 lack a conjunction, a stylistic improvement that adds further emphasis, “theirs and ours” (text and Family 0150) versus “theirs and also ours” (Majority Text reading).

1 Cor 1:10b–c ἵνα τὸ αὐτὸ λέγητε πάντες καὶ μὴ ἕν ὑμῖν σχίσματα, ἢτε δὲ κατηρτισμένοι ἐν τῷ αὐτῷ νοῆ καὶ ἐν τῇ αὐτῇ γνώμῃ.

τὸ αὐτὸ ]

a. text P46, 01, 02, 03, 04, 06, 0151, 33, 1739, RP
b. τῷ αὐτῷ 0150, 2110, 1506, 999, 1735c

All members of Family 0150 agree on this rare substitution. In the accusative, τὸ αὐτὸ is clearly the object of λέγητε, “...all (of you) speak the same (thing).” The dative reading could be taken to mean “you all speak to the same end.” Alternatively, it could be a harmonization in both spelling and sense to later in the same verse (1:10c), “κατηρτισμένοι ἐν τῷ αὐτῷ νοῆ,” “made complete in the same mind.” If “mind” is assumed and transferred to 1:10b, then the reading is justifiable. The best explanation is harmonization to the immediate context. Aside from Family 0150, only two other manuscripts have this reading, and both are held on Mount Athos. GA 1735 lacks 1 Cor 1:10a; the missing text is written in the right margin by a later scribe. In this addition, the scribe writes out the dative form. Only GA 999 includes the dative case by the first hand. While the error is probably coincidental in the case of Family 0150 and the other two, it is likely evidence of a genealogical relationship for the members of Family 0150.

1 Cor 1:15 ἵνα μὴ τὶς εἴη ὅτι εἰς τὸ ἐμὸν ὄνομα ἐβαπτίσθητε ἐφαπτίσθητε ]

a. text P46, 01, 02, 03, 04, 33, 1739,
ar. ἐβαπτίσθηται 0150, 2110, 1506
b. ἐβαπτίσατε 06, 020, 044, 0151, RP, (ἐβαπτίσατε) 010, 012
There are two main readings at this point of variation. The Majority Text has the first-person singular aorist form of the verb ‘to baptize,’ while the earliest extant witnesses and the NA28 contain instead the second-person plural aorist form of the same verb. In the Majority Text, the plural subject of the verb is the reading audience, “…that none would say that you were baptized in my name.” But the reading of the critical text takes the author, Paul, to be the subject, “…that none would say that I baptized (you) in my name.” The broad meaning is equivalent, since the context of the verse is explicitly about whom has been baptized by Paul.

Family 0150 agrees with the reading in the Majority Text but contains the common spelling variant αι for ε. The conjugation of the verb indicates relationship to the earliest witnesses of this passage, while the spelling variant indicates relationship within the family.

1 Cor 1:20 ποὺ σοφός; ποὺ γραμματεύς; πο,’’ συζητητὴς τοῦ αἰῶνος τοῦτον; οὐχὶ ἐμώρανεν ὁ θεὸς τὴν σοφίαν τοῦ κόσμου τοῦ κόσμου 

toû kósmou

a. text 0150, 2110, 1506, P46, 01, 02, 03, 04, 06, 025, 33, 1739
b. toû kósmou toûtou P11, 01⁴, 04⁸, 010, 012, 0151, 1739⁶, RP

While the majority of our later extant Greek witnesses clearly support the addition of τοῦτον, the often-cited witnesses and versions are internally inconsistent. According to the NA28 critical apparatus, GA o6 supports the reading in the text, but the similar and later witnesses GA o10 and GA o12 take on the reading in the Majority Text. The fourth-century papyrus, GA P11, supports the Majority Text reading, while other third and fourth-century witnesses (GA P46, GA o1, GA o3) support the shorter reading. Both readings can be found in individual Bohairic and Sahidic manuscripts. Both readings can be found in the early Christian writers, Clement and Epiphanius. Of the versions, only the Syriac witnesses are cited as uniformly supporting a reading, which is the reading in the text. In all this instability, all members of Family 0150 are united by the absence of τοῦτον.
As for the reading, the addition of τούτου simply improves the symmetry between mentions of τοῦ αἰῶνος τούτου “this age” and τοῦ κόσμου τούτου “this world.” The inclination to improve symmetry is demonstrably early, having occurred at least as early as the fourth century. Yet several lines of transmission remain clear of the addition, including Family 0150.

1 Cor 1:22 ἐπειδὴ καὶ Ἰουδαίοι σημεία αἰτοῦσιν καὶ Ἑλληνες σοφίαν ἐπιθύσιν ἐπειδὴ καὶ ]

   a. text 01, 02, 03, 04 (ἐπιδή), 06 (ἐπιδή), 0151, 33, RP
   b. ἐπειδὴ ἐκ καὶ 0150, 1506, 2110, 1912
   c. ἐπειδὴ P46

Family 0150 agrees with a handful of other witnesses that include a third conjunction.

1 Cor 1:27 ἀλλὰ τὰ μωρὰ τοῦ κόσμου ἐξελέξατο ὁ θεός, ἵνα κατασκύψῃ τοὺς σοφοὺς, καὶ τὰ ἀσθενή τοῦ κόσμου ἐξελέξατο ὁ θεός, ἵνα κατασκύψῃ τὰ ἱσχυρά κατασκύψῃ τοὺς σοφοὺς ]

   a. text, P46, 03, 04, 33, 1739
   ar1. κατασκύψῃ τοὺς σοφοὺς 01, 06
   ar2. κατασκύψῃ τοὺς σοφοὺς 0150, 2110, 1506
   b. τοὺς σοφοὺς κατασκύψῃ 0151, RP

Readings (a), (ar1), and (ar2) should be taken as supporting the same reading. They contain only minor orthographical variations. Yet, it is worth pointing out for the sake of genealogical relationships that reading (ar2), a subreading of (a), has all members of Family 0150 as witnesses. An insignificant agreement to be sure, but a shared minor error, nonetheless. It is theoretically possible that it is an intentional reading to substitute the indicative κατασκύψῃ for the subjunctive κατασκύψῃ. But this is unlikely considering
that the clause is governed by ἵνα which usually anticipates the subjunctive. This is both evidence that the members of Family 0150 are related and that their archetypal text should not be consulted for subjunctive/indicative readings when the difference can be explained by orthographical error. What is clear, however, is that Family 0150 agrees with the earliest witnesses against the Majority Text for the order of these three words.

1 Cor 2:2  
οὐ γὰρ ἐκρινά τι εἰδέναι ἐν ὑμῖν εἰ μὴ Ἰησοῦν Χριστὸν καὶ τοῦτον ἐσταυρωμένον
τι εἰδέναι ἐν υμῖν ]

a. text 03, 04, 33, 1739  
b. εἰδέναι τι εν υμιν 0150, 2110, 1506, 01, 02, 048  
c. του ειδεναι τι εν υμιν 0151, RP  
d. τι εν υμειν ειδεναι 06

The NA28 apparatus incorrectly cites GA 1506 as a witness to the reading in the text. GA 1506, along with GA 0150 and GA 2110 clearly place the τι after εἰδέναι. This is the word order found in the Majority Text, however, unlike the Majority Text, Family 0150 lacks the article τοῦ before the infinitive εἰδέναι. Several important witnesses also reverse the word order and lack the article, including GA 01, GA 02, and GA 048. This indicates that the word order change is not necessarily caused by the addition of the article to εἰδέναι.

1 Cor 2:3  
χάγω ἐν ἀσθενείᾳ καὶ ἐν φόβῳ καὶ ἐν τρόμῳ πολλῷ ἐγενόμην πρὸς ὑμᾶς
χάγω ]

a. text 0150, 2110, 1506, 01, 02, 03, 04, 33, 1739  
b. καὶ εγὼ 06, 0151, RP  
c. lack P46

See BDF §369.
While this is a minor variant and both readings have essentially equivalent meanings, it can still be useful as an indicator of genealogical relationships. Family 0150 uniformly witness the shorter reading, along with the earliest witnesses. The Majority of later witnesses have expanded κἀγὼ into two explicit parts, καὶ ἐγὼ.

1 Cor 2:4 καὶ ὁ λόγος μου καὶ τὸ κήρυγμά μου οὐκ ἐν πειθοὶς σοφίας [λόγοις] ἀλλὰ ἐν ἀποδείξει πνεύματος καὶ δυνάμεως

σοφίας [λόγοις]

a. text σοφίας λόγοις 0150, 2110, 1506, 01 (λόγος), 03, 06, 33, 1739
b. σοφίας P46
c. ανθρωπίνης σοφίας λόγοις 01, 02, 04 (σοφις), 0151, RP

The variations of this reading vary from two to four words and each of these three readings has significant early witnesses. The great majority of later witnesses contain the longest reading, πειθοὶς ἀνθρωπίνης σοφίας λόγοις, “persuasive human words of wisdom.” Yet the great number of later witnesses are joined by the second corrector of 01, and the first hands of GA 02 and GA 04. If this reading is an expansion of an earlier shorter reading, then it entered the textual tradition perhaps as early as the fourth century. Despite the majority and early support for reading (c), all members of Family 0150 join GA 01, GA 03, and GA 06 (and some others) in support of reading (a), the variant of middle length. The impetus for adding ἀνθρωπίνης, “human,” is easy to identify without it, the contrast between σοφίας λόγοις “wise words” and πνεύματος καὶ δυνάμεως, “spirit and power” is not immediately obvious within the narrow context. The reason that wisdom would be inferior comes in the following verse, ἵνα η ἡ πίστις ὑμῶν μὴ ἔν σοφία ἀνθρώπων, “that your faith may not be in the wisdom of men.” To harmonize 1 Cor 2:4 with 1 Cor 2:5, the “words of wisdom” mentioned in 2:4 was amended to “words of human wisdom.” Family 0150 preserves the more primitive and implicit reading.

1 Cor 2:7a ἀλλὰ λαλοῦμεν θεοῦ σοφίαν ἐν μυστηρίῳ τὴν ἀποκεκρυμμένην
Family οίς 0150 agrees with the critical text for the order of these two words. This is contrary to the reading in the Robinson-Pierpont edition of the Byzantine tradition. It is not clear to me, with the resources available to me, that the Robinson-Pierpont reading is necessarily the reading found in the majority of all extant witnesses. It may be a split. What can be said more concretely, then, is that Family οίς 0150 disagrees with the reading found in the textus receptus.

1 Cor 2:11b    οὐτῶς καὶ τὰ τοῦ θεοῦ σώματος ἔγνωκεν εἰ μὴ τὸ πνεῦμα τοῦ θεοῦ ἔγνω

a.  text οίς σώματος 0150, 2110, 1506, P46, 01, 02, 03, 04, 06, 33, 1739

b.  σωμάτος θεού RP, TR

This substitution is interesting and has two levels to it. The Majority Text has substituted the perfect active indicative οἶδεν for the perfect active indicative ἔγνωκεν. The infinitive of both verbs is often translated “to know.” The substitution involves a synonym. However, in this case, the two readings are not equivalent. While οἶδεν is morphologically in the perfect active indicative form, its perfect tense form has enough of a present tense force that it is “used as a pres[ent].” Therefore, the Majority Text substitutes one instance of a perfect tense verb for another perfect tense verb form, but it has effectively substituted a present tense verb. Family οίς 0150 agrees with the early minority of witnesses that retain ἔγνωκεν, “No one has known the things of God except the spirit of God,” and not with the Majority of later witnesses which contains οἶδεν, “No one knows the things of God except the spirit of God.”

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BDAG, 693.
1 Cor 2:13 ἃ καὶ λαλοῦμεν οὕκ ἐν διδακτοῖς ἀνθρωπίνης σοφίας λόγοις ἀλλ' ἐν διδακτοῖς πνεύματος

πνεύματος ]

a. text 0150, 2110, 1506, 03, 06, 33
ar. πνευματος πνευματος, P46, 01, 02, 0151, 33, 1739
b. add ἀγίου o151 (πνευματος), RP
cf. 2:10 above in which all members agree with the Byz and add ἄγιον.

1 Cor 3:2 γάλα υμᾶς ἐπότισα, οὐ βρῶμα· οὔπω γὰρ ἐδύνασθε. ἀλλ' οὔδὲ ἔτι νῦν δύνασθε

ἐπότισα ]

a. text 0150, 2110, 1506, P46, 01, 02, 03, 04, 33, 1739
b. εποτισα και 06, 0151, RP

Family 0150 agrees with the earliest witnesses and lacks καί. The presence of the conjunction is logical, γάλα υμᾶς ἐπότισα, καί οὐ βρῶμα, “I gave you milk to drink and not food.” The verb ἐπότισα, “I gave to drink” or “I watered,” implies drinking. Since there is no corresponding verb for the giving of food (for any reason), the addition of καί may create an implied parallel phrase governed by the same verb intended to be absurd, “I gave you milk to drink and not food (to drink),” so unready are the Corinthians for solid food. Perhaps this is rather unlikely, but it is a vivid image.

οὔδὲ ]

a. text 0150, 2110, 1506, P46, 01, 02, 03, 04, 06, 33
b. οὔτε o151, RP

These reading options differ by only a single letter. Family 0150 and the reconstructed text (a) contain οὔδὲ, but most later witnesses read οὔτε. These two words are essentially synonyms with the distinction that οὔτε more often correlates to another conjunction, especially after οὐ or another οὔτε. There is no difference in translatable meaning, but the variation likely indicates that later readers and scribes preferred οὔτε for stylistic reasons.
1 Cor 3:3

ὅπου γὰρ ἐν ύμῖν ζῆλος καὶ ἐρίς

ἐρίς ]

a. *text* 0150, 2110, 1506, 01, 02 (ερεις), 03, 04, 1739

b. ερίς καὶ διχοστασίαι P46, 06, 0151 (ερεις), 33, RP

Both the absence and presence of καὶ διχοστασίαι has ancient support. The longer reading (b) is present in extant witnesses dated to the third century (GA P46), and the shorter reading (a) is found in extant witnesses dated as early as the fourth (GA 01 and GA 03). The longer reading went on to become the dominant reading, however, the shorter reading was transmitted through at least the fourteenth century via Family 0150 and its latest member, GA 1506 (CE 1320). As for the significance of the longer reading, it adds a fleshly activity, “jealousy and strife and dissension.”

1 Cor 3:4

οὐκ ἀνθρώποι ἔστε;

οὐχ ἀνθρώπωι ]

a. *text* 0150, 2110, P46, 03, 06 (ουχι)

b. οὐχ οὐκ 1506, 01, 02, 04, 33, 1739

c. οὐχι σαρκικοι 01, 0151, RP

The first thing to point out is that reading (a) and reading (b) are equivalent in meaning since reading (b) is abbreviated form of reading (a). However, in this instance, it is helpful to separate which witnesses contain the full spelling, and which preserve the abbreviation. Nomina sacra are expected when the subject is related to revered individuals such as God, Jesus, and the apostles. But in this case, the subject is the plural readership of the letter. Predictably, early witnesses such as GA P46 and GA 03 do not make a nomen sacrum of ἀνθρώπωι, but other early witnesses such as GA 01, GA 02, and GA 04 do. Further, the members of Family 0150 agree against the Byzantine substitution, but they split over the abbreviation. The two earlier members, GA 0150 and GA 2110 agree on the long form, and the latest member, GA 1506, takes on the abbreviation. Not only is this a further
indication of the genealogical priority that GA 0150 and GA 2110 have in relation to GA 1506, but it further relates the text of Family GA 0150 to GA 03 when it and GA 01 differ.

Reading (c), however, is a true substitution. Both σαρκικός and ἄνθρωπος can mean “human,” as is the intention here. On the other hand, σαρκικός emphasizes the σάρξ, the “flesh” of a human. Indeed, it can go further and indicate that someone is merely human. This is how it is used one verse earlier in 3:3, ἐτι γὰρ σαρκικοὶ ἐστε... κατὰ ἄνθρωπον περιπατεῖτε; “For you are still fleshly...are you not living like a man?” Indeed, this sense of a mere human seems to be intended of ἄνθρωποι. One can see why an interpreter would bring this intention to the foreground by making it lexically explicit in the substitution of σαρκικοί. One might also argue that ἄνθρωποι is preferred because it harmonizes the parallel between 3:3, “…are you not living like a man?” and 3:4, “are you not men?” Ultimately, reading (a) is more likely to be the ancestor of (c) because it fits the authorial style, and the substitution of σαρκικοί is a reasonable decision that makes the author’s point more explicit. Additionally, it is difficult to ignore the support of the earliest witnesses.

1 Cor 3:5 Ἐτι οὖν ἐστιν Ἀπολλῶς; τί δὲ ἐστιν Παύλος; διάκονοι δι’ ὅν ἐπιστεύσατε, καί ἐκάστῳ ὡς ὁ κύριος ἔδωκεν.

There are three types of variation units between these two clauses. First is the substitution of τίς...τίς, “who...who” for τί...τί, “what...what.” Second is the word order change that reverses the placement of Ἀπολλῶς and Παύλος. Third is the absence of ἐστίν. Family 0150 agrees with the reading in the text and with GA 01, GA 02, GA 03, and GA 33. While the text reading enjoys the support of the most respected textual witnesses, it is
important to note that the reading found in the majority of witnesses is equally early and more widespread. It is even more interesting, then, that the reading attested by Family 0150 at this point of variation remained uninfluenced into the fourteenth century. It is even possible that GA 1506, the latest member of the family, is the latest extant witness to the reading of the NA28 edition and of GA 01 and GA 03.

διάκονοι ]

a. *text* 0150, 2110, 1506, 01, 02, 03, 04, 06, 012, 1739

b. ἀλλὰ ἦ διάκονοι 06', 0151, 020, 33, 1505, RP

This point of variation concerns the way in which 1 Cor 3:5a is connected to 1 Cor 3:5b. The reading of the earliest extant manuscripts contains a question and its answer, “What, therefore, is Apollos? What is Paul? (They are) servants through whom you believed.” The reading of the Byzantine text incorporates the answer into the question, “Who, therefore, are Paul and Apollos but (ἀλλὰ ἦ) servants through whom you believed...?” GA 1506 is likely the latest known manuscript to contain reading (a). This variation unit is among the many whose most ancient reading is transmitted relatively late through Family 0150.

1 Cor 3:11 θεμέλιον γὰρ ἄλλον οὐδεὶς δύναται θεῖναι παρὰ τὸν κείμενον, δὲς ἐστὶν Ἰησοῦς Χριστός.

θεῖναι παρὰ τὸν κείμενον ]

a. *text* P46, 01, 02, 03, 04, 06, 0151, 1739, RP

b. παρὰ τὸν κείμενον θεῖα 1506, 33

br. παρὰ τὸν κείμενον θῆναι 0150, 2110

When the spellings of θεῖναι are regularized, Family 0150 agree with only one other witness, GA 33. Indeed, according to Tischendorf, this is a singular reading belonging to GA 33 (“17” in Tischendorf’s apparatus). As will be seen by the end of this chapter,

Family 0150 and GA 33 have no special relationship in Rom. 13–15, however, in 1 Cor. we begin to see more agreements. Within Family 0150, it is a genealogically significant shared error. No matter the origin, it is no longer definitionally true that GA 33 contains a singular reading at this point.

\[
\text{Ἰησοῦς Χριστός }
\]

a. \text{text} \overset{\chi}{\xi} 01, 02, 03, 0151, 33, 1739, RP

b. \overset{\eta}{\iota} \chi P46

c. \overset{\chi}{\xi} 04

Aside from the lack of Ἰησοῦς in the first hand of 04, this variant, like the variant above from the same verse, concerns word order. All members of Family 0150 agree against both the text of the NA28 and the Majority Text. Only three other witnesses are known to preserve the same reading. Since the order of Ἰησοῦς Χριστός is varied from place to place in the Pauline epistles, the degree to which it can be a genealogically significant reading for connecting Family 0150 to non-family witnesses is limited.

1 Cor 3:12a \[ εἰ δὲ τις ἐποικοδομεῖ ἐπὶ τὸν θεμέλιον χρυσόν, ἄργυρον, \[ χρυσόν ἄργυρον \]

a. \text{text} 02, 06, 0151, 33, RP

b. χρυσόν καὶ ἄργυρον P46

c. χρυσίον ἄργυρίον 0150, 2110, 1506, 04, 06, 2400

d. χρυσίον καὶ ἄργυριον 03

Here is one of those rare instances in which the editors of the NA28 have not chosen a reading found in full in GA P46, GA 01, or GA 03. Instead, the text of the NA28 has GA 02 as its most ancient extant manuscript witness along with the majority of all witnesses. The four readings involve different combinations of two options: (1) whether χρυσόν ἄργυρον appear as nouns or diminutive adjectives χρυσίον ἄργυρίον and (2) the presence or absence of καί.
Concerning the presence of καί, the only extant Greek witnesses that clearly include it are GA P46 and GA 03. The NA28 apparatus cites GA 0289 as also including καί but as an apparent reading (ut videtur). All other witnesses, including Family 0150, lack καί. As famous as GA P46 and GA 03 are, they agree on the addition, but disagree on the spelling. Their agreement would be more compelling if they agreed completely. As the evidence stands, it seems more likely that the addition was independent in each witness.

Concerning the spelling, there are several things to consider. First, while readings (c) and (d) are grammatically adjectives, their meaning is probably equivalent to readings (a) and (b). Second, when χρυσός and ἄργυρος or the adjectival counterparts appear in the text of the New Testament, it is common for both options to be found among the Greek manuscripts. Finally, this variation unit is an important marker for Family 0150, and it is notable that only GA 01 and GA 04 agree in full. Since the manuscript tradition often substitutes the noun for the adjective, or the reverse, it is not advisable to use this variant for connecting Family 0150 to GA 01 or GA 04 since it is possible that it arose independently in more than one transmission stream. It is a genealogically significant reading for intrafamily relationships, but not for larger group identity.

1 Cor 3:20 καὶ πάλιν· κύριος γινώσκει τοὺς διαλογισμοὺς τῶν σοφῶν ὃτε εἰσίν μάταιοι.

σοφῶν]

a. text P46, 01, 02, 03, 04 (σοφοσων), 06, 0151, 1739, NA28, RP
b. ανθρωπων 0150, 33
br. ανων 2110, 1506

Most manuscripts, as well as the editions of the NA28 and RP, cite that “the Lord knows the thoughts of the wise (τῶν σοφῶν)” at this point. A very small minority of

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191 See BDAG 128, 129, 1092, 1093.

192 Most witnesses at Acts 17:29 read χρυσῷ ἢ ἀργύρῳ while some early and some late witnesses read χρυσῷ ἢ ἀργυρῷ; at 1 Tim 2:9 both χρυσίῳ and χρυσῶ are well attested options; at 1 Pet 1:7 χρυσόν is found everywhere except 03, which itself reads χρυσῷ; at Rev 18:12, most early and late witnesses read χρυσόν καὶ ἄργυρον while 04 and 025 read χρυσοῦ καὶ ἀργυροῦ (see also Rev 17:4 and 18:6).
manuscripts, including all three members of Family 0150, substitute τῶν ἀνθρώπων, “the people,” for τῶν σοφῶν. This is almost certainly an instance of harmonization to the Old Greek source of the quotation. Psalm 93:11 from the Rahlfs and Hanhart Greek edition reads, κύριος γινώσκει τοὺς διαλογισμοὺς τῶν ἀνθρώπων ὅτι εἰσίν μάταιοι. Family 0150 agrees word for word with the Old Greek source. As a rare variant in Greek manuscripts, it is an especially indicative and connective reading for Family 0150 members to share. Note that in the case of GA 0151, it disagrees with Family 0150 despite containing the same catena and numbered divisions.

1 Cor 4:5c καὶ τότε ὁ ἐπαινοὺς γενήσεται ἐκάστῳ ἀπὸ τοῦ θεοῦ.

ὁ ἐπαινοὺς γενήσεται ]

a. text P46, o1, o2, o3, o4, o6, o151, 33, 1739, RP
b. γενήσεται ο ἐπαινοὺς o150, 2110, 1506, 1874, 1877

As far as I have found, only five manuscripts order the words in this way, and Family 0150 accounts for three of them. There is no immediately obvious connection between the Family 0150 witnesses and GA 1874 and GA 1877. The latter two are both continuous text minuscules and are not catenae.

1 Cor 4:6b ἵνα ἐν ἡμῖν μάθητε τὸ μὴ ὑπὲρ ἄ γέγραπται,

ἡμῖν ]

a. text P46 (ἡμεῖς), o1, o2, o3, o4, o151, 1739, RP
b. ὑμῖν o150, 1506, 2110, o6, 33

1 Cor 4:9a δικόω γάρ,

γάρ ]

a. text, o150, 2110, 1506, P46, o1, o2, o3, o4, o6, 33, 1739
b. γάρ στι o12, o151, RP

I have confirmed this reading in GA 1874 and GA 1877 by consulting the images, but the CNTTS apparatus first alerted me to their reading (“CNTTS”).
While most witnesses add ὅτι here, Family 0150 agrees with the early witnesses that lack it. The addition of the conjunction smooths the reading in both Greek and English, “I think that (ὅτι) God has...” instead of, “For, I think, God has...”

1 Cor 4:13 δυσφημούμενοι παρακαλούμεν·

δυσφημούμενοι ]

a. text 0150, 2110, 1506, P46, 01, 02, 04, 33
b. βλασφημούμενοι 01c2, 03, 06, 0151, RP

Given these two readings, the question is whether the apostles might be (a) “slandered” or (b) “blasphemed.” Both readings have eleven letters in common and the difference can be reduced to δυ- versus βλα- which maps to the minor difference in meaning. While βλασφημέω was originally rooted in a religious or cultic context, it also came to be used for slander and dishonor, albeit with a stronger sense than δυσφημούμενοι.”

This may explain why both readings are early and widespread. It is especially noteworthy for this study that Family 0150 contains an early—perhaps the earliest—reading found in a minority of witnesses.

4.3 Exclusive Family Readings

Rom 13:12 ἡ νύξ προέκοψεν, ἡ δὲ ἡμέρα ἡγγικεν. ἀποθώμεθα οὖν τὰ ἐργα τοῦ σκότους,
ἐνδυσώμεθα δὲ τὰ ἐπλα τοῦ φωτός.

ἐνδυσώμεθα δὲ ]

a. text 02, 03, 04, 06, 1739
b. ενδυσώμεθα P46c, 01, 06c

c. καὶ ενδυσώμεθα δὲ 0150, 2110, 1506
d. καὶ ενδυσώμεθα 01c2, 04c, 06c&c2, 010, 012, 0151, 33, RP
e. ενδυσώμεθα οὖν P46

Most witnesses support either καί or δέ; the majority support καί. Only the three witnesses comprising Family 0150 use both conjunctions.

Rom 15:25  Νυνὶ δὲ πορεύομαι εἰς Ἰερουσαλὴμ διακονῶν τοῖς ἁγίοις.

ἲερουσαλὴμ ]

a. text P46, 03, 06, 010, 012, 33, RP
   ar1. ἱηλμ 01
   ar2. ὑημ 02, 04, 0151, 1739
b. ἱεροσόλυμα 0150, 1506, 2110

Aside from the abbreviation variances, the primary difference here is the spelling of Jerusalem. I could find no other witnesses that read Ἰεροσόλυμα at this place.

Rom 15:29  οἶδα δὲ ὅτι ἔρχομενος πρὸς ὑμᾶς ἐν πληρώματι εὐλογίας Χριστοῦ ἐλεύσομαι.

Χριστοῦ ]

a. text χῦ P46 (χρῦ), 01, 02, 03, 04, 06, 010, 012,
b. τοῦ εὐαγγελίου τοῦ χῦ 01, 0151, 33, RP
c. χῦ τοῦ εὐαγγελίου 0150, 2110, 1506

The NA28 apparatus incorrectly cites GA 1506 as a witness to reading (a) but the UBS5 apparatus correctly cites GA 1506 and GA 0150 as witnesses to reading (c). The confusion is likely because this is a reading found in no other witnesses other than Family 0150. The Majority Text inserts τοῦ εὐαγγελίου τοῦ before Χριστοῦ, however family 0150 inserts τοῦ εὐαγγελίου after Χριστοῦ. This results in Family 0150 lacking the article before Χριστοῦ as with the critical text, but it does include the Majority Text addition in a different place. This may indicate that the text of Family 0150 was changed from reading (a) to reading (b) because of the influence of the more popular reading (b). The Majority Text reading is smoother, so it seems less likely that the family text was changed from (c) to (b).
1 Cor 1:2c χλητοὶς ἁγίοις, σὺν πάσιν τοῖς ἐπικαλουμένοις τὸ ὄνομα τοῦ κυρίου ἡμῶν Ἰησοῦ
Χριστοῦ ἐν παντὶ τόπῳ
τοῦ κυρίου ]

a. text P46, 01, 02, 03, 06, 0151, 33, 1739, RP
b. χυ 0150, 2110, 1506

Here Family 0150 lacks the article before κυρίου. The difference in meaning is minimal, but the variant may have arisen because the two other instances of a nomen sacrum in the same verse—ιυχυ and χυιυ—are both anarthrous. In the following verse, all editions cite κυρίου as anarthrous, but this is unlikely the case for the reading here in 1:2 because Family 0150 lacks the following verse entirely. The scholium for this passage includes a lengthy quotation that includes this portion of the verse. In all extant witnesses to the catena, including GA 0151, the article is included in this quotation. The inclusion of the article in the scholium and its presence in the Majority Text made it all but inevitable that it would be added back into the edition. This was the case for GA 0151, but not the family text.

1 Cor 1:3

All three members of Family 0150, in an apparently exclusive family reading, lack the entirety of 1 Cor 1:3 and most of verse 4 (see below).

1 Cor 1:4 Εὐχαριστῶ τῷ θεῷ μου πάντοτε περὶ ὑμῶν ἐπὶ τῇ χάριτι τοῦ θεοῦ τῇ δοθείσῃ ὑμῖν ἐν Χριστῷ Ἰησοῦ

Εὐχαριστῶ τῷ θεῷ μου πάντοτε περὶ ὑμῶν ἐπὶ τῇ χάριτι τοῦ θεοῦ ] lack 0150, 2110, 1506

Family 0150 lacks verse 3 and everything up to τῇ δοθείσῃ in 1 Cor 1:4. The absence makes little sense, indeed, without most of 1:4, τῇ δοθείσῃ υμῖν, “was given to you” is incomprehensible. It is only within the context of the missing text that the reader may understand that grace is that which “was given to you.” What can be said about this difficult absence?
First, this shared difficult reading demonstrates the strength of Family 0150’s genealogical relationship and the accuracy of its transmission. Second, it is likely the mistake of the archetype’s editor: John of Damascus. The scholium that correlates to this lemma shows that the commentor was most concerned with emphasizing *through whom* something was given, rather than the given thing itself. The accompanying scholia in all three witnesses asks διὰ τίνος ἐδόθη... ἐν Χριστῷ Ιησοῦ, “through whom is it given?...in Christ Jesus.” Even if this was the primary goal of the commentor, it still makes little sense to omit context that is necessary to making sense of τῇ δοθείσῃ. The most helpful clue is found in the preceding scholium, which corresponds to 1 Cor 1:1–2. In this scholium, John of Damascus summarizes 1 Cor 1:1–10 with direct quotations. This series of quotations includes almost all the lacking text from verses 3–4.

To summarize the above factors, (1) all of verse 3, and most of verse 4 is lacking from the lemma, (2) the lacking text is *included* in a quotation in the preceding scholium, (3) the commentor’s emphasis in both the preceding and corresponding scholium is upon Paul’s repetition of “Christ” as the one through whom grace is given, and not upon the grace that is given. Taken together, these factors may indicate that as editor of both the scholium and lemma, John of Damascus mistakenly omitted the lemma text. He could easily have forgotten that the lemma text had not yet been written since he quoted it extensively just prior to inserting the lemma.

1 Cor 1:18 Ὁ λόγος γὰρ ὁ τοῦ σταυροῦ τοῖς μὲν ἀπολλυμένοις μυρία ἐστίν, τοῖς δὲ συζομένοις ἡμῖν δύναμις θεοῦ ἐστίν.

ἐστίν’ ] lack 0150, 2110, 1506

All three members of Family 0150 lack the first of two occurrences of ἐστίν. They are, apparently, the only known witnesses to do this. The impact on meaning and interpretation is minor since the verb is understood whether it is explicitly written or not.
1 Cor 1:25 ὅτι τὸ μωρὸν τοῦ θεοῦ σοφώτερον τῶν ἀνθρώπων ἐστὶν καὶ τὸ ἁσθενὲς τοῦ θεοῦ ἵσχυρότερον τῶν ἀνθρώπων.

σοφώτερον ᾧ ἵσχυρότερον 0150, 2110, 1506

Only the members of Family 0150 seem to substitute the comparative adjective ἵσχυρότερον, “stronger,” for σοφώτερον, “wiser.” The resulting reading, “the foolishness of God is stronger than people” is less fitting than the reading found in all other witnesses, “the foolishness of God is wiser than people. This exclusive family reading is clearly a harmonization to the parallel phrase later in the same verse. These kinds of harmonizations are so common that it might be surprising to someone that finding another witness with the same substitution has yielded no further supporters. The reason for this is likely that it is an obvious error. This harmonization, unlike others, makes the reading less smooth; it is a harder reading. Therefore, it is a significant shared error between all members of Family 0150.

1 Cor 3:1 Κἀγώ, ἀδελφοί, οὐκ ἠδυνήθην λαλῆσαι ὑμῖν ὡς πνευματικὸς ἀλλ’ ὡς σαρκῖνος, ὡς νηπίος ἐν Χριστῷ

Κἀγώ ]

a. text P46, 01, 02, 03, 04, 06, 33
b. καὶ ἐγὼ 0151, RP
c. καὶ ἐγὼ δὲ 0150, 2110, 1506

The members of Family 0150 are, apparently, the only witnesses that maintain the contraction found in the earliest extant witnesses and add δὲ. The Majority Text, on the other hand, expands the contraction to the explicit καὶ ἐγὼ. The reading found in 0150, 2110, and 1506 is different from both reading (a) and reading (b) because there are two conjunctions. Therefore, while the difference between reading (a) and (b) is impossible to translate, reading (c) Κἀγώ δὲ, ἀδελφοί, οὐκ ἠδυνήθην λαλῆσαι ὑμῖν, could be translated, “And I also could not speak to you.” This reading is evidence for the family witnesses’
special relationship, but it is difficult to test how reading (c) is related genealogically to the other readings.

1 Cor 3:22b  εἴτε κόσμος εἴτε ζωή εἴτε θάνατος, εἴτε ἐνεστώτα εἴτε μέλλοντα· πάντα ύμῶν, πάντα ύμῶν ]

a. text P46, 01, 02, 04, 06, 33
b. πάντα ημῶν 03
c. πάντα υμῶν εστίν 0151, RP
d. πάντα γαρ υμῶν εστίν 0150, 2110, 1506

The addition of γάρ by all three members of Family 0150 potentially adds an explanatory or causal connection between 3:22b and 3:22c. By itself, this is a reasonable smoothing change, but the main reason for the change is likely harmonization to the previous verse, πάντα γαρ ύμῶν εστίν (1 Cor 3:21b).

4.4 Summary

4.4.1 Quantitative Observations

There are 101 significant readings shared by all three members of Family 0150 in Romans 13:5–15:32 and 1 Corinthians 1:1–4:15. All these readings are presented and discussed above. Of the 101 readings, 27 are agreements with the Majority Text against the text of the NA28. The remaining 74 readings disagree with the Majority Text.

Concerning the 27 agreements with the Majority Text, only eight cannot be found in extant manuscripts dated prior to the seventh century (see table below). For these eight readings (Rom 14:4a, 14:6; 1 Cor 1:30b, 2:10a, 3:1a, 1b, 4:2, 6), the manuscripts of Family 0150 are among the earliest extant. The remaining 19 agreements with the Majority Text include agreements also with various combinations of early witnesses: GA P46, GA 01, 01c2, GA 02, GA 03, GA 06. Counting agreements between Family 0150, the Majority Text, and one or more of GA P46, GA 01, GA 02, and GA 03 yields 11 readings that can be confirmed to exist in the fifth century or earlier. Therefore, when Family 0150 agrees with
the Majority Text against the NA28, it is more likely than not to be a demonstrably ancient reading that would become present in most witnesses by the tenth century.
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</tr>
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</tr>
<tr>
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</table>

Table 4. Majority Text Readings in Family 0150 and Indicated Witnesses but not NA28

Of the 74 disagreements with the Majority Text, 43 readings are agreements with the text of the NA28 while 31 readings agree with neither the NA28 nor the Majority
Text. A total of nine readings are exclusive family readings. When Family 0150 agrees with the text of the NA28 and against the Majority Text, it also agrees with GA 01 in each of the 43 readings, with GA 03 in all but three, and with GA 02 in all but three.

An interesting feature of the relationship between Family 0150 and GA 33 presents itself only when Family 0150 agrees with the text of the NA28 but against the Majority Text. In Romans chapters 13, 14, and 15, GA 33 agrees with Family 0150 only once (in 15:3). But in 1 Corinthians chapters 1, 2, 3, and 4, GA 33 joins Family 0150 in 16 out of 18 agreements with the NA28. Since the relationship between Family 0150 and the other witnesses—including the text of the NA28—is consistent from Romans to 1 Corinthians, this suggests that GA 33 contains a block mixture and is far more likely to agree with Family 0150 and the NA28 in 1 Corinthians than it is in Romans.

See below for a table that summarizes and quantifies the relationship between each witness and every other collated witness. The passages collated are the same covered in this chapter: Romans 13–15 and 1 Corinthians 1–4—all passages where each family member is extant. The intersections between the bottom row and leftmost column show the percentage agreement between the two witnesses across 344 variation units. The variant readings have been regularized for common spelling variations, which means, for example, if one reading option is ἡμῖν and another is ἡμᾶς, they will be counted as agreeing. See the appendix for the complete collation which includes all regularizations. Because variation units are identified during collation, the numbers below are relative to the collated witnesses. If another witness were added, it would almost certainly lead to additional identified variation units and affect the percentage of agreement between all other witnesses. Therefore, the percentages can only be used for comparison within the given table for the given witnesses.
Table 5. Witnesses compared at all points of regularized variation

While this chapter examined only family agreements with the Majority Text against the NA28 and family agreements against the Majority Text, Table 5 shows all variation units including the intra-family disagreements and agreements with both the Majority Text and NA28. Therefore, it is significant that for each of the three family members, the other two have the highest agreement compared to any other witness. The agreement for GA 1506 is lower than for GA 0150 and GA 2110 because GA 1506 demonstrates a higher level of corruption. It has the highest number of singular and coincidental readings. The three closest witnesses to GA 1506 are GA 2110 (94%), GA 0150 (91%), and the text of the NA28 (78%). The highest percentage between any two witnesses
in the entire collation are GA 0150 and GA 2110 which agree on 96% of around 340 points of comparison. Each member of Family 0150 has a slightly higher level of agreement with the NA28 than with the RP, though its level of agreement with either is not especially high.

There are other notable relationships indicated in the table. Note especially that GA 0151—the only other witness in this collation that contains the same scholia—only agrees with the Family 0150 witnesses between 71% and 72%. However, GA 0151 and RP are each other's closest match by more than 10 percentage points. GA 010 and GA 012 demonstrate a very high level of agreement with each other while having a low degree of agreement with any other witnesses. It is also notable that, at these variation units, the NA28's closest relatives are GA 01 (95%), GA 04 (92%), GA 02 (90%), and GA 1739 (87%). GA 03 lags at 83% agreement. This is perhaps an unexpected ranking, though it could simply be due to the small sample size. Additionally, it may be that, in the Pauline corpus, the relationships between the oldest witnesses are of a different character than in the Gospels.

4.4.2 The Textual Character of Family 0150

This chapter has focused on places where all members of Family 0150, GA 0150, GA 2110, and GA 1506, are extant and where all members agree. This provides the clearest view of the family text—the edition from which the family witnesses descend. Having counted, studied, and weighed every significant variation in this important textual overlap, it is now possible to explain the relationship of Family 0150 in the transmission history of the Greek text of Rom. 13–15 and 1 Cor. 1–4.

The text of Family 0150 might appear to have a mixed character because it sometimes agrees with the Majority Text and more often agrees against the Majority Text along with the earliest witnesses. However, rather than a mix of mostly old readings and some new readings, the Family text appears to be a witness to what was common in the seventh century. With little reason to doubt that this edition accurately represents the text available to John of Damascus, one should expect to find a text at home in the seventh
century. The analysis and collation above indicate that—for the witnesses cited above in Rom. 13:5–15:33 and 1 Cor. 1:1–4:15—there is not one dated earlier than the ninth century that agrees more with the Majority Text (as represented by the Robinson and Pierpont edition) than with the reconstructed early text (as represented by the Nestle-Aland twenty-eighth edition). Therefore, as witnesses to a text assembled and edited by John of Damascus who lived during the seventh and eighth centuries, we not should expect to find a text that overwhelmingly resembles the Robinson-Pierpont edition more than it resembles the Nestle-Aland editions. Indeed, we should expect the opposite.

Another feature that connects the text of Family Ω150 to the seventh century is the support of the second corrector of GA 01 when the family agrees with the Majority Text. In six places, 01c2 agrees with the family (Rom 15:15, 32; 1 Cor 1:25, 28; 2:1; 3:12). In five of those places the agreement concerns the addition of a single smoothing word. The second corrector of Sinaiticus is generally dated to the seventh century. An additional six agreements with the Majority Text are supported by GA 06, which is traditionally dated to the sixth century. The eight agreements with the Majority Text for which there are no witnesses earlier than Family Ω150 demonstrate that these readings likely existed at least as early as the seventh century, even if no extant manuscripts with the same readings are dated that early.

Is there anything particularly special or unique about the family text? With one notable exception, not even the exclusive family readings are especially helpful. In all but one case the exclusive family readings include the addition of a smoothing word or local harmonization. The family archetype does not seem to have been corrupted in any interesting ways. This raises the question: If the text of Family Ω150 shows every sign of being a witness to a form of the text popular in the seventh century, why are there only three members of the family? It is likely that we simply lack access to many seventh-century witnesses of Paul’s letters. The value of Family Ω150 is in filling that gap and providing an example of how the early text was transmitted in a time and a place in which
John of Damascus had access and created the edition. The text of Family 0150 is easily 200 years earlier than the ink of its earliest extant manuscript.
5 Intra-Family Disagreements Where All Family Members are Extant (Rom 13–1 Cor 4)

This chapter analyzes every reading in the lemmata in which one of the members of Family 0150 contains a reading against which two others disagree. By examining intra-family disagreements, we can better relate the individual family members both to each other and other textual witnesses. It will be demonstrated below that significant intra-family disagreements are rare, which means there is very little to differentiate one member from another for the purpose of relating individual family members to non-family members. The data examined below will be helpful, however, for relating the family members to each other. Specifically, GA 0150 appears to have the prior text, followed by the nearly identical text of GA 2110. It will be demonstrated that GA 1506 is a reliable witness to the family text, but anomalies and scribal errors occur at a higher rate than in GA 0150 and GA 2110. I have divided intra-family disagreements into two categories: non-family readings, that is, disagreement with two family members but agreement with at least one other witness. The second category are singular readings, in which a member of Family 0150 disagrees with the other two and all others (or only coincidentally agrees with another).

5.1 GA 0150

5.1.1 Non-Family Readings

Rom 15:5 ὁ δὲ θεὸς τῆς ὑπομονῆς καὶ τῆς παρακλήσεως δόῃ ὑμῖν τὸ αὐτὸ φρονεῖν ἐν ἀλλήλοις κατὰ Χριστὸν Ἰησοῦν,

Χριστὸν Ἰησοῦν ]

a. text χν̄ in 2110, 1506, 03, 06, 012, 0151, 33, 1739, RP

b. ἐν χν̄ 0150, 01, 02, 04, 010
The ordering of these words is, apparently, especially sensitive to change. The variation splits GA 01 and GA 03, GA 010 and GA 012, and GA 0150 from GA 2110 and GA 1506. This tendency for related witnesses to read differently at this point of variation is a reason to use caution when drawing conclusions. With that caveat, then, this is one of the few instances when GA 0150 and GA 2110 deviate in such a way that evidences the direction of their relationship. In this case the non-family reading of GA 0150 is minor evidence that GA 0150 has an earlier text. Even though the reading in GA 2110 and GA 1506 could be demonstrably more ancient because of its presence in GA P46, that reading is also the reading found in the Majority Text. GA 2110 bears evidence in its pages—as does GA 0151—that there was a conscious effort around the ninth century to bring the text of John of Damascus into conformity with the Majority Text. Therefore, it is more likely for the intra-family transmission to flow from Ἰν χν (GA 0150) to χν Ἰν (GA 2110, GA 1506), and non-family member GA 0151.

5.1.2 Full Spellings of Commonly Abbreviated Words

While GA 0150 demonstrates few significant differences when compared against GA 2110 and GA 1506, it does exhibit a clear pattern concerning the spelling of nomina sacra and similar abbreviations. It is doubtful that counting abbreviated and full spellings is useful for relating GA 0150 to non-family witnesses. It may, however, be a helpful datapoint for establishing intra-family relationships. Across the lemmata for Romans 13–15 and 1 Corinthians 1–4, there are 21 instances in which GA 0150 contains the full spelling of a word that is abbreviated in most other manuscripts, including the other family witnesses. These words include various morphological forms of σωτηρία, ἄνθρωπος, πατήρ, πνεῦμα, and σταυρός. For a full listing of these occurrences, see the table below. As evidenced in GA 0151, GA 2110 after Gal 5, and the majority of manuscripts after the ninth century, the trajectory is normally toward the popular or perceived standard.

Acknowledging that spelling may be part of the local scribe’s individual habits, it is possible that the full spellings found in GA 0150 exist because its textual archetype was a
special edition created by a theologian. We might believe that scribes generally
reproduced the text that was in front of them, but should we presume that an educated
theologian would not attend to spellings?
<table>
<thead>
<tr>
<th>Location</th>
<th>Spelling in 0150</th>
</tr>
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<tbody>
<tr>
<td>Rom 13:11</td>
<td>σωτηρία</td>
</tr>
<tr>
<td>Rom 14:18</td>
<td>σαντρωποις</td>
</tr>
<tr>
<td>Rom 15:8</td>
<td>πατερων</td>
</tr>
<tr>
<td>Rom 15:16</td>
<td>πνευματι</td>
</tr>
<tr>
<td>Rom 15:19</td>
<td>πνευματος</td>
</tr>
<tr>
<td>1 Cor 1:18</td>
<td>σταυρου</td>
</tr>
<tr>
<td>1 Cor 1:25</td>
<td>σαντρωπων (2x)</td>
</tr>
<tr>
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<td>σαντρωπων</td>
</tr>
<tr>
<td>1 Cor 2:9</td>
<td>σαντρωπου</td>
</tr>
<tr>
<td>1 Cor 2:10</td>
<td>πνευμα</td>
</tr>
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<td>1 Cor 2:11</td>
<td>σαντρωπων</td>
</tr>
<tr>
<td>1 Cor 2:11</td>
<td>σαντρωπου (2x)</td>
</tr>
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<td>1 Cor 2:14</td>
<td>πνευματος</td>
</tr>
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<td>1 Cor 3:16</td>
<td>πνευμα (only 03 agrees)</td>
</tr>
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<td>1 Cor 3:20</td>
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</tr>
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<td>σαντρωπος</td>
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<td>1 Cor 4:9</td>
<td>σαντρωποις</td>
</tr>
</tbody>
</table>

Table 6. All occurrences in which GA 0150 alone contains the full spelling of common nomina sacra

5.1.3 Singular and Coincidental Readings

Rom 13:7  ἀπόδοτε πάσιν τὰς ὁφειλάς, τῷ τὸν φόρον τὸν φόρον, τῷ τὸ τέλος τὸ τέλος, τῷ τὸν φόβον τὸν φόβον, τῷ τὴν τιμήν τὴν τιμήν, τῷ τὸ τέλος τὸ τέλος | τῷ τὸ τέλος 0150
GA 0150 lacks one instance of τὸ τέλος. This is clearly an error of homeoteleuton; a scribe skipped τὸ τέλος and continued to the next τὸ. This is the second of four identical constructions in the same sentence.

Rom 14:8a εἰς τὸ γὰρ ζώμεν,

This minor absence hardly affects the meaning of the passage and could be accidental. However, the lack could also be an artifact of the structure of GA 0150 as a catena manuscript. The lemma section in which this appears begins with 14:8a, so the reader or editor may be less likely to expect a conjunction since any connection with the previous clause is interrupted by a scholium.

Rom 15:8 λέγω γὰρ Χριστὸν διάκονον ἐγενησθαι περιτομῆς υπὲρ ἀληθείας θεοῦ, εἰς τὸ βεβαιώσαι τάς ἐπαγγελίας τῶν πατέρων

eἰς τὸ βεβαιώσαι τάς ἐπαγγελίας τῶν πατέρων lack 0150

The final clause of the lemma was omitted, and the scribe wrote the following scholium before noticing. There is a marginal correction, and it may well be by the first hand.

Rom 14:10 Σὺ δὲ τί κρίνεις τὸν ἄδελφόν σου; ἢ καὶ σὺ τί ἐξουθενεῖς τὸν ἄδελφόν σου; πάντες γὰρ παραστησόμεθα τῷ βῆματι τοῦ θεοῦ,

tοῦ θεοῦ ]

a. text τοῦ θῦ 1506, 2110, 01, 02, 03, 04, 06, 010, 012, 1739
b. τοῦ χῦ, 01ε', 04ε', 0151, 33, RP
c. τοῦ θῦ 0150

Almost all other witnesses divide into two readings here: τοῦ θῦ and τοῦ χῦ. GA 0150 agrees with the noun in the reconstructed text and the other family members, but it alone is in the dative case. This is probably a scribal error in which τοῦ θεοῦ was changed to fit the case of the immediately preceding τῷ βῆματι. Even still, the reading can be
interpreted coherently, “We will all stand at the judgement seat before God.” This raises the question of how this reading affects only one member of the family since GA 0150 appears to be the earliest form of the text. If this reading were found in GA 1506, it would easier to conclude it is a secondary reading since GA 1506 contains many such singular readings. However, GA 0150 is not marked by many singular readings. One cannot rule out the possibility that the reading of GA 0150 was the reading in John of Damascus’s initial edition.

1 Cor 1:20a  Ποὺς σοφὸς; ποὺς γραμματεύς;* ποὺς συζητητής τοῦ αἰῶνος τοῦτου;
συζητητής) συζητητής 0150

This is the inverse of the mistake below (1 Cor 3:18a) which involves adding an extra syllable. Here GA 0150 has dropped one.

1 Cor 3:15b  οὕτως δὲ ὡς διὰ πυρὸς.
οὕτως) ως 0150

This is a simple scribal mistake which appears to have been immediately corrected by the first hand. The scribe of GA 0150 first wrote ως before correcting it by adding the letters οὐτ above the line. The style and color are a match for the first hand. It is a nonsense reading, ὡς δὲ ὡς. The scribe tends to use breathings for words beginning with ω and ω; this is the case with the second instance of ως visible in the figure below. But the first instance has no visible breathing mark. This indicates the mistake was noticed the moment it was made.

Figure 12. GA 0150 (folio 15v, line 11)\textsuperscript{95}

\textsuperscript{95} I thank CSNTM for providing images of GA 0150 for research.
1 Cor 3:18a  Μηδεὶς ἐαυτὸν ἐξαπατάτω.

 erad } erad 0150

At this point, GA 0150 simply evidences a scribal error that was not transmitted
to the other family members. The repetition of άτ in ἐξαπατάτω is, perhaps, the ancient
Greek equivalent of the confusion many English speakers experience with the word
"banana." 66

1 Cor 4:5c  καὶ τότε ὁ ἐπαινός γενήσεται ἐκάστῳ ἀπὸ τοῦ θεοῦ.

tότε ] τουτο 0150

5.1.4  Textual Character

GA 0150 contains only nine readings not found in GA 2110 and GA 1506 where
all three witnesses are extant. Of these nine, eight are singular or coincidental readings.
Only one is a non-family reading. Of the eight singular and coincidental readings, five are
clearly one-off scribal errors. The single legitimate non-family reading is the word order of
ν χ in Rom 15:5. In this case, as in the other readings not shared by GA 1506 and GA 2110,
GA 0150 preserves the rarer reading, and the other family members contain the more
common reading. The textual character of GA 0150, therefore, cannot be differentiated
from that of the family text, except to the very minor degree that it is the family's earliest
witness. Everything said of the family text in the previous chapter applies equally to GA
0150.

5.2  GA 2110

5.2.1  Non-Family Readings

1 Cor 1:18a  Ὁ λόγος γὰρ τοῦ σταυροῦ τοῖς μὲν ἀπολλυμένοις μωρία ἐστίν

66 The IGNTP transcription at this point does not record the erroneous scribal repetition, though I have
confirmed the transcription above.
67 Google reported in 2017 that the most misspelled word in the state of New Mexico was "banana"
(https://twitter.com/GoogleTrends/status/869624969213259340?sf=t-YqppMOsQzGFq7YPuGecA).
Singular and Coincidental Readings

1 Cor 2:13

a. *text* 2110, P46, 01, 02, 03, 04, 06, 0151, 33, 1739 (ἐστίν), NA28, RP

b. om 0150, 1506

In the *only* non-family and non-singular reading in GA 2110, it is perhaps caused by a dual reading of GA 0150 and GA 1506.

5.2.2 Singular and Coincidental Readings

1 Cor 2:13a ἃ καὶ λαλοῦμεν οὐκ ἐν διδακτοῖς ἀνθρωπίνης σοφίας λόγοις ἀλλ' ἐν διδακτοῖς πνεύματος

διδακτοῖς | διδακτικοὶς 2110, 1962

Perhaps notable is that GA 0150 has a correction above the line to match this reading in GA 2110 even though it is found in one other witness.

1 Cor 3:4

c. ετερος δὲ ἐγὼ Ἀπολλὼ

a. *text* 0150, 1506, 01, 03, 04, 06, 0151, 33, 1739, RP

b. ετερος [δὲ α]πολλω P46

c. ετερος δὲ εγὼ δὲ ἀπολλω 2110

d. εγὼ δὲ ἀπολλω 02

GA 0150 and GA 1506 agree with both the reconstructed text and the Majority Text. GA 2110, on the other hand, adds δὲ to the reading of the majority of both early and late witnesses. This is, perhaps, minor evidence that GA 0150 precedes 2110 genealogically and that GA 2110 does not stand in the transmission line between GA 0150 and GA 1506.

1 Cor 4:10b ὑμεῖς δὲ φρόνιμοι ἐν Χριστῷ·

ὑμεῖς | [η]μεις

The first letter of the word in GA 2110 has been erased and replaced with ν, which is almost certainly a correction for η. The correction appears to be by the first hand.
This verse is an ideal place for such mistakes because ἡμεῖς and ὑμεῖς occur three times each and their repetition is not symmetrical: ἡμεῖς, ὑμεῖς, ἡμεῖς, ὑμεῖς, ὑμεῖς, ἡμεῖς.

5.2.3 Textual Character

In comparison to GA 0150 (above) and GA 1506 (below) in Romans 13–1 Corinthians 4, the text of GA 2110 is remarkably disciplined. Except for a mere three singular and coincidental readings, there is only one non-family reading contained in GA 2110 that is not also found in GA 0150 or GA 1506. Therefore, for the given content, nothing can be said broadly about 2110 that does not also apply to GA 0150 and the family text. When taken with GA 1506, however, there are a few places where it and GA 1506 seem to have accumulated a few common readings when compared against GA 0150.

5.3 GA 1506

5.3.1 Non-Family Readings

1 Cor 1:1 Παῦλος κλητὸς ἀπόστολος Χριστοῦ Ἰησοῦ διὰ θελήματος θεοῦ καὶ Σωσθένης ὁ ἀδελφός

κλητὸς ]

a. text 0150, 2110, P46, 01, 03, 33, 1739, RP
b. lack 1506, P61, 02, 06, 0151, 81

GA 1506 is among only six known manuscripts to lack κλητός. Curiously, GA 0151 also lacks it. It is spread so thinly but so broadly in time that it seems likely to have arisen independently. It could be seen as superfluous and easily omitted, “Paul, an apostle,” instead of “Paul, called as an apostle.” There is little, if any, connection between the text of Paul in GA 0151 and GA 1506 in Romans and 1 Corinthians apart from the shared scholia.

1 Cor 1:22 ἐπειδὴ καὶ Ἰουδαῖοι σημεία αἰτοῦσιν καὶ Ἕλληνες σοφίαν χητοῦσιν,

σημεῖα ]

a. text 0150, 2110, P46, (σημια) 01, 02, 03, 04, (σημια) 06, 33, 1739
b. σημειον 1506, 0151, RP

The difference between these two variants is merely that of number: GA 1506 and the Majority Text contain the singular reading, and the earliest extant witnesses—along with GA 0150 and GA 2110—contain the plural reading. The difference is relatively minor, “Jews ask for signs” (text) verses “Jews ask for a sign” (Majority Text). The singular reading creates a more explicit parallel to the singular σοφίαν. As the latest dated manuscript in Family 0150, it is not surprising to find that it has, in places, taken on Majority Text readings not present in the other family members.

1 Cor 1:23 ἡμεῖς δὲ κηρύσσομεν Χριστὸν ἐσταυρωμένον, Ἰουδαῖοις μὲν σκάνδαλον, ἠθνεσιν δὲ μωρίαν ἔθνεσιν]

a. text 0150, 2110, 01, 02, 03, 04, 06, 33
b. ἐλλησι 1506, 0151, 1739 (ἐλλησι), RP
c. lack P46

In this verse, GA 1506 evidences a substitution common to the Majority Text. The change is a predictable harmonization to the previous verse, 1:22: Ἑλληνες σοφίαν ζητοῦσιν, “Greeks search for wisdom.” While one might expect 1:23 to again contrast Jews and Greeks, but the earlier Damascene text and that of the reconstructed text represented by the NA28, instead contrast Jews and ἠθνεσιν, “Gentiles.” At this point of variation, the manuscript as well as the text of GA 1506 is later than GA 0150 and GA 2110.

1 Cor 2:14a ψυχικὸς δὲ ἄνθρωπος οὐ δέχεται τὰ τοῦ πνεύματος τοῦ θεοῦ· τοῦ θεοῦ]

a. text 0150, 2110, P46, 01, 02, 03, 04, 06, 0151, 33, 1739, RP
b. lack 1506, 330, 451, 1963, 2400

GA 1506 lacks τοῦ θεοῦ, but GA 0150 and GA 2110 include it along with almost every other Greek witness. Indeed, GA 1506 is the only witness cited for the omission in the
NA28 apparatus. The omission could have arisen by accident, or it could also be harmonization to the previous use of πνεύματος in 2:13 which also occurs without τοῦ θεοῦ. In both cases, the identity of πνεύματος, “spirit,” is apparent, so both the presence and absence make sense in context.

5.3.2 Singular and Coincidental Readings

Rom 13:6 διὰ τοῦτο γὰρ καὶ φόρους τελεῖτε· λειτουργοὶ γὰρ θεοῦ εἰσιν εἰς αὐτὸ τοῦτο προσκαρτερούντες.

Since this is not found in any other known manuscript, τοῦ is likely a scribal error in which the scribe accidentally omitted the final two letters of the word. The genitive article has no clear word which it could modify since the participle προσκαρτερούντες is nominative in GA 1506.

Rom 13:13 ὡς ἐν ἡμέρᾳ εὐσχημόνως περιπατήσωμεν, μὴ κόμοις καὶ μέθαις, μὴ κοίταις καὶ ἀσελγείαις, μὴ ἐρίδι καὶ ζήλῳ,

κόμοις] κομῆς 1506

Figure 13 GA 1506 (folio 3v, line 34)

The IGNTP transcription for GA 1506 at this point is τοῦτο. Perhaps the mark above the upsilon in the figure is a ligature for το. If it is, I have not seen it elsewhere in 1506. Volk’s citation for GA 1506 at this point agrees with mine above.
It is likely not possible to make sense of κόμης as a legitimate option. One use of κόμης is for the title of someone in authority, such as a chief officer or a governor. As a third declension noun, it would be in the nominative case. Alternatively, κόμης could be the singular genitive of κόμη, usually glossed as “hair.” Since neither of these can fit the context, several scribal errors seem to have compounded. (1) The text of GA 1506 is more likely than the other family witnesses to exhibit omega to omicron changes, so κόμοις would be an expected spelling variation. (2) The lemma section in which this word appears begins with μη κώμοις; this is naturally the first phrase the scribe would have penned when they transitioned from scholium to lemma text. This may mean the word may have had less contextual meaning in the scribe’s mind. The feminine ending is a mistake, but it matches the following three nouns μέθαις, μη κοίταις και ἀσελγείαις.

Rom 14:7  οὐδεὶς γὰρ ἡμῶν ἐαυτῷ ζῆ καὶ οὐδεὶς ἐαυτῷ ἀποδηνήσκει·

ημῶν ]lack 1506

This verse makes good sense with or without ἡμῶν. Without the pronoun, the first clause mirrors the second, “For no one of us lives for oneself and no one dies for oneself.” If purposeful, the change could be explained by a desire to keep the clauses more closely mirrored.

Rom 14:10  Σὺ δὲ τί κρίνεις τὸν ἀδελφόν σου; ἢ καὶ σὺ τί ἐξουθενεῖς τὸν ἀδελφόν σου; πάντες γὰρ παραστησόμεθα τῷ βήματι τοῦ θεοῦ,

ἡ καὶ σὺ τί ἐξουθενεῖς τὸν ἀδελφόν σου ]lack 1506, 1319

This eight-word omission is clearly a case of homeoteleuton from τὸν ἀδελφόν σου to τὸν ἀδελφόν σου in the same verse. Coincidentally, GA 1319 contains exactly the same scribal error. The considerable potential for homeoteleuton in this passage suggests that GA 1506 and GA 1319 are not connected by this shared, if rare, variation unit.

---


Rom 14:13 Μηκέτι οὖν ἀλλήλους κρίνωμεν· ἀλλὰ τούτο κρίνατε μᾶλλον, τὸ μὴ τίθέναι πρόσκομμα τῷ ἀδελφῷ ἢ σκάνδαλον.

[ ]

a. text 0150, 2110, P46, 01, 02, 04, 06, 33, RP
b. εἰς 365, 1881, 131, 1243
c. om 03
d. εἰς η 1506

A few witnesses substitute εἰς for ἤ, but only GA 1506 includes both. The earliest known witnesses to εἰς are dated to the eleventh century (131, 1243); this may explain why GA 1506 contains εἰς, but GA 0150 and GA 2110 do not, since it may be a reading that postdates GA 0150 and GA 2110. The plain substitution of εἰς for ἤ has a number of interpretive options including, "decide not to place a hindrance before a brother leading to enticement." The 'goal' sense of εἰς is more difficult when ἤ is included, as is the case for GA 1506.

Rom 15:3 καὶ γὰρ ὁ Χριστὸς οὐχ ἐαυτῷ ἠρέσεν,

ἐαυτῷ ] εαυτῶν 1506

The move from the dative ἐαυτῷ to ἐαυτῶν raises the question, is this a genitive plural or an accusative singular with an alternative spelling? If it is a genitive plural then it becomes incomprehensible. But if it is an alternative spelling for ἐαυτῶν, then one could conceive of it as the direct object of ἠρέσεν, which would translate the same, "Christ did not please himself".

Rom 15:4c–5 ἵνα διὰ τῆς ὑπομονῆς καὶ διὰ τῆς παρακλήσεως τῶν γραφῶν τὴν ἐλπίδα ἔχωμεν.

διὰ τῆς παρακλήσεως τῶν γραφῶν τὴν ἐλπίδα ἔχωμεν. 5 ὁ δὲ θεὸς τῆς ὑπομονῆς καὶ τῆς παρακλήσεως

lack 1506

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See BDAG, εἰς, especially §4.d–g.
GA 1506 lacks the last third of verse four and the first half dozen words of the following verse due to a large *homeoteleuton*. There are at least ways to view the *homeoteleuton* by GA 1506. I present it here from *καί* (15:4) to *καί* (15:5) where the first instance is written but everything up to and including the second instance is skipped. With these boundaries, the skip includes the *διά* in 15:4. However, the skip could also be viewed as beginning at *τῆς παρακλήσεως* (15:4) and ending at *τῆς παρακλήσεως* (15:5). In this case, the skip would not include *διά* (15:4/28). Since GA 1506 lacks *διά*, this would need to be recorded as an additional omission. Certainly *τῆς παρακλήσεως* is the driving force behind a skip. In any case, whether one omission or two in which one caused the other, it is probably a single variation in GA 1506.

**Rom 15:13** Ὁ δὲ θεὸς τῆς ἐλπίδος πληρώσαι ὑμᾶς πάσης χαρᾶς καὶ εἰρήνης ἐν τῷ πιστεύειν, ἔις τὸ περισσεύειν ὑμᾶς ἐν τῇ ἐλπίδι ἐν δυνάμει πνεύματος ἁγίου.

*ὑμᾶς* ἡμᾶς 1506, 1, 1646

The reading of the second instance of *ἡμᾶς* for *ὑμᾶς* in 1506 is almost certainly a scribal error and coincidental with GA 1 and GA 1646. The second-person reading does not fit the context since the same referent is in view for the first and second *ὑμᾶς*, yet GA 1506 changes only the latter.

**Rom 15:28** τούτῳ οὖν ἐπιτελέσας καὶ σφραγισάμενος αὐτοῖς τὸν καρπὸν τούτον, ἀπελεύσομαι δι’ ὑμῶν εἰς Σπανίαν· ἐπιτελέσας ] επιτελεσαι 1506

This is, apparently, a singular reading. An aorist indicative makes little sense in this context since GA 1506 does not also change the second participle *σφραγισάμενος*—which is connected by *καί*—to an indicative. Therefore, this is likely a scribal error.

**Rom 15:30b** συναγωνίσασθαι μοι ἐν ταῖς προσευχαῖς ύπὲρ ἐμοῦ πρὸς τὸν θεόν,

*tὸν θεόν* ἢ 1506
In this potential singular reading, GA 1506 lacks the article before θεόν. The idiosyncratic omission of articles and pronouns is a recognizable pattern among the singular and coincidental readings in GA 1506.

**Rom 15:33**  
Ὁ δὲ θεὸς τῆς εἰρήνης μετά πάντων ὑμῶν, ἀμήν.  
μετὰ πάντων ὑμῶν ἐσται μεθ ἡμῶν 1506

In this singular reading, GA 1506 adds the future tense ἔσται and substitutes the first-person pronoun ἡμῶν for the second person ὑμῶν, “the God of peace will be with us.” The overall sense is generally retained, but it is expressed differently from all other manuscripts. GA 06 also adds a verb here, but it is the more predictable present imperative, ἤτω, which merely makes the implicit sense explicit. The idea of peace that “will be” is found elsewhere in Paul (1 Cor. 13:11; Phil. 4:9), but in those cases the object is “you” instead of “us” as here. There is another peculiarity in GA 1506 at this point. In the manuscript, this verse has been mistakenly written in the black ink of the scholia. It appears that the scribe continued as if writing a scholium. The accompanying κει(μενον), used to mark the beginning of the lemma, has been squeezed in between the end of the scholium and the beginning of the lemma, which is atypical.

**1 Cor 1:2b**  
ἡγιασμένοις ἐν Χριστῷ Ἰησοῦ,  
ἡγιασμένοις ἐγιασμένης 1506, 1646

In a reading shared by only one other known witness, GA 1506 substitutes ἡγιασμένης for ἡγιασμένοις. The reading in GA 1506 is a singular feminine genitive, of which it is difficult to make sense. Though it is the same change as seen in Rom. 13:13 above. Given the degree to which the text of GA 1506 demonstrates simple errors, this should be taken as a scribal error despite its existence in at least one other manuscript.

**1 Cor 1:4**  
Εὐχαριστῶ τῷ θεῷ μου πάντοτε περὶ ὑμῶν ἐπὶ τῇ χάριτι τοῦ θεοῦ τῇ δοξείᾳ ὑμῶν ἐν Χριστῷ Ἰησοῦ
The substitution of the second-person plural for first-person plural makes fine grammatical sense, but it clearly fails to match the context, “I thank my God...for the grace of God given to us,” versus, "to you." It is not surprising that the only other known witness to this change is GA 1319 in what is probably coincidental agreement. Since this reading is not shared by either of the earlier family members, it is almost certainly a reading that is secondary to the family archetype.

As with the above example in 1 Cor 1:4, GA 1506 substitutes a second-person plural for the first-person plural. Good grammar is maintained, but the change is a poor fit for the context. The text of GA 1506 in verses 1:5 and 1:6 has already established that the readers are in view. It may be that the text of GA 1506 has been affected by a scribal tendency to change first-person plurals to second-person plurals. It is also possible that it

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The IGNTP transcription for 1506 records instead υμιν. I read this as the standard way that the scribe of 1506 writes ημιν, which is usually with an uppercase η written quite small. Compare the first line of lemma in the figure to the υμιν in the final line of lemma, which is the end of 1 Cor 1:6. Here the upsilon is clear and the descender plainly visible.
is a harmonization to the immediate context, being affected by the second-person plural at the end of the verse, τοῦ κυρίου ἡμῶν Ἰησοῦ Χριστοῦ.

1 Cor 1:8a ὃς καὶ βεβαιώσει ὑμᾶς ἐως τέλους

υμᾶς ] ημᾶς 1506

As yet another substitution of the second-person plural for first-person plural, all that is said in the previous two variants discussed can also be said about this one. The change is grammatically—but not contextually—justifiable.

1 Cor 1:20c οὐχὶ ἐμώρανεν ὁ θεὸς τὴν σοφίαν τοῦ κόσμου;

ἐμώρανεν ] εμωρανεν 1506

This substitution is likely a minor dittography of αν. The spelling in GA 1506 is not found in the major lexicons.

1 Cor 2:2 οὐ γὰρ ἐκρινά τι εἰδέναι ἐν ὑμῖν εἰ μή Ἰησοῦν Χριστὸν καὶ τούτον ἐσταυρωμένον εἰ μή ] lack 1506

The omission of εἰ μή is an apparent singular reading and likely originates as a scribal error and obscures the relationship of Ἰησοῦν Χριστὸν to the rest of the clause.

1 Cor 3:2b ἄλλῳ οὐδὲ ἔτι νῦν δύνασθε

ἔτι ] εστιν 1506, 38 (corrected to ἐτι)

The substitution of a third-person verb for the adverb ἔτι seems not to make grammatical sense. The main verb of the clause, δύνασθε, is a second-person verb. This substitution is likely a simple scribal blunder.

1 Cor 3:17a εἴ τις τὸν ναὸν τοῦ θεοῦ φθείρει

Figure 15. GA 1506, 337r, line n, Library of Congress
τις \[ τι 1506

I could find no other manuscript that substitutes τί for τίς in 1 Cor 3:17. A corrector has added the sigma. The sigma was clearly added on a different occasion than the initial copying since it was done with black ink and not the red ink of the lemma text. The correction could have been made during the inscription of the scholium, which was also written using black ink. If so, then it could be a correction by the first hand.

1 Cor 3:19a  

ἡ γὰρ σοφία τοῦ κόσμου τούτου μωρία παρὰ τῷ θεῷ ἐστὶν.

γὰρ \[ lack 1506

In the text of GA 1506, the connection between 3:18b and 3:19a is left implicit since the conjunction is omitted. Aside from a simple error, no reason for the omission seems obvious.

1 Cor 4:1  

Οὕτως ἡμᾶς λογίζεσθω ἄνθρωπος ὡς ὑπηρέτας Χριστοῦ καὶ οἰκονόμους μυστηρίων θεοῦ.

οἰκονόμους \[ οικονομος 1506

The nominative form makes little sense as an intentional change. More likely, this is a nonsense mistake.

1 Cor 4:4b–5a  

ἐστιν. ὥστε μὴ πρὸ καιροῦ τι κρίνετε ἐως ἀν ἐλθῇ ὁ κύριος \[ lack 1506

The text in GA 1506 at this unit evidences a homeoteleuton in which a scribe skipped from the κύριος at the end of 1 Cor 4:4 to the κύριος in the following verse. This skip is not present in the other family witnesses, so it must be an invention of the scribe of GA 1506 or a predecessor that postdates 0150 and 2110.

1 Cor 4:10e  

ὑμεῖς ἐνδοξοί  

ὑμεῖς \[ υμεις δε
The only surprising aspect of this apparently singular addition of δέ is that I could find no other Greek manuscript with the same reading. 1 Cor 4:10 is a series of three comparisons that contrast “we” ἡμεῖς from “you” ὑμεῖς. As expected, these three contrasting statements each contain an instance of δέ, but GA 1506 has inserted a fourth δέ that has the effect of connecting the second and third contrast, “We are weak, but you are strong and (δέ) you are honored but we are dishonored.” The first two comparisons have the structure of “we...but you...,” but the final clause reverses the structure, “you...but we...,” and 1506 may be highlighting the reversal.

5.3.3 Textual Character

As is the case with GA 0150 and GA 2110 above, all that can be said concerning the textual character of GA 1506 in relation to non-family witnesses can be generally applied to any other family witness. This is due to the strong affinity each of the family manuscripts have to each other. Therefore, it is the intra family relationship that can be clarified by an analysis of non-family readings.

GA 1506 contains four non-family readings. Two of these are agreements with the Majority Text and the other two include a likely scribal error and the omission of κλητός in 1 Cor 1:1—a rare reading that seems to have occurred independently through the centuries. Like GA 2110, there is no non-family reading in GA 1506 that has the appearance of an earlier reading. Based on this evidence, GA 1506 seems to be a very good witness to the archetypal family text, if it were not for the many singular and coincidental readings.

In stark contrast to the number of singular and coincidental readings counted in the same textual portion in GA 0150 and GA 2110, GA 1506 contains 20 secondary readings. These are readings found only in GA 1506, or readings that have almost certainly arisen independent of other witnesses which may share the reading. All these readings are in addition to the curious omission of Rom 16:1–24. Nearly every singular and coincidental reading is immediately recognizable as a common scribal error. The text of GA 1506 is especially prone to produce homeoteleutons, ἡμῶν for ὑμῶν (and vice versa) substitutions,
and omissions of small words. The presence of these readings in the collation data for GA 1506 causes it to be more distantly related to any other witness, including its family members. No judgement is made here concerning whether or not these anomalous readings were created by the scribe of GA 1506 or accumulated in the 500 years that separate it from the other extant family witnesses.

5.4 Summary
Enumrating and analyzing the readings found in each family witness that is not also found in the other two witnesses reveals very few readings of any significance. There can be no doubt that GA 0150, GA 2110, and GA 1506 not only stem from the same archetype, but each is a very close match. Because most differences can be identified as scribal errors and corrected without knowledge of the source text, any skilled text critic could reconstruct the text of the family archetype with any one of the extant witnesses. GA 0150 is likely the least corrupted of the three, but there are only a few non-spelling readings which GA 0150 alone preserves. Another remarkable fact is that there is not a single place where there is a three-way split among the family members. Every variation unit contains a reading for which two of the three family members agree, at minimum.

It is the case, however, that GA 1506 is a demonstrably poorer witness to the family text than either GA 0150 or GA 2110. Even if many of its singular readings are reversible scribal blunders, it remains the case that one is better off with either GA 0150 or GA 2110 as a single representative of the family text. This raises the question concerning the status of GA 1506 as a frequently cited text in the Nestle-Aland critical editions. It has no doubt earned its place because it is both a late minuscule that contains many non-Byzantine readings. It is suggested here, though, that either GA 0150 or GA 2110 would be a better choice to represent the same form of the text present in GA 1506 for Romans 13–15 and 1 Corinthians 1–4. Having inspected the character of each family manuscript, the readings found in GA 0150 and GA 2110 bear more weight when considering which reading originates with John of Damascus.
6 Tying up Loose Ends

Two topics related to the primary research question do not require an entire chapter each but should at least be briefly addressed. The first asks what exactly the relationship between GA 0150 and GA 2110 is. Even after working through every variation unit where all three family members are extant, the relationship between GA 0150 and GA 2110 remains unclear. That is, they clearly have an especially close relationship, but whether that relationship is one of a mother and daughter or one of siblings, the evidence above is not determinative. Therefore, this chapter will begin by looking at minor readings and marginalia of the pair. A second unexplored vein of research concerns the text of the scholia in the manuscripts. Do the scholia demonstrate the same relationships that have been demonstrated by the lemmata? A full collation of Romans 13–15 in all extant Damascene catenae reinforces—rather than challenges— the contours of the relationships identified in the previous chapters.

6.1 GA 0150 and GA 2110: Exemplar and Copy?

Having found no “smoking gun” to argue definitively for a particular type of relationship between GA 0150 and GA 2110, I will instead add below what hints exist that have not been discussed above. The problem with establishing a direction and degree of relationship is that between the two witnesses is that there are too few significant differences to analyze. GA 0150 disagrees with the other family members on a significant reading only once in the overlapping material, excepting singular readings. GA 2110 does not disagree with both other family members ever, excepting singular readings. Even counting singular readings, GA 2110 only contains three while GA 0150 has seven. As discussed above in sections 5.1.3 and 5.2.2, in every case, the singular is either an obvious scribal error or too minor to be confident about the direction of textual flow. Therefore, faced with two nearly identical witnesses, we turn to more minor considerations in the search for more decisive evidence.
6.1.1 Marginalia

In both GA 0150 and GA 2110 at section ΛΒ, there is a marginal note. It is fully preserved in GA 0150, βασιλιῶν καὶ ιερείου, “Kingdoms and Jeremiah,” referring to the source of a quote in 1 Corinthians 1:31. GA 2110 bears the same note, if imperfectly preserved. As is common among the folia of GA 2110, trimming of the outer edges has led to marginalia being partially or entirely lost.

Figure 16. Marginal note in GA 2110, 294r (left) and GA 0150, 11v (right)

Figure 17. Marginal note in GA 2110, 295r (left) and GA 0150, 12v (right)
In the margin next to section ME, which includes 1 Corinthians 2:9, there is a note in both GA 0150 and GA 2110 that identifies the source of the quote as ἡλία ἀποκρύφου, the Apocalypse of Elijah.

In the outer margin corresponding to 1 Corinthians 3:18, GA 0150 has a note by the first hand, ὁ κανών ἀττικός. This note may refer to the Ten Attic Orators, a famous (perhaps fictional) group of Greek rhetoricians. This connection makes sense in the context of 3:18, “…if any of you thinks themselves to be wise in this age…." Unlike most of GA 0150’s other notes, however, there is no evidence of any such note in GA 2110.
Both GA 2110 and GA 0150 contain a note by the first hand citing the source the quotation in 1 Corinthians 3:20 as ψαλμος ςθ, “Psalm 93.”

Figure 20. GA 2110 300v (left), GA 0150 17v (center), GA 0150 18r (right)

GA 0150 and GA 2110 share a series of additional notes that are correlated to points in the lemma with symbols. At the section, GA 2110 presents five symbols. One at the top of the figure above and the other four are in a column on the bottom. In GA 0150 the first of these is on the preceding page. GA 0150 has six symbols, but five of those six are shared with GA 2110 and in the same order.

A closer look at the shared paratextual features and marginalia provide additional hints at the nature of the relationship between GA 0150 and GA 2110. Since these notes above were written in the first hand, and not that of a reader, then we might presume that the copyist copied the notes from the exemplar. If this is true, then GA 0150 preserves more of the notes from the exemplar. If the notes come from the exemplar, then GA 0150 could not have been copied from GA 2110. Was GA 2110 copied from GA 0150?

6.1.2 Verdict

GA 0150 and GA 2110 are not exemplar and copy. There is no positive evidence that the copyist of one had the other in hand and there is evidence that this was not the case. There is content in GA 0150 that is not in GA 2110; at least one scholium and one marginal note across Romans 13–1 Corinthians 4 is found in GA 0150 but not GA 2110. The
additional material in GA 0150 proves that it could not have been copied from GA 2110 alone. There is also evidence of material in GA 2110 that is not in GA 0150, namely, the omission of ἐστιν in 1 Corinthians 1:18a (see section 5.2.1) which both GA 0150 and GA 1506 contain. It is possible that there is a ‘smoking gun’ elsewhere in the corpus, but this seems unlikely, especially in light of Houghton and Myshrall’s investigation.²⁰³

6.2 Comparing the Genealogical Relationships of the Scholia of the Damascene group members

I refer now to “group members” because this section is as interested in the non-family witness to the catena of John of Damascus, GA 0151. The lemmata of GA 0151 have been heavily coerced into agreement with the Majority Text, but are there signs of such editorial activity in the scholia? Additionally, will the relationships established based on the lemmata hold true for the scholia? GA 0150 and GA 2110 have a nearly identical text while GA 1506 is very similar, but somewhat more distantly related than the pair.

The apparatus below is a full collation of the scholia in GA 0150, GA 0151, GA 1506, GA 2110, and Volk’s edition. To create the apparatus, I first transcribed the scholia in GA 0150 and used it as a basetext to manually collate the scholia of the other witnesses. The basetext below is exactly as it is found in GA 0150. I created a TEI collation from scratch using the web application I created in the course of this thesis, Apatosaurus, then exported and downloaded the raw TEI formatted collation file.²⁰⁴ I was then able to import the TEI collation file into Criticus, the desktop application I developed during the course of thesis research.²⁰⁵ Criticus has a module which can export a TEI formatted collation file as a Microsoft Word document. The following apparatus was entirely generated in this way.

²⁰⁴ See chapter eight for a comprehensive introduction to Apatosaurus.
²⁰⁵ See chapter seven for a comprehensive introduction to Criticus.
6.2.1 A Comprehensive Collation and Apparatus of the Catena of John of Damascus in Romans 13–15

The heading identifies the verse range of the lemma to which the scholium accompanies. The lemma and scholium section number are shown on the right of the vertical bar. The basetext for the following section is my transcription of GA 0150. Since there are many times that Volk's edited text agrees with no witness at all, I first transcribed GA 0150 and then used it as the basis for the others since it is a closer match to the other manuscripts than Volk's edition. If time permitted, I would reverse this and use Volk as the base since it is easier to reason about minor and major differences when the sense of the text is easy to read. That is the advantage of Volk's edition even if it is singular in places.

13.5|ϘΔ

| ου | μονον | φησιν | ανδηστασε | θω | μη | υποτασσομενος | και | κακα |
| 2  | 4     | 6    | 8         | 10 | 12 | 14        | 16  | 18 |
| σαυτω | προξενεις | αλλ | 0   | και | εν | τοις | μεγιστοις | ευεργητης |
| 20  | 22   | 24   | 26      | 28 | 30 | 32        | 34  | 36 |
| σου | γινωνται | ειρηνης | οντες | προξενοι | και | οικονομιας | πολιτικης |
| 38  | 40   | 42   | 44      | 46 | 48 | 50        | 52  | 52 |

8

a. - ανδηστασε // 0150, 1506, 2110

ar. subr ανδιστασαι // 0151, Volk

26

a. - o // 0150, 1506, 2110

b. - oτι // 0151, Volk

36

a. - ευεργητης // 0150, 0151, 2110

b. - ευεργηταις // 1506

c. - ευεργηται // Volk

40

a. - γινωνται // 0150, 1506, 2110

ar. subr γινονται // Volk
13.6|§Ε

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13.6|§ς

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12
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18
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As was observed in chapters four and five, GA 0150 tends toward full spellings more often than the other Damascene witnesses.
13.9|P

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<td>το</td>
<td>παν</td>
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13.9–10|Α

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32

a. - κατεπιγοντος // 0150, 1506, 2110

ar. subr κατεπειγοντος // 0151, Volk

48

a. - εστηκε // 0150, 1506, 2110, Volk

b. - εστι // 0151

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μειζον
ως
146

16

a. - σπουδετερους // 0150, 2110
ar. subr σπουδαιοτερους // 0151, 1506, Volk

60
a. - συχει // 0150, 2110
ar. subr συχι // 0151, 1506, Volk

76
a. - σω // 0150, 1506, 2110, Volk
b. - ως // 0151

86
a. - ευγιζει // 0150, 0151, 1506, 2110
ar. subr ευγιζη // Volk

88
a. - τοσουτω // 0150, 1506, 2110, Volk
b. - τοσουτον // 0151

92
a. - δη // 0150, 1506, 2110
ar. subr δει // 0151, Volk

94
a. - παρασκευαζεσθαι // 0150, 1506, 2110, Volk
b. - παρασκευασθαι // 0151

106
a. - επει // 0150, 1506, 2110, Volk
b. - επειδη // 0151

122
a. - το // 0150, 0151, 1506, 2110
ar. subr τω // Volk

126–128
a. - τω δρομω // 0150, 1506, 2110
b. - του δρομου // 0151, Volk

130
a. - γινωνται // 0150, 1506, 2110, Volk
ar. subr γινονται // 0151
13.12|Δ

ουκουν ει αυτη μεν τελευτα εκεινη δε παραγεναι τα
2 4 6 8 10 12 14 16 18
εκεινης πραττωμεν λοιπον μη τα ταυτης
20 22 24 26 28 30

13.12|Ε

απαλλαγωμεν των ονηρατων του παροντος βιου φησιν συδεν γαρ
2 4 6 8 10 12 14 16 18
των εν ονηροις φαντασματων τα τηδε διαφερουσι πραγματα
20 22 24 26 28 30 32 34

6

a. - ονηρατων // 0150, 1506, 2110

ar. subr ονειρατων // 0151, Volk

24

a. - ονηροις // 0150, 1506, 2110

ar. subr ονειροις // 0151, Volk

32

a. - διαφερουσι // 0150, 0151, 2110, Volk

ar. subr δεφερουσι // 1506

13.13|Σ

ουκ ειπεν περιπατητε άλλα περιπατησωμεν ωστε ανεπαχθη ποισαι και
2 4 6 8 10 12 14 16 18
κουφην την επιπληξιν
20 22 24

4

a. - ειπεν // 0150, 0151, 1506, 2110

ar. subr ειπε // Volk

6

a. - περιπατητε // 0150, 1506, 2110

ar. subr περιπατειτε // 0151, Volk
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απολαυειν  υφον | αλλα | το | μη | μετα | παρονιας | ουδε | το |
| 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 |

μηγνυσθαι  γυναιξιν | αναρει | αλλα | το | πορνευειν |
| 38 | 40 | 42 | 44 | 46 | 48 |

6

a. -  πιννειν // 0150

ar. subr  πινειν // 0151, 1506, 2110, Volk

12

a. -  τω // 0150, 1506, 2110

ar. subr  το // 0151, Volk

18

a. -  το // 0150, 0151, 2110, Volk

ar. subr  τω // 1506

22

a. -  υφον // 0150

ar. subr  υφον // 0151, 1506, 2110, Volk

28

a. -  μη // 0150, 0151, 1506, 2110

b. om // Volk

38

a. -  μηγνυσθαι // 0150, 1506, 2110

ar. subr  μηγνυσθαι // 0151, Volk

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μεθη  και | παρονια | δια | τουτο | πρωτερον | ειπων | μη | κομοις |
| 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 |

και  μεθαις  μη | κοιταις | και | ασελγαις | επηγαγεν | μη | ερειδι |
| 38 | 40 | 42 | 44 | 46 | 48 | 50 | 52 | 54 |

και  ζηλω  56  58

2

a. -  ουδε // 0150, 2110
b. - οὐδεν // 0151, 1506, Volk

a. - φιλονικίαν // 0150, 1506, 2110

ar. subr φιλονικίαν // 0151, Volk

36
a. - κυμοῖς // 0150, 2110

ar. subr κυμοῖς // 0151, 1506, Volk

48
a. - ασελγείας // 0150, 1506, 2110

ar. subr ασελγείας // 0151, Volk

50
a. - επηγαγεν // 0150, 0151, 2110

ar. subr επηγαγε // Volk

b. om // 1506

54
a. - ερειδί // 0150, 1506, 2110

ar. subr ερειδί // 0151, Volk

13.14|Θ

ωσπερ γαρ οὐ τὸ πιννεῖν εκώλυσεν ἀλλὰ τὸ μεθυεῖν
2 4 6 8 10 12 14 16 18
οὕτως οὐδὲ τὸ προνοεῖν τὴς σαρκὸς ἀλλὰ τὸ εἰς
20 22 24 26 28 30 32 34 36
ἐπιθυμίας οἶνον τὸ τὴν χρεῖαν υπερβαίνον επεὶ οτι γε
38 40 42 44 46 48 50 52 54
προνοεῖν αὐτῆς κελευει τιμοθεω φησιν ὁλιγῳ οἰνω χρω βια
56 58 60 62 64 66 68 70 72
tὸν στομαχὸν καὶ τὰς ποικίας σου ασθενείας οὐκουν πρὸς
74 76 78 80 82 84 86 88 90
υγιαν προνοεῖ φησιν μὴ προς ασθελγίαν οὐδὲ γαρ αν
92 94 96 98 100 102 104 106 108
eἰς τοῦτο προνοία λυπον οπιγηχα τὴν φλογὰ αναπτῆσις αὐτῆς
110 112 114 116 118 120 122 124 126
καὶ χάλεπην τὴν καμίνον ποιεῖς
128 130 132 134 136

a. - γαρ // 0150, 1506, 2110, Volk
b. om // 0151

10
a. - πίνειν // 0150, 2110
ar. subr πίνειν / 0151, 1506, Volk

48
a. - υπερβαίνου // 0150, 2110, Volk
ar. subr υπερβαίνων // 1506
b. - υπερβαίνειν // 0151

77
a. om // 0150, 0151
b. - σου // 1506, 2110, Volk

82
a. - ποικνας // 0150, 1506, 2110
ar. subr πυκνας // 0151, Volk

92
a. - υγιαν // 0150, 0151, 1506, 2110
ar. subr υγειαν // Volk

96
a. - φησιν // 0150, 0151, 1506, 2110
ar. subr φησι // Volk

102
a. - ασέλγιαν // 0150, 0151, 1506, 2110
ar. subr ασέλγειαν // Volk

116
a. - λυπον // 0150, 2110
ar. subr λοιπον // 0151, 1506, Volk

118
a. - ὄπηνικα // 0150, 1506, 2110
ar. subr ὄπηνικα // Volk
ar. subr ὄπινικα // 0151
a. - ανάπτης // 0150, 1506, 2110, Volk

ar. subr ανάπτεις // 0151

130

a. - χαλεπην // 0150, 1506, 2110, Volk

ar. subr χαλαίπην // 0151

136

a. - ποιεῖς // 0150, 0151, 1506, 2110

ar. subr ποιης // Volk

14.1–2|I

πολλοὶ τῶν εξ ιουδαίων πεπίστευεν ἐτι η του νομοῦ
2 4 6 ν κοτων 12 14 16 18
8 10

cατεχόμενυ συνείδη μετα την πιστίν των βροματ εφυλαττον την
74 24 26 28 30 34 36
o1 78 80 82 84 86 88 90
2ο 22 2 32

cαθαρτηρη σωτῳ διἀρρουντι τελίον αποστηθην του νομου ειτα ωστε
35 40 ες 44 αι 48 50 52 54
38 42 46
μη γενεσθα ευφρατε των χοιρινων απεχομεν μονων παντων εδης
56 1 οι 62 64 οι 68 70 72
58 60 66
απεχόντω χρεων και ηρθιον λαχανα ινα διηστια μολλον ειναι
74 76 78 80 82 84 86 88 90
δοκει το γινομενο αλλα μη νομου παρατη ητεροι δε
92 94 ν 98 100 102 106 108
9 96 104
παλιν ησαν τελιστερ ουδεν τοιουτο παρατηρη οι τουτοις τοις
110 112 οι 116 118 οι 122 124 126
110 114 120
παρατηρο ψυχικο και επαχθει εγινοντο ουνηδὴζον και εις αθωμαν
ωσι 1 132 γ 136 τεσ 140 142 144
128 130 134 138
εμβαλλοντε αυτους δεδοικως τινων ο παυλος μη μικρων κατορθωσ
ες 148 150 152 154 156 158 160 αι
146 162
βουλευμενο το παν ανατρε και θελοντες εις την των
164 166 168 172 174 176 178 180
164 170
βροματων αυτους αδιαφορι αγαγειν και της πιστεως αυτως εκπεσειν
182 184 αν 188 190 192 194 196 198
186
παρασκευος  ορα  τι  ποιει  ουτε  γαρ  ετολμα  τοις  επιτιμουσιν
ασωσιν  202  204  206  208  210  212  214  ν
200  226  228  230  232  234
ειπειν  στι  κακως  ποιεται  επιτιμουν  ινα  μη  εκεινους  βεβαιωση
218  220  222  224  τες  228  230  232  234
εν  τω  παρασκευει  ουτε  παλιν  στι  καλως  ινα  μη
236  238  242  244  246  248  250  252
σφοδροτερος  αυτους  των  μη  εσθιοντω  κατηγορ ινα  εργασει  αλλα  συμμετρη
ους  256  258  260  ν  ους  ται  268  ημενη
254  262  264  266  268  270
ποιηται  την  επιτιμημη  και  δοκει  μεν  τοις  ισχυροις  επιτιμαιν
272  274  278  280  282  284  286  288
το  δε  ακριβες  εις  τους  μη  εσθιοντ  το  παν
290  292  294  296  298  300  ας  302  304  306
αποτεινεις  των  λογων  αυτη  γαρ  μαλιστα  εσται  διορθωσις  οταν
αι  310  312  314  316  318  320  322  324
308  332  334  336  338  340  342  344  346  348  350  354  ιν  α  360
ως  προς  αλλων  τινοτες  τον  λογον  ετερον  πλησαιμεν  τον
326  330  332  334  336  338  340  342  346  348  350  τος  354  360
εργαζομεν  το  κακον  και  λαθηναιν  την  διορθωσ  ποιησομεθ  ορα
ον  368  370  372  374  376  α
τοινυι  πως  αυτο  συνετω  ποιει  λεγον  τον  δε  ασθενουντ
362  364  366  368  370  372  374  376  α
η  πιστει  ευθεως  πρωτην  διδωση  πληγην  ειποιν  γαρ  τον
380  382  384  386  388  390  392  394  396  398
ασθενουντ  εδειξεν  αρριστο  ειτα  δευτερον  προσιτη  λεγον  προσλαμβανειν
α  400  402  404  406  408  410  ανεσθαι  412
400  402  404  406  408  410  ανεσθαι
γαρ  παλιν  πολλης  δεομενο  επιμεληση  οστερο  σημειων  εσχατης  αρρωστιας
416  418  420  ζ  422  424  426  428  430  432
εστιν  δηλαι  τοιοτω  αυτου  το  αμαρτην  ον  ως  και
434  436  438  440  442  444  446  448  450
τους  αντεχομεν  αυτου  της  βοηθειας  διακρινειον
452  454  456  458  460  462  και
12
a.  -  ετι  // 0150, 1506, 2110, Volk

b.  -  ετι  // 0151
a. - η // o150, o151, 2110, Volk
b. om // 1506

32
a. - βρωματων // o150, 1506, 2110
ar. subr βρωματων // o151, Volk

40
a. - ουτω // o150, 2110
b. - ουπω // o150-c, o151, Volk
c. - ου // 1506

44
a. - τελειον // o150
ar. subr τελειον // 1506, 2110, Volk
b. - τελεον // o151

60
a. - ευφωρατοι // o150, 1506, 2110, Volk
ar. subr ευφωρατοι // o151

64
a. - χοιριων // o150, o151, 1506, 2110
ar. subr χοιριεων // Volk

83
a. om // o150, 1506, 2110, Volk
b. - ησθιον // o151

86
a. - νηστια // o150, 2110
ar. subr νηστεια // o151, 1506, Volk

92
a. - δοξη // o150, 1506, 2110
ar. subr δοξη // o151, Volk

108
a. - δε // o150, 1506, 2110, Volk
b. om // o151
114
a. - τελιστεροι // 0150, 1506, 2110

ar. subr τελειοτεροι // 0151, Volk

118
a. - τοιουτο // 0150, 1506, 2110, Volk

b. - τοιουτον // 0151

138
a. - συνηθιζοντες // 0150

ar. subr συνειδιζοντες // 0151, Volk

ar. subr συνηθιζοντες // 1506, 2110

170
a. - ανατρεψωσιν // 0150, 1506, 2110

ar. subr ανατρέψωσι // 0151, Volk

182
a. - βρωματων // 0150, 1506, 2110

ar. subr βρωματων // 0151, Volk

198
a. - εκπεσειν // 0150, 0151, 1506-c, 2110, Volk

b. - αγαγειν // 1506

216
a. - επιτημουσιν // 0150, 1506, 2110

b. - επιτημωσιν // 0151, Volk

224
a. - ποιεται // 0150, 1506, 2110

ar. subr ποιειτε // 0151, Volk

226
a. - επιτιμουντες // 0150, 1506, 2110

b. - επιτιμωντες // 0151, Volk

272
a. - ποιηται // 0150, 0151, 1506, 2110

ar. subr ποιειται // Volk
Here it seems that the masculine relative pronoun is earlier, but readers or scribes consistently believed that it should be neuter.
a. - δηλοι τοιουτω αυτου το αμαρτημα ον ως και τους αντεχομενους αυτου της βοηθειας διακρινεσθαι // 0150, 1506, 2110, Volk

b. om // 0151

In GA 0150 and GA 2110, this text starts on a new paragraph, and it is associated with an asterisk in the margin. A matching asterisk is placed in the center of the lemma for this scholium (Rom. 14:1). It may be that this is an explanatory line which is not part of the scholium proper. Although this line is present in GA 1506, it is not separated by paragraphing, but it is preceded by a colon and the lemma in GA 1506 has a symbol in the same place. GA 0151, however, does not have a symbol in the Rom. 14:1 lemma and neither does it have this additional interpretive phrase.

438

a. - τοιουτώ // 0150, 1506, 2110

ar. subr τοιουτό // Volk

14.3|IA

ουκ ειπεν εκείνες εικεν ειπεν μη εγκαλείτως οποια ειπεν
2 4 6 8 10 12 14 16 18
μη διορθούσθω αλλα μη ονιδιζέτως μη διαπτοίετως
20 22 24 26 28 30 32

28

a. - ονιδιζέτως // 0150, 2110

ar. subr ονιδιζέτως // 0151, Volk

ar. subr ονιδιζέτως // 1506

32

a. - διαπτοίετως // 0150

ar. subr διαπτοίετως // 0151, 1506, 2110, Volk

14.3|IB

ωσπερ γαρ οι τελιοτεροι τους ασθενεστερο ευτελιζω ως ολιγοπιστο
2 4 6 8 10 υς ν 16 υς 12 14 18
και νοθου κα ιουδαιζοντο ουτως εκεινοι τουτως εκρινω ως
20 υς 22 24 26 28 30 32 ν 36 34
παρανομούν 
ως 
λεμαργια προσεχον 
ας 40 42 44 ας 38 46
8
a. - τελιοτεροi // 0150, 2110
ar. subr τελιοτεροi // 0151, 1506, Volk
44
a. - λεμαργια // 0150, 1506, 2110
ar. subr λαμαργια // Volk
b. - λεμαργιας // 0151

14.3–4|Γ

tουτεστιν την αφατον αυτον περι αυτον επεδειξατο χαριν
2 4 6 8 10 12 14 16

14.4|Δ

dεικουσιν ετι χρηζοντα της προσοχης και τοσαυτης επιμελιας δεομενον
2 4 6 8 10 12 14 16 18
ως και τον θν εις ταυτα καλειν βοηθον
20 22 24 26 28 30 32 34
16
a. - επιμελιας // 0150, 1506, 2110
ar. subr επιμελιας // 0151, Volk
28–32
a. - εις ταυτα καλειν // 0150, 1506, 2110, Volk
b. - καλειν εις ταυτα // 0151

14.5|Ε

eνταυθα δοκει ηρεμα περι νηστειας αινητησαι και γαρ εικως
2 4 6 8 10 12 14 16 18
των νηστευοντων τινας τους μη νηστευοντας διηνεκως κρινειν
20 22 24 26 28 30 32 34
12
a. - αινητησαι // 0150, 1506, 2110
ar. subr αινητησαι // 0151, Volk
18
a. - εικως // 0150, 2110
14.6|Iσ

ου περι τα καιρα φησιν το πραγμ εστιν το
2 4 6 8 10 12 α 16 18
14

γαρ ζητουμενα ει δια τον θυ ουτος καικενο εργαζετα
20 ν 24 26 28 30 32 γ ι
22 34 36
και η αμφετερο εις ευχαριστια τελευτως και γαρ και
38 40 ι 44 ν ι 50 52 54
32 46 48
ουτο και εκεινος ευχαριστουσ τω θω
58 60 ι 64 66
56 62

10

a. - φησιν // 0150, 0151, 2110

ar. subr φησι // Volk

zw-ar. lig φη(σι) // 1506

16

a. - εστιν // 0150, 0151, 1506, 2110

ar. subr εστι // Volk

40

a. - η // 0150, 2110

ar. subr ει // 0151, 1506, Volk

62

a. - ευχαριστουσει // 0150, 1506, 2110

b. - ευχαριστουσι // 0151, Volk

14.7–13|IZ

σαφεστερον εδηλωσεν οτι ο τω νομω ζων ου δυνατε
2 4 6 8 10 12 14 16 18

τω χω ζην
20 22 24

18

a. - δυνατε // 0150, 0151, 1506, 2110

ar. subr δυναται // Volk
14.13|Η

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14

a. - τελιου // 0150, 1506, 2110

ar. subr τελιου // 0151, Volk

40

a. - σφοθρα // 0150, 1506, 2110

b. - σφοθρα // 0151, Volk

14.14-15|Θ

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6

a. - το // 0150, 2110

ar. subr τω // 0151, 1506, Volk

14.15|Κ

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10

a. - απεθανεν // 0150, 0151, 1506, 2110

ar. subr απεθανε // Volk

12

a. - φησιν // 0150, 0151, 1506, 2110

ar. subr φησι // Volk

18

a. - τοσουτον // 0150, 1506, 2110, Volk
b. - τοσουτου // 0151

14.16–17|KA

αγαθὸν ενταῦθα τὴν απερτισμένην εὐσεβείαν φησιν
2 4 6 8 10 12

14.18–19|KB

οὐ γὰρ οὗτω σε ὀναμασσονται τῆς τελιστητος φῆσιν ως
tῆς εἰρήνης καὶ τῆς ομονοίας απαντες τοῦτο μὲν γὰρ
20 22 24 26 28 30 32 34 36
tου καλου παντες απολαυσουσιν εκεῖνου δὲ μόνος αυτος
38 40 42 44 46 48 50 52

14 a. - τελιστητος // 0150, 1506, 2110

ar. subr τελειστητος // 0151, Volk

44 a. - απολαυσουσιν // 0150, 0151, Volk

b. - απολαυσωσιν // 1506, 2110

14.20|KG

tὴν σωτηριαν του αδελφου φῆσιν
2 4 6 8 10

10 a. - φησιν // 0150, 0151, 2110

ar. subr φῆσι // Volk

zw-a/ar. lig φη(σι) // 1506

14.20–21|KD

ινα μη αι τοσαυται συγχωρησις βεβαιοσωσι τον ασθενεστερον εν
tη πονηρα υποληψει δογματιζει παλιν
20 22 24 26 28

12 a. - βεβαιοσωσι // 0150

ar. subr βεβαιωσως // Volk

b. - βεβαιωσωσι // 0151

br. subr βεβαιοσωσι // 1506, 2110
ΚΕ

ο λέγει τοιούτου εστιν θέλης μοι δειξαι στι τελιος
2 4 6 8 10 12 14 16 18
ei και απηρτισμένος φησιν μη εμοι δεικουε αλλα αρκεω
20 22 24 26 28 30 32 34 36
σου το συνείδος πιστιν δε ενταῦθα σου την περι
38 40 42 44 46 48 50 52 54
δογμάτων αλλα την περι της προκειμένης υποθέσεως λέγει
56 58 60 62 64 66 68 70

8
a. - εστιν // 0150, 0151, 1506, 2110

ar. subr εστι // Volk

10
a. - θέλης // 0150, 2110

ar. subr θέλεις // 0151, 1506, Volk

18
a. - τελιος // 0150, 2110

ar. subr τελειος // 0151, 1506, Volk

36
a. - αρκεω // 0150, 1506, 2110

b. - αρκειτω // 0151, Volk

38
a. - σου // 0150, 0151, 1506, 2110

b. - σοι // Volk

70
a. - λεγει // 0150, 0151, 2110, Volk

b. om // 1506

KS

επειδή ειπεν καθ εαυτον εκειν της σου κατηγορισει
2 4 6 8 10 12 14 16 18
το δικαστηρίου τούτο λέγει της οικουμενή σοι τουτο βελτιω
20 σου 24 26 28 ης 32 34 36

καν παντες σου καθηγορισου σου δε σαυτο μη κρινης
38 40 42 σιν 46 48 η 52 54

44 50
μηδὲ τὸ συνεὶθεὶ ἐπιλαβήται μακαρίος εἰς οὐκ απλω δὲ
56 58 ὡς 62 64 66 68 ὃ 72
περὶ παντῶν λεγὼν τοῦτο τεθήκεν εἰσὶ γὰρ πόλλα μὴ
74 76 78 80 82 84 86 ὁ 90
καταχρίνον εαυτοῦ καὶ σφοδρὰ πλημμέλουν οὕτωι παντὶ εἰσὶν ἀθλιστερ
92 94 96 98 102 ὁν 106 ὁ
ἀλλ' εἰς τῆς προκειμένης ὑποθέσεως
110 112 114 116 118

4
a. - εἰπεν // 0150, 0151, 1506, 2110
ar. subr εἰπε // Volk

16
a. - νομησει // 0150, 1506, 2110
ar. subr νομισῃ // 0151, Volk

38
a. - καὶ // 0150, 0151, 2110, Volk
b. - καὶ // 1506

44
a. - κατηγορισουσι // 0150, 0151, 1506, 2110
b. - κατηγορήσωσι // Volk

68
a. - οὐκ // 0150, 0151, 1506, 2110
ar. subr οὖς // Volk

73
a. om // 0150, 0151, 2110, Volk
b. - καὶ // 1506

82
a. - τεθήκεν // 0150, 0151, 1506, 2110
ar. subr τεθείκεν // Volk

108
a. - ἀθλιστεροὶ // 0150, 1506, 2110
ar. subr ἀθλιστεροὶ // 0151, Volk
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24  
* a. - φαγει // 0150, 1506, 2110  
* ar. subr φαγη // 0151, Volk  

30  
* a. - καταχρινει // 0150, 0151, 1506, 2110  
* ar. subr καταχρινη // Volk  

44  
* a. - φησιν // 0150, 2110  
* ar. subr φησι // 0151, Volk  
* zw-a/ar. lig φη(σι) // 1506  

54  
* a. - μετα // 0150, 0151, 1506, 2110  
* ar. subr μετ // Volk  

72  
* a. - φαγην // 0150, 1506, 2110  
* ar. subr φαγειν // 0151, Volk  

88  
* a. - φαγην // 0150, 2110  
* ar. subr φαγειν // 1506, 2110, Volk
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42

a. - δεικνυσιν // 0150, 0151

ar. subr δεικνυσι // 1506, 2110, Volk

58

a. - οσιν // 0150, 1506, 2110

ar. subr οσην // 0151, Volk

94

a. - το // 0150, 1506, 2110

b. - του // 0151, Volk

96

a. - επιπλητητη // 0150

ar. subr επιπλητητει // 0151, 2110, Volk

ar. subr επιπλητει // 1506
υποθέσεως αυτω ειρήται εξην αυτω μη ονηδισθήνα εξην μη
5  40  42  44  46  48  1  52  54
38
παθεν απερ επαθεν ει γε ηθέλεν το εαυτου σκοπειν
56  58  60  62  64  66  68  70  72
αλλα και υβρισθην και πονηρα παρα πολλοις ελαβεν δοξαν
74  76  78  80  ν  84  86  88  90
ασθενης ειναι νομησθει αλλα το ημετερο σκοπησας το εαυτου
92  94  98  100 ν  104  106  108
96  102
παρισεν δεικνυσι ου μονον τον ιον ονηδισθεντ αλλα και
110 ν  114  116  118  120 α  124  126
112
τον πρα τον ιον ιδε λεγει τοιοτον εστιν ουδεν συνεβη
128  130  132  134  136  138  140  142  144
καινον ουδε ξενον οι γαρ επι της παλαιας μελετησαντε
146  148  150  152  154  156  158  160  5
162
αυτον ονηδιζειν ουτοι και κατα του παιδος εμανησα
164  166  168  170  172  174  176 ν  178
2–42

a. - (with variation) // 0150, 1506, 2110, Volk
b. om // 0151

This large omission by GA 0151 is again related to a different structure and
division of scholia. In GA 0150 and GA 2110, there are three successive scholia without
interspersed lemmata. The first section occurs as normal and relates to the preceding
lemma. The following two sections also relate to the preceding lemma, but they are
accompanied by symbols in the margin that also occur in the text of the lemma. GA 0151
skips the first scholium. But instead of writing out the next two scholia in succession, the
lemma has been divided and each part is inserted ahead of its related scholium. The
related pairs are connected by position rather than symbols. These alternating lemmata
and scholia are not numbered or incorporated into the numbering system, so the numbers
in GA 0151 remain in sync with the other witnesses.

a. - φησιν // 0150, 1506, 2110
ar. subr φησι // Volk
Family 0150 unanimously says, “...not only was the son despised,” with υιος spelled in full, but GA 0151 substitutes the nomen sacrum for Christ, instead: “...not only
was Christ despised." Context makes it clear that υιον is referring to Jesus, but GA 0151 makes this explicit.

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<th>122</th>
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<th>- ουνηδισθεντα // 0150</th>
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15.8|Α

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γαρ τον νομον πληρωσα και [δια] σταιρον της καταραν
164 166 168 172 174 176 178 180
απαλλαξας της επι τη παραβασει ουκ αφηκεν διαπεσει την
182 184 186 188 190 192 194 196
επαγγελια οταν ουν λεγει διακονον περιτομη τουτο λεγει στι
ν 202 204 206 208 210 212 214 216
ελλων και παντα τον νομον πληρωσ και περιτμη και
218 220 222 224 226 228 230 232
γενομενος σπερμα του αβρααμ ελυσεν την καταραν και επιτηδι
236 238 240 242 244 246 248 250 252
λοιπον εποιησεν τους μελλοντα δεχεσθαι την επαγγελ
254 256 258 260 262 264 266
12
a. - κηδαιμονιας // 0150, 0151, 1506, 2110
ar. subr κηδεμονιας // Volk
16
a. - επι // 0150, 1506, 2110
b. - ετι // 0151, Volk
38
a. - αβρααμ // 0150, 0151, 2110
ar. ns αμ // 1506
48
a. - συ // 0150, 1506, 2110
ar. subr σοι // 0151, Volk
84
a. - αβρααμ // 0150, 0151, 2110
ar. ns αμ // 1506
98
a. - κατηργαζετο // 0151, 1506, 2110
ar. subr κατειργαζετο // 0151, Volk
108
a. - εστερη // 0150, 1506, 2110
ar. subr ἐστερεῖ // 0151, Volk

136
a. - συνεπραξέν // 0150, 0151, 1506, 2110
ar. subr συνεπραξέ // Volk

175
a. om // 0150
b. - τοῦ // 0151, 1506, 2110, Volk

194
a. - αφηκεν // 0150, 0151, 1506, 2110
ar. subr αφηκε // Volk

206
a. - λεγει // 0150, 1506, 2110
ar. subr λεγη // 0151, Volk

242
a. - αβρααμ // 0150, 0151, 2110
ar. ns αμ // 1506

244
a. - ἔλυσεν // 0150, 0151, 1506, 2110
ar. subr ἔλυσε // Volk

252
a. - επιτηθίους // 0150, 1506, 2110
ar. subr επιτηθίους // 0151, Volk

256
a. - εποιησεν // 0150, 0151, 1506, 2110
ar. subr εποιησε // Volk

15.9-13|ΛΑ

touto κατασκευα τω λογω οτι μειζων εισιν οι εξ
2 ζει 6 8 10 ον 14 16 18
4
εθνων οφειλεται τω θω ει δε μειζων εισιν και
20 22 24 26 28 30 θ 34 36
32
δικαιοί αν ειειν ερειν τους ασθενή τους εξ ιουδαίων

38  40  42  44  46  5  50  52  54

επειδή γαρ σφοδρά εκείνων ἴησος ἵνα μὴ τούτους επαρή

56  58  60  62  64  66  68  70  72
tουτο καταστελλι αυτού την απο τοιον εκείνη μὲν γαρ επηγελίας

74  76  78  80  82  86  88  90
πρῶν δεικνύς διδομέν τα αγαθά τοις δὲ εξ εθνῶν

92  94  α  98  100  102  104  106  108
eξ ελευ καὶ φιλανθρωπὸς μονὴς τὸ δὲ δοξάζειν τὸν

110  112  114  ἵνα 118  120  122  124  126

ἐν τούτῳ εστίν τὸ συνήθα τὸ γνωσθαί τὸ ομοθυμαθὸν

128  130  132  134  136  138  140  142  144
eὐφήμη τὸ βαστάζ τὸν ασθενεστὸ τὸ μὴ περίορα απορρήγημεν

146
τὸ μέλος δίο καὶ μαρτυρίας επαγεῖ πάλλας δὶ ὁμ.

164  166  168  170  172  174  176  178  180
dεικνύν οτι δὴ συνήθα τοὺς εὲ ιουδαίων τοὺς εξ

182  184  186  188  190  192  ν  196  198
eθνῶν ταύτας δὲ πασὰς παραγεῖ τὰς μαρτυρίας ὑμοῦ καὶ

200  202  204  206  208  210  ας  214  216
tὸν εξ ιουδαίων καταστελλι ἵνα μὴ επαρηγῆ τῶν προφητῶν

218  220  ν  ὄμ  226  228  232  234  230
παντῶν καλοντιν αὐτὸς τοὺς εὲ εθνῶν φημὶ καὶ τὸν

236  238  240  242  244  246  248  250  252
eξ εθνῶν πείσῃ μετριαζέν τὸν δείξῃ πλείον υπεύθυνον ὑπάρχοντα

254  256  258  260  262  264  266  268  270
χαρίτος
272
34
a. - εἰς // 0150, 0151, 1506, 2110

ar. subr εἰς //Volk

44
a. - ερειν // 0150

b. - φερειν // 0150-ε, 0151, 1506, 2110, Volk

46
a. - τοὺς // 0150, 0151, 2110, Volk
As with the other lengthy omissions by GA 0151, this is the omission of an entire comment which is associated with a specific segment of the lemma by matching symbols.
15.14|ΛΓ

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18

a. - τὸ // 0150, 0151, 1506, 2110

ar. subr τῷ // Volk

15.15–16|ΛΔ

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10

a. - φησιν // 0150, 0151, 1506, 2110

ar. subr φησὶ // Volk

15.16|ΛΕ

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| 74 | 80 |

9

a. om // 0150, 0151, 2110, Volk

b. - δικαιων η καὶ τῶν // 1506

Most of the witnesses mention the “souls of those being taught,” but GA 1506 expands it to “the souls of the righteous or even those being taught.”
188

| a. | - | πολιτεία // 0150 |
| ar. | subr | πολιτεία // 0151, 1506, 2110, Volk |

80

| a. | - | κατεχομεν // 0150, 1506, 2110 |
| ar. | subr | κατεχομεν // 0151, Volk |

88

| a. | - | δώθεν // 0150, 2110 |
| ar. | subr | δώθεν // 0151, 1506, Volk |

15.17|Λς

| επειδὴ | σφοδρα | εαυτον | εταπεινωσεν | παλιν | επαρει | τον | λογον | και |
| 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 |
| τοτο | υπερ | εκειων | ποιων | ωστε | μο | δοξη | ευκαταφρονητος | ειναι |
| 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 |

8

| a. | - | εταπεινωσεν // 0150, 0151, 1506, 2110 |
| ar. | subr | εταπεινωσε // Volk |

32

| a. | - | δοξη // 0150, 1506, 2110, Volk |
| b. | - | δοξαι // 0151 |

15.18–19|ΛΖ

| ουδε | γαρ | αν | εχοι | τις | ειπειν | φησιν | στι | κομπας |
| 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 |
| μου | τα | ρηματα | της | γαρ | χειροτονιας | μου | εχω | δειξαι |
| 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 |
| πολλα | τα | τεκμηρια |
| 38 | 40 | 42 |

15.19–20|ΛΗ

| αριθμει | και | πολεις | και | χωρας | συ | τας | υπο | ρωμαιους |
| 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 |
| μονον | αλλα | και | παντα | τα | βαρβαρα | εδη | οιον | περσας |
| 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 |
| και | σαρακηνους | και | αρμενιους | και | τα | ετερα | των | βαρβαρων |
| 38 | 40 | 42 | 44 | 46 | 48 | 50 | 52 | 54 |
| εθνων | τουτω | γαρ | τω | κυκλω | σημαινει |
| 56 | 58 | 60 | 62 | 64 | 66 |
189

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15.20–22|M

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6–8
a. - κατά την // 0150, 0151, Volk
b. - την κατά // 1506, 2110

56
a. - ωσον // 0150
ar. subr οσον // 0151, 1506, 2110, Volk

62
a. - αλλοτριον // 0150, 0151, 1506, 2110
b. - αλλοτρια // Volk

74
a. - μισθον // 0150, 1506, 2110
b. - μισθος // 0151, Volk

15.23|MA

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δοξης εγραφεν τε και παρεγινετω

22
a. - εγραφεν // 0150, 0151, 2110
ar. subr εγγραφεν // 1506, Volk

28
a. - παρεγινετω // 0150
ar. subr παρεγινετο // 0151, 1506, 2110, Volk

15.23|MB

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εχω ποιησαι δια τουτο ερχομε προς υμας παλιν τον

της ογαπης λογον κηρει ειπων επιποθειν εχων ελθειν προς

υμας

56

12
a. - το // 0150, 0151, 1506, 2110
ar. subr τω // Volk
191

28
a. - ερχομε // 0150
ar. subr ερχομαί // 0151, 1506, 2110, Volk

44
a. - κηνει // 0150, 1506, 2110
ar. subr κινεί // 0151, Volk

48
a. - επιποθειαν // 0150, 0151, 1506, 2110
ar. subr επιποθειαν // Volk

15.24|ΜΓ

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15.24|ΜΔ

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42

a. - μαρτυρησηται // 0150, 1506, 2110

ar. subr μαρτυρησητε // 0151, Volk

66

a. - επιτινων // 0150, 2110

ar. subr επιτεινων // 0151, 1506, Volk

70

a. - τοιουτο // 0150, 1506, 2110

b. - τοιουτον // 0151, Volk

76

a. - αφ // 0150, 2110, Volk

b. - υφ // 1506

c. om // 0151

15.25|ME

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πορευομεν εις ιερουσαλημ τον δε προσεθη διακονησω τοις αγιοις

128 εις 130 ημη 134 136 εν 138 140

27
a. om // 0150, 0151, 1506, 2110
b. - απο // Volk

38
a. - εμελλεν // 0150, 0151, 1506, 2110
ar. subr εμελλε // Volk

50
a. - νομηζηται // 0150, 1506, 2110
ar. subr νομιζηται // 0151, Volk

122
a. - ηρκη // 0150, 1506, 2110
ar. subr ηρκει // 0151, Volk

138
a. - προσεθηκεν // 0150, 0151, 1506, 2110
ar. subr προσεθηκε // Volk

140
a. - διακονησων // 0150, 2110, Volk
ar. subr διακονισων // 0151
b. - διακονησω // 1506

15.26|ΜΣ

τοτεστιν εδοκιμασαν επευαθησαν

6
a. - επευαθησαν // 0150, 1506, 2110
b. - επευαθησαν // 0151, Volk
15.26–27|MZ

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<th>oúk</th>
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<td>αλλά</td>
<td>ινα</td>
<td>μη</td>
<td>δοξεί</td>
<td>αυτοὺς</td>
<td>ονηδίζειν</td>
<td>καὶ</td>
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<td>34</td>
<td>36</td>
</tr>
<tr>
<td>oúk</td>
<td>ειπεν</td>
<td>απλώς</td>
<td>εἰς</td>
<td>τοὺς</td>
<td>πτωχοὺς</td>
<td>αλλά</td>
<td>εἰς</td>
<td>τοὺς</td>
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<td>54</td>
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<tr>
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<td>τῶν</td>
<td>αγιῶν</td>
<td>καὶ</td>
<td>οὐ</td>
<td>τοῦτω</td>
<td>μονῷ</td>
<td>ηρκεσθῇ</td>
<td>ἀλλὰ</td>
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<td>64</td>
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<td>70</td>
<td>72</td>
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<td>καὶ</td>
<td>στὶ</td>
<td>οφειλέται</td>
<td>εἰσὶ</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>78</td>
<td>80</td>
<td>82</td>
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<td></td>
</tr>
</tbody>
</table>

18  
- α. - oúk // 0150, 0151, 1506, 2110
ar. subr oúk // Volk

22  
- τεθήκεν // 0150, 1506, 2110
ar. subr τεθείκεν // 0151, Volk

30  
- δοξεί // 0150, 2110
ar. subr δοξῆ // 0151, 1506, Volk

34  
- ονηδίζειν // 0150, 2110
ar. subr ονηδιζεῖν // 1506
ar. subr ονειδίζειν // 0151

68  
- μονῷ // 0150, 1506, 2110
b. - μονον // 0151, Volk

82  
- εἰσὶ // 0150, 1506, 2110
ar. subr εἰσίν // 0151, Volk

15.27|MH

<table>
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<tr>
<th>o</th>
<th>λέγει</th>
<th>τοιοῦτον</th>
<th>εστὶ</th>
<th>δι</th>
<th>αυτοὺς</th>
<th>ἠλθέν</th>
<th>φησιν</th>
<th>o</th>
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<td>6</td>
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<td>14</td>
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</tr>
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<td>αὐτὸς</td>
<td>ἡν</td>
<td>ἀπαντ</td>
<td>επαγγελμα</td>
<td>τοῖς</td>
<td>εξ</td>
<td>ιουδαίως</td>
<td>εξ</td>
</tr>
<tr>
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<td>22</td>
<td>24</td>
<td>α</td>
<td>νος</td>
<td>30</td>
<td>32</td>
<td>ν</td>
<td>36</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>34</td>
</tr>
</tbody>
</table>
αυτων  ο  χς  διο  ελεγεν  εκ  των  ιουδαιων  εστιν
38  40  42  44  46  48  50  ν  54

η  σωτηρι  εκειθεν  οι  αποστολοι  εκειθεν  οι  προφητευ  εκειθεν
56  α  60  62  64  66  68  αι  72

τα  αγαθα  παντα  τουτω  ουν  παντων  εκοινωνηθη  η  οικουμενη
74  76  78  ν  82  84  σεν  88  νη

ei  ται  εν  τοις  μειζονισιν  εκοινωνησαν  φησιν  οφειλεται  και
92  94  96  98  100  104  ται  104  αι  108

tων  σαρκικων  και  μεταδοναι  αυτοις  και  συνε ειπεν
110  ον  1  116  118  120  122  124  126

και  λειτουργηθη  εν  ταξιν  διακοινωναν  αυτους  καθησται  και
112  114  130  134  136  138  140  ας  144

των  βασιλειαν  τελουντων  φορουν
146  148  150  5  152

14–16

a.  -  ηλθεν  φησιν  // 0150, 0151, 2110

ar.  subr  ηλθε  φησιν  // Volk

b.  -  φησιν  ηλθεν  // 1506

84

a.  -  παντων  // 0150

b.  -  απαντων  // 0150-c, 0151, 1506, 2110, Volk

102

a.  -  εκοινωνησαται  // 0150, 1506, 2110

ar.  subr  εκοινωνησατε  // 0151, Volk

106

a.  -  οφειλεται  // 0150, 1506, 2110

ar.  subr  οφειλετε  // 0151, Volk

126

a.  -  ειπεν  // 0150, 0151, 1506, 2110

ar.  subr  ειπε  // Volk

142

a.  -  καθησται  // 0150, 1506, 2110
\textit{ar. subr χαδίστας} // 0151, Volk

\textbf{15.28|MΘ}

\begin{align*}
\text{touteστιν} & \quad \text{ως} & \quad \text{eis} & \quad \text{βασιλικα} & \quad \text{tameiα} & \quad \text{apοτιδεμενος} & \quad \text{ως} & \quad \text{en} & \quad \text{ασυλω} \\
2 & 4 & 6 & 8 & 10 & 12 & 14 & 16 & 18 \\
& & & & & & & & \\
\text{kai} & \quad \text{ασφαλει} & \quad \text{χωριων} & \quad \text{kai} & \quad \text{ουκ} & \quad \text{ειπεν} & \quad \text{ελεημοσυνην} & \quad \text{αλλα} & \quad \text{παλιν} \\
20 & 22 & 24 & 26 & 28 & 30 & 32 & 34 & 36 \\
& & & & & & & & \\
\text{τον} & \quad \text{καρπον} & \quad \text{δεικνυς} & \quad \text{κερδαινοντας} & \quad \text{τους} & \quad \text{παρεχοντας} \\
38 & 40 & 42 & 44 & 46 & 48 \\
\end{align*}

\textbf{24}

\textit{a.} - χωριων // 0150, 2110

\textit{ar. subr χωριω // 0151, 1506, Volk}

\textbf{44}

\textit{a.} - κερδαινοντας // 0150, 1506, 2110

\textit{ar. subr κερδαινοντας // 0151, Volk}

\textbf{15.28|N}

\begin{align*}
\text{παλιν} & \quad \text{μεμνηται} & \quad \text{της} & \quad \text{σπανιας} & \quad \text{δεικνυς} & \quad \text{το} & \quad \text{αοκνων} & \quad \text{kai} & \quad \text{το} \\
2 & 4 & 6 & 8 & 10 & 12 & 14 & 16 & 18 \\
\text{peri} & \quad \text{εκεινους} & \quad \text{θερμαν} \\
20 & 22 & 24 \\
\end{align*}

\textbf{15.29|NA}

\begin{align*}
\text{ωσανει} & \quad \text{ελεγε} & \quad \text{οιδα} & \quad \text{οτι} & \quad \text{ερχομεν} & \quad \text{οψομαι} & \quad \text{υμας} & \quad \text{εν} & \quad \text{απασιν} \\
2 & 4 & 6 & 8 & 10 & 12 & 14 & 16 & 18 \\
\text{ευθυκιμουντ} & \quad \text{kai} & \quad \text{κομωντας} & \quad \text{τοις} & \quad \text{αγαθοις} & \quad \text{kai} & \quad \text{μυριω} & \quad \text{επαινω} & \quad \text{αξιος} \\
\text{ασ} & 22 & 24 & 26 & 28 & 30 & 32 & 34 & 36 \\
\text{των} & \quad \text{kata} & \quad \text{ον} & \quad \text{ευαγγελι} & \quad \text{kai} & \quad \text{τουτο} & \quad \text{θε} & \quad \text{τροπος} & \quad \text{συμβουλ} \\
38 & 40 & 42 & 44 & 46 & 48 & 50 & 52 & 54 \\
\text{θαυμαστος} & \quad \text{το} & \quad \text{προκαταλαβαν} & \quad \text{αυτοις} & \quad \text{τοις} & \quad \text{εγκωμιο} \\
56 & 58 & 60 & 62 & 64 & 66 \\
\end{align*}

\textbf{62}

\textit{a.} - αυτοις // 0150, 1506, 2110

\textit{b.} - αυτους // 0151, Volk
παλιν ενταῦθα τον χν και το πνα προβάλλεται και
2 4 6 8 10 12 14 16 18
ουδέμαυ μεμνηται του π[ρς] ταυτά δε λεγει ινα σταν
20 22 24 26 28 30 32 34 36
ιδης αυτον πρς και υιω μεμνημενον η πρς μοναν
38 40 42 44 46 48 50 52 54
μητε τον υν μητε το πνα αδετης και ευκ
56 58 60 62 64 66 68 70 72
eιπεν πνα αλλα αγαπης πνς καθαπερ γαρ 0
74 76 78 80 82 84 86 88 90
ηγαπησεν τον κοσμον και πηρ ουτω και το πνα
92 94 96 98 100 102 104 106 108

74
a.  -  ειπεν // 0150, 0151, 1506, 2110

ar.  subr  ειπε // Volk

92
a.  -  ηγαπησεν // 0150, 0151, 1506, 2110

ar.  subr  ηγαπησε // Volk

99
a.  om  // 0150, 1506, 2110

b.  -  σ // 0151, Volk

15.31|NG

dεικνυσι μεν το μεγεθος ο ειχεν αγωνος απο δε
2 4 6 8 10 12 14 16 18
tουτου και ετερον κατασκευαζει το δειξαι στι δικαιως ανεδεξατο
20 22 24 26 28 30 32 34 36
dιακονησαι τοις αγαθοις οι γαρ μεταξυ των ουτω πονηρων
38 40 42 44 46 48 50 52 54
κειμενοι και λιμω απολλυσθαι εμελλον
56 58 60 62 64

20
a.  -  τουτου // 0150, 0151, Volk

b.  -  τουτο // 1506, 2110

15.31–32|ΝΔ

tουτεστιν ινα μετα προβημιχα υποδεξονται τα διδομενα ορα δε
2 4 6 8 10 12 14 16 18
παλιν πως επαιρει το αξιωσ των λαμβανοντων ει γε
20 22 24 26 28 30 32 34 36
ευχών δείται παρα δήμου τοσουτού εις το δεχθηναι τα

πεμπομενα

56

10

a. - ὑποδεξονται // 0150, 0151, 1506, 2110

ar. subr ὑποδεξονται // Volk

15-33|NE

eυχή σφραγίζει του λόγου

2  4  6  8
6.2.2 **Summary of Findings from a Collation of Scholia**

What we find when examining the scholia in these manuscript witnesses is that their texts follow the same pattern as the lemmata: GA 0150 and GA 2110 are nearly identical, GA 1506 is very similar but overall posterior, and GA 0151 is—by comparison—demonstrably different if to a lesser degree compared to the lemmata. In the case of the lemmata in GA 0151, the outside source is obvious: the Majority Text. But what about the scholia? Is it simply the same kind of editorial smoothing that ultimately led to the Majority Text? I can say that the edition by John of Damascus—both its lemmata and scholia—are best preserved in Family 0150. It is also evident that GA 0151 demonstrates that around the ninth century, some communities edited their texts to bring them into conformity with a standard. And in the case of the scholia, it may be that conformity of style was also valued. Browsing the above apparatus, one will see that GA 0151 has far fewer deviations from what we would consider “correct” spellings. According to Colwell, a “family” is one in which the archetype can be reconstructed from the children using the genealogical method. In Family 0150, I do think that we have all that is needed to access both the biblical and commentary text of John of Damascus.

![Figure 21. Stemma of the Damascene Scholia for Romans 13–15](image)

The above figure represents the relationship of the witnesses considering only their scholia. Note that for GA 0150 and GA 2110, no directional determination has been made.

6.3 Chapter Conclusion
This chapter addressed two important topics that did not warrant dedicated chapters because of their distance from the primary goal: demonstrating that Family 0150 is a textual family and the best witness to the biblical text available to John of Damascus. But given the remarkable similarity between GA 0150 and GA 2110, investigating their relationship is not far from the primary goal, especially considering that others have claimed that these witnesses are Abschrift and Vorlage. When the analysis of every variation unit in Romans 13–1 Corinthians 4 proved to be nondeterminative, the first half of this chapter became necessary in order to investigate the marginal notes and paratextual features. As a result of that analysis, the claim that the pair of manuscripts are exemplar and copy cannot be upheld. The combination of remarkable similarity and the lack of directional indicators suggests that GA 0150 and GA 2110 may be sibling manuscripts of a common parent—Family 0150 indeed—but not exemplar and copy.

The second part of this chapter dealt, finally, with the scholia of the four catenae of John of Damascus extant at Romans 13–15. A full collation of these chapters reinforced the relationships identified using the lemmata. Neither GA 2110 nor GA 0150 have a text that is considerably earlier than the other, which therefore makes them siblings in the stemma. Exactly as with the lemmata, GA 1506 is a very closely related text, but it is sufficiently removed from GA 0150 and GA 2110 that there are a number of readings which can be identified as posterior readings. GA 0151, on the other hand, has significantly more posterior readings. Therefore, the scholia of GA 0151, like its lemmata, has been edited—but to a lesser degree. The relationships between the four catenae have the same shape whether comparing their lemmata or scholia, but the scholia bear these differences less starkly.
Part Two:
The Development of New Computer Software for Textual Scholarship
7 Existing Tools and a New Desktop Application

One of the goals for carrying out the research for this thesis is to make use of computer software that has been developed precisely for the kind of textual analysis intended here. I discovered that some existing software was not sufficient for my purposes, and some of the existing computer tools are not integrated or are non-interoperable. To solve this problem both for myself and for other textual researchers, I developed several new software programs. The primary software created for this thesis accomplishes two tasks: (1) the integration of non-interoperable preexisting tools and (2) the creation of new tools for analysis, visualization, editing, and digital publication. This chapter will first introduce the standard computer tools created by others and utilized extensively for this project, then I will document the design and purpose of the computer applications which I have developed during the writing of this thesis.

7.1 Previously Existing Software Tools

This section details the software and tools which were used to transcribe, collate, and analyze textual data related to this thesis.

7.1.1 The Workspace for Collaborative Editing

Two of the previously existing software tools used to conduct research related to this thesis were born from a project called the *Workspace for Collaborative Editing.* Therefore, it is worthwhile introducing the project. The *Workspace for Collaborative Editing* was specifically created to facilitate the textual analysis and editing necessary for the *ECM.* It was developed in partnership between the Institute for Textual Scholarship and Electronic Editing (ITSEE) at the University of Birmingham, the Trier Center for Digital

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\[^{206}\text{For clarity, all titles of software will be italicized, and any source code will be bordered on all four sides. In software, technical terms abound.}\]

Humanities at the University of Trier, and the Institut für Neutestamentliche Textforschung at the University of Münster (INTF). The project that funded the *Workspace for Collaborative Editing* ran between 2010 and 2013, but development of the delivered software has continued until the time of writing.

### 7.1.2 Online Transcription Editor

The first step toward original textual research must be the collection of the texts themselves. Either physical consultation of ancient texts or access by proxy via images may be sufficient for many studies. However, to fully utilize computer tools, it is necessary to gather digital representations of the texts. Naturally, then, the creation of digital transcriptions of New Testament manuscripts is foundational to the research presented in Part One of this thesis. The *Online Transcription Editor* was created for exactly this purpose: to capture the textual content of New Testament Manuscripts in a standard digital format.

The *Online Transcription Editor* was created as part of the *Workspace for Collaborative Editing* and was first developed by Gan Yu and Martin Sievers of the Trier Center for Digital Humanities. More recently, the primary maintainers of the code base are now Catherine Smith and Troy Griffitts.

One may wonder why it was thought important to create a bespoke tool for the digital transcribing of New Testament manuscripts. There are two compelling reasons. The first was the decision by the ECM collaborators to abandon plain text transcriptions and adopt the guidelines set forth by the Text Encoding Initiative (TEI), which specify “XML as the standard encoding format.” The IGNTP further defined a subset of TEI to apply specifically to transcriptions of New Testament manuscripts. The second reason that led

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208 “Workspace for Collaborative Editing.”
to the creation of the *Online Transcription Editor* is that TEI XML is not necessarily intended to be consumed directly by humans because it is difficult to read (see the example below). It is equally or more difficult to write correctly. Houghton explains the difficulty inherent in adopting TEI XML, “Despite the many advantages of XML for standardization and storage, the verbose character of the markup makes it very inefficient for transcribers to work directly in this encoding.”

![Figure 22. TEI XML example source code of Romans 13:5b](image)

The decision by the IGNTP and the INTF to adopt TEI XML as the transcription format precluded the use of any normal word processor. Yet the markup inherent in XML discouraged the direct creation of TEI XML, even in source code editors. Therefore, the *Online Transcription Editor* was created to enable transcribers to record the text in a familiar environment, namely, one that is reminiscent of a rich text word processor. And importantly, the output of the *Online Transcription Editor* is TEI XML. The user interface for the *Online Transcription Editor* hides all the TEI XML markup from view so that transcribers need only be concerned with the text. The *Online Transcription Editor* is available to the public both on the INTF VMR and from ITSEE. For transcriptions related...
to this thesis, I downloaded the source code and ran the Online Transcription Editor directly on my local computer.\textsuperscript{215}

For the task of digitally transcribing Greek, Latin, Coptic, and other New Testament manuscripts, the Online Transcription Editor has become the standard tool. While I did create several alternative tools for digital transcription, I have since concluded that it is important for a small field such as New Testament textual criticism to settle on standard tools where possible.\textsuperscript{216} I have archived my TEI creation tools and fully adopted the use of the Online Transcription Editor.

7.1.3 The Collation Editor

In 1997, INTF began to consider moving away from capturing textual data merely in negative apparatuses by manually collating manuscripts, to fully transcribing and then collating the full transcriptions. The catalyst for this change in method was the emergence of computer-aided collation pioneered by Peter Robinson.\textsuperscript{217} In 1999, the ECM of the Petrine epistles became “the last fascicle to be published using the earlier methodology of manual collation.”\textsuperscript{218}

The computer program, Collate, developed by Robinson served as the preferred computer collation tool for digitally collating full transcriptions by the INTF until as late as 2015.\textsuperscript{219} However, both the INTF and IGNTP recognized that Collate needed a replacement developed with modern web technology. The second software deliverable of the Workspace for Collaborative Editing project was this replacement, the Collation Editor, which is developed by Catherine Smith.\textsuperscript{220}

\textsuperscript{215} Sievers, “Online Transcription Editor.”
\textsuperscript{220} Smith, “Collation Editor.”
Robinson’s *Collate* software was a self-contained computer application. By contrast, the *Collation Editor* is an integration of several free-standing components. First, its foundation is another piece of software named *CollateX*, which is developed by Ronald Dekker. *CollateX* is a computer program that can apply different alignment algorithms to text inputs and can create various kinds of output including a TEI XML collation file, an HTML table with the input texts aligned, and others. However, *CollateX* is distributed as either a command line application, or as a web service—neither of which are usable by people without programming nor other technical experience. *CollateX* is a powerful tool, but to be usable it needed several additional layers of functionality.

The second component of the *Collation Editor* is the graphical user interface. Through the *Collation Editor*, a user may use *CollateX* without learning and using a command line interface. The third major component of the *Collation Editor* is in the name. More than merely a graphical user interface wrapper for *CollateX*, indeed, Catherine Smith has extended the functionality. *CollateX* applies the alignment algorithms, but this is only part of collation. After the computer has identified variation units, it is necessary for a human editor to adjust the variation unit boundaries and readings. Therefore, the *Collation Editor* is both a more user-friendly interface for *CollateX*, but it also enables the user to edit the output of *CollateX* so that it is more suitable for use in the creation of a critical apparatus and edition.

Concerning the use of the *Collation Editor*, there are three major steps in its workflow. (1) The user is presented with the initial automated collation for a single verse. At this stage, there will be many differences which the user can then regularize to be equivalent for the purpose of identifying variation units. The user accomplishes this by creating regularization rules. For example, the user may designate that θεος and θς should be counted as agreeing either in the one instance, or in all future occurrences. Once the

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221 Dekker and Middell, "CollateX."
222 The transcriptions used as input are normally stripped of diacritical marks such as accents and breathing marks.
user has created the rules necessary to regularize the collation, the verse can be recollated with the rules in place. When the user is satisfied, they can then move to the next stage in the collation workflow.

(2) In this second stage, the user may adjust the boundaries of variation units. In my use of the *Collation Editor*, the alignment algorithm has rarely identified variation unit boundaries correctly. For an example of a type of variation with which automated collation struggles, consider word order differences. Often a reading as simple as Χριστοῦ Ἰησοῦ against Ἰησοῦ Χριστοῦ is identified as two variation units. That is, two substitutions: Χριστοῦ for Ἰησοῦ and Ἰησοῦ for Χριστοῦ. However, the experienced researcher will understand that this is a single variation unit, and it relates not to substitution, but to word order. This is a simple example, and sometimes automated collation can interpret it correctly. However, word order variants are often more complex and involve more than two words. The great variety of situations that are possible when collating manuscripts has required the *Collation Editor* to have many flexible controls.

(3) After finetuning the variation boundaries, the next stage offers the user the opportunity to order the readings. The reading that agrees with the basetext is always designated as reading “a,” but the user may, for example, swap reading “b” and “c.” This affects the order that the evidence for each reading is presented in either a digital or print edition of the apparatus.

Once the user has completed all editing of the initial collation, the collation can then be exported as a TEI XML formatted collation file. As discussed above, TEI XML is not meant to be read by human eyes, but rather to be consumed by a computer program to produce something more appropriate for human interaction. The output from the *Collation Editor* is ultimately that which serves as the input for the ECM and the CBGM. See an example output of a collated verse below.
The root element of any TEI compliant transcription or collation is the `<TEI/>` element. The `<ab/>` (anonymous block) elements indicate the versification boundaries. It is possible to have multiple `<ab/>` elements for including multiple verses in the same collation file. However, the Collation Editor assumes that it is editing a single verse, so, there will only be one `<ab/>` element per collation output file. In a TEI collation, the main direct child element of a `<ab/>` element are the `<app/>` elements, each of which encloses a variation unit. The example above contains two variation units. Each `<app/>` element indicates the boundaries of the variation unit with the `from` and `to` attributes. The second `<app/>` unit above identifies the numbers 8 and 10; these numbers correspond to the word indices. The words in the basetext are numbered beginning with "2" for the first word, "4" for the second word, "6" for the third word, etc. Odd numbers are used to identify variant readings which add material between two words in the basetext. Nested within the `<app/>` elements are the `<lem/>` and `<rdg/>` elements, both at the same tree level. The `<lem/>` element identifies the basetext in the `wit` attribute and provides the basetext reading as the text value. There should be one `<lem/>` element, but multiple `<rdg/>` elements—one per reading including the basetext reading. The `<rdg/>` element indicates the name or
identifier of the reading in the `\texttt{\textit{reading}}` attribute and the sigla of the witnesses in the `\texttt{\textit{wit}}` attribute. The reading itself is the text value.

7.1.4 The open-cbgm

The first and primary implementation of the computer tools that support the CBGM were first created by Gerd Mink.\footnote{For a discussion on the methodological details and considerations of the CBGM, please see Chapter 2 (sections 2.2.1.4–5).} Until recently, the undergirding tools were not available to researchers who were not working closely with the INTF or the IGNTP. The method itself was made known, but textual scholars had little access to the tools. In 2020, however, the INTF made a standalone version of the CBGM available for download.\footnote{Greg Paulson, “Download the CBGM Docker Container,” Institute for New Testament Textual Research (INTF) Blog, 4 December 2020, https://ntvmr.uni-muenster.de/intfblog/-/blogs/download-the-cbgm-docker-container.} The CBGM continues to be updated over time. The version of the CBGM used at least from the Mark fascicle to the time of writing was created jointly between the INTF and the Cologne Center for eHumanities. While this downloadable version requires the user to launch it from the command line, once it is started it is mostly run and controlled from a graphical user interface via a web browser. Initially, this downloadable version included only the data for Acts.\footnote{“CBGM App Server,” Docker (Cologne Center for eHumanities and Institut für Neutestamentliche Textforschung, 2023), https://hub.docker.com/r/scdh/intf-cbgm-app-server.} At the time of writing, the standalone version including the data for Mark is promised but not yet available. The downloadable version allows any user to change the genealogical relationships—something that is impossible in the INTF VMR. Unfortunately, there is no mechanism provided by which a user may use the tools of the CBGM for their own collation data.

However, this has not remained the only implementation of the CBGM. There are at least two others. For his PhD thesis, in order to evaluate the CBGM, Andrew Edmondson recreated the computer tools behind the CBGM.\footnote{Andrew C. Edmondson, “An Analysis of the Coherence-Based Genealogical Method Using Phylogenetics” (PhD, University of Birmingham, 2018); Andrew C. Edmondson, “CBGM,” Python, 2018, https://zenodo.org/record/1296288.} Although Edmondson...
published his source code publicly, his implementation was primarily for testing and analysis rather than an alternative implementation intended to be used as a general alternative.

Joey McCollum created yet another implementation of the CBGM, which is named the open-cbgm.⁸⁷ This implementation has considerable differences to the above versions. First, it was created from the beginning to be open and available to the public. As such, it was released with thorough documentation for users on MacOS, Windows, and Linux.⁸⁸ Second, although the open-cbgm implementation generally follows the same methodological stages, it has been reimagined and written from scratch in the C++ programming language. Both of the above implementations utilize different combinations of interpreted programming languages such as Python and Perl, but C++ has the potential to be orders of magnitude more efficient and faster.⁹⁰ Like CollateX, though, the open-cbgm is a powerful tool that will be out of reach for some potential users because it does not include an intuitive graphical user interface but is instead a command line application. This is not a critique. Like CollateX, the open-cbgm is engineered to do one thing well and efficiently.

Presented with these options, I chose to use the open-cbgm to support the research in Part One of this thesis. The open-cbgm also presented an opportunity similar to that of CollateX and the Workspace for Collaborative Editing project: the opportunity to create an intuitive and graphical user interface for the open-cbgm. This is discussed more below and in the following chapter.

7.2 Novel Software

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7.2.1 The Problem and Opportunity of the Existing Tools

The benefit of the above tools is readily apparent. Computerized collation results in collation data that is easily imported by computers (unlike print apparatuses). The Online Transcription Editor enables the user to easily create transcriptions that correspond to an international standard, and the open-cbgm makes the CBGM available, for the first time, to users who can provide their own data.

Yet the user who wishes to use the latest and greatest software to transcribe, collate, and analyze textual witnesses faces challenges. Note that the “user” in mind here is an independent researcher. Those directly involved with the editing of the ECM will have technical support. However, the degree to which these tools, especially the Collation Editor and the INTF CBGM, are open to other scholars to use is greatly diminished to the point of being impossible for all but those with knowledge of computer programming.

The first challenge presents itself as a technical hurdle. The Collation Editor, though it is made available for download, can perform no task “out of the box.” To launch properly, it must be launched from a command line. The average user may not even know what this means. The average user expects to navigate to a website, or to install an application. The Collation Editor, by contrast, requires first that the user has previously installed the Java runtime and the Python interpreter. Then, there are two startup scripts provided: one for macOS and one for Windows. At the time of writing, the standalone distribution of the Collation Editor is not compatible with the newer Python versions, so it is unlikely many users will successfully launch the Collation Editor. Therefore, I maintain a fork (copy) of the Collation Editor which I have edited to be compatible with the newest Python versions, in addition to a few other minor adjustments.

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It should be noted that this is not a complaint directed at the *Collation Editor* or its creator because the *Collation Editor* is not meant to be used by independent researchers. The *Collation Editor* is meant to be used within an integrated environment that smooths over many of the difficulties noted above and below. Rather, I am thankful to ITSEE and Catherine Smith for making any version of the *Collation Editor* available to the public. However, this integrated web platform is generally walled off to researchers not associated with official INTF, IGNTP, or ITSEE projects.

Once the *Collation Editor* can be launched, the user will be presented with the next hurdle: non-interoperability. Even though the *Online Transcription Editor* and the *Collation Editor* were developed as part of the *Workspace for Collaborative Editing*, it is impossible to take the output of the *Online Transcription Editor* and use it as the input for the *Collation Editor*. The *Online Transcription Editor* exports full text transcriptions in the TEI format. This single TEI document will contain the transcription for potentially an entire New Testament book or corpus. It is not reasonable to collate an entire book or even a chapter at a time; the *Collation Editor* was developed with the expectation that users will divide these transcriptions into verse-length files. By itself, this would be a minor challenge if the *Collation Editor* did not also take input exclusively in the JavaScript Object Notation (JSON) format.\(^\text{232}\) Not only are TEI and JSON significantly different formats, but the *Collation Editor* requires the JSON input have a specific shape. This means that there is no ‘off the shelf’ solution.

Figure 24. JSON example source code of the first three words of 1 Cor 1:1 in GA 01

The TEI format structures transcription data in a hierarchical and treelike manner in which a book contains many chapters which contain many verses which contain many words which may contain unclear, supplied, or abbreviated letters (to name a few potential nestings). The shape of the data required by the Collation Editor, on the other hand, flattens the transcription into a series of key and value pairs. The example
above (Figure 26) shows the JSON representation of a transcription of 1 Corinthians 1:1, though only the first three words for the sake of space. Each word is tokenized, meaning that the word boundaries are defined, and each word is its own object. This is ideal for computerized collation, which takes the tokens of many witnesses and aligns them in order to identify differences. While useful, it is structurally different from TEI transcriptions.

This non-interchangeability means that TEI transcriptions must be converted to appropriate JSON representations. It is far too much work to be done manually, but it is also impossible to accomplish with any standard computer program. Therefore, the only way to prepare TEI transcriptions for the Collation Editor is to create a custom programming script. This limits use of the Collation Editor by outside researchers to those with software development skills. For researchers associated with projects governed by the INTF, IGNTP, or ITSEE, this conversion is handled by scripts that are maintains by software developers associated with each institute.

One of the aspects that contributes to the conversion difficulty is that TEI is exceedingly flexible while the required JSON format is very rigid. Therefore, any conversion script must interpret the TEI. This means anticipating specific TEI element tags and possible nestings. For example, a word element may have nested within it an “unclear” element that spans one or all letters of the word. This is common but it must be anticipated in order for the JSON output to be correct. But the nesting can be more complicated. For example, a word element may have within it “unclear” text which may have within it a nomen sacrum which may have within it a corrected reading. Each one of these possibilities must be explicitly anticipated. Even worse, if users of the Online Transcription Editor are unaware of this issue, they may nest these items in different orders—all of which the script must anticipate.

Fortunately, the output of the Collation Editor is very close to the format required by the open-chgm. For the user moving from transcription to collation, to analysis
via the CBGM, the open-cbgm was designed to use TEI as input specifically to be interoperable with existing tools. Only a minor reformatting of the Collation Editor output is required before it can be used as input for the open-cbgm (see below for more information). Like CollateX, however, the open-cbgm is a powerful tool that will probably remain inaccessible to most users because it does not provide its own graphical user interface.

While these challenges may be interpreted purely in a negative sense, they also offer a collaborative opportunity. Just as the Collation Editor enwraps CollateX to make an inaccessible tool more accessible, I have created software and tools to make the Collation Editor and the open-cbgm more accessible and enable non-software developers and myself the opportunity to utilize the power of these tools in our own research—research that is independent of major ongoing projects associated with the INTF, IGNTP, and ITSEE. The nature of the opportunities to contribute to technical aspect of the field of New Testament Textual criticism fall into two categories: (1) software contributions that make existing tools more accessible and interoperable (2) and standalone tools that are innovative or offer alternatives to those unavailable to independent researchers.

7.2.2 Desktop and Web Applications

In the following section I will introduce software that I have created to solve the problems mentioned above for myself and my research. Even before writing, I also released the following software publicly as a contribution to the field. Already, it is being used beyond my thesis in at least six other doctoral and master's projects. There are two primary ways that software is distributed: applications that are installed on one's local computer, and applications which are hosted on a server and accessed by a web browser. I have created and distributed both types of applications.

By desktop application, I mean something which is installed on a local computer and is self-contained, that is, it does not require internet access. The ability of a computer program to work offline can be preferable when a user wants to maintain
control of their data. However, packaging applications can be especially challenging in a cross-platform context. It is important to me that the desktop applications I provide to researchers work on most platforms: Windows, Apple, and Linux. Targeting these platforms normally requires having access to a computer running each platform with which to package each version of the application.

A web application, by contrast, will normally work identically on any platform because the computer processing occurs either on the server, or in the user’s browser, which is much easier to target than operating systems. The workflows developed by INTF, ITSEE, and others for the production of the ECM are all web applications. The web application architecture provides the highest level of abstraction for the user; all the complex processing is run on the server, sometimes invisibly from the user's point of view.

7.2.2.1.1 **Critical**

My desktop application, *Critical*, is a suite of eleven tools that help at various points in the workflow from transcription to collation to analysis to publishing. By bringing all eleven tools into the same application, users need only install a single program. While some of the tools may interact with other source code libraries or programs, the core of each one is written in the Python programming language. A major advantage of Python is that the same code can be executed on any platform which can install Python. This flexibility means that I can develop *Critical* on a Windows computer and distribute it to users on Linux and Apple and it should execute the same. There are ways to create Python applications that can only run on one platform, but I have taken steps to ensure that *Critical* is a truly cross platform application. One major step toward keeping *Critical* simple and cross platform is the use of the Tkinter (“Tk interface”) for creating a graphical user interface. Tkinter is a graphical user interface library that is included with every standard Python installation. This means that *Critical* does not need

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to have a graphics library bundled with it because it can expect that the graphics engine is already present on any computer that has Python.

The recommended way of installing Criticus is to first install Python, and then to use the command line to install Criticus. This ensures that Criticus will run on new or old hardware, Apple, Windows, or Linux. However, for Windows users there is also a standalone executable which can be downloaded and launched simply by double-clicking on the file. To demonstrate that installing Criticus by command line is actually quite easy, see the full process below:

1. Install Python from [https://python.org](https://python.org).

2. On Windows, launch Windows Terminal or CMD.

   Type “python -m pip install Criticus” then press Enter.

3. On Apple, launch Terminal.

   Type “python3 -m pip install Criticus” then press Return.

When installed from the command line, the user does not need to find and install Criticus from a website, instead this command is all that is needed.

Since each tool or module included with Criticus is a standalone tool, it is simplest to discuss each in turn.
This module converts a plain text transcription of a textual witness to the JSON format required by the *Collation Editor*. This module was created for those who possess preexisting non-TEI transcriptions. In this context, “plain text” means that the transcription does not have any special markup. A traditional transcription for print is essentially plain text. See the example below for an example of a valid plain text transcription.

The example above shows three verses in plain text with the verse number on the left. It is crucial that each verse is on a single line and that each line begins with the verse number. This is the input format expected by the “Plain Text to JSON module.” There are several options and fields that the user must fill out. First, the user must select either “All verses in file” or “Range of verses.” If “All verses in file” is selected, then the entire transcription file will be processed and *Criticus* will attempt to create many JSON transcription representations from the plain text file. If “Range of verses” is selected, then
the user must also complete the “From” and “To” text input fields which allow the user to specify one or more sequential verses to convert.

The user must provide information that must be included in the JSON formatted version. Again, there are two choices: (1) “Manual,” which means that the user must supply the witness Siglum and the full verse reference minus the verse number in the corresponding text input fields. (2) If “Auto from file name” is selected, then Criticus will attempt to get the witness siglum and full reference from the filename provided that the filename follows this convention: siglum + "." + book and chapter. For example, a valid filename would be “01_Rom13.txt.” This would indicate to Criticus that the verses inside the file belong to Romans 13 in GA 01.

Next, the user must select an output directory. The standalone version of the Collation Editor requires that all JSON transcription files be placed within a specific folder within the downloaded folder. When a user downloads the Collation Editor, if they name it “CollationEditor,” they should set “CollationEditor/collation/data/textrepo/json” as the output directory. When Criticus creates a JSON representation of the transcription, it will first create a subdirectory named after the witness siglum and place both the JSON transcription file and a “metadata.json” file into that subdirectory as required by the Collation Editor.

Finally, the user may execute the conversion by clicking one of two buttons. “Convert File” will prompt the user to select a single plain text transcription file. Upon selecting the file Criticus will immediately begin converting it and placing the JSON versions into the specified directory. “Convert Directory” will prompt the user to select an entire directory containing many plain text transcription files. If the files are named according to the above convention, then Criticus will iterate over the directory and convert each one in turn. This can result in the creation of thousands of individual JSON verse transcription files.
The business logic of the conversion itself is straightforward. After opening and reading a plain transcription file into memory, Criticus iterates over the lines found in the file. Then Criticus iterates over each word that is separated by a space in the line. If the first item in the line is a number, then it is set as the verse number and each word is collected and assigned an index number starting with two and increasing by two for each word. The result is an array of words and their associated indices. The words, indices, verse number, siglum, and full reference are then combined in a Python dictionary from which the JSON representation is created. All these elements can be identified in the JSON example above.

This method of producing JSON transcription files for the Collation Editor is inflexible and not one that I would recommend for most researchers. However, if the input transcription matches the stated convention, then this method is stable and reliable with no known bugs. It is also likely that, if a researcher already has transcriptions, they are a closer match for a plain text format than any other.

**Plain Text from JSON Files**

![Screenshot of the Plain Text from JSON Files module from Criticus](image)

*Figure 27. Screenshot of the Plain Text from JSON Files module from Criticus*

This is a minor utility module that does exactly the reverse of the above module. It will take JSON input and reconstruct the plain text representation. This is helpful in two scenarios. First, it is possible to retrieve JSON formatted transcriptions directly from the INTF NT.VMR. If a user only has the JSON files because they are using INTF's transcriptions, then it can be helpful to get the plain text from these files. Second, if a user

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234 “Transcript/Get,” API Reference, NTVMR, [https://ntvmr.uni-muenster.de/community/api/transcript/get/](https://ntvmr.uni-muenster.de/community/api/transcript/get/).
suspects that one of the conversion scripts that produce JSON is not working correctly, using this module is a simple way to check the transcription and see if any words are missing or duplicated. Essentially, this module converts a JSON transcription into a human readable version. To use the module, a user clicks “Browse” and navigates to a folder that contains JSON files. Then Criticus will display the plain text representation. The JSON files have no ambiguity, so it is easy to read the JSON file into memory, load it as a Python dictionary, and iterate over the tokens that contain words.

*Markdown to TEI*

![Markdown to TEI](image)

*Figure 28. Screenshot of the Markdown to TEI module in Criticus*

While I have settled on the Online Transcription Editor as the primary tool for capturing TEI formatted transcriptions of New Testament manuscripts for research related to this thesis, there are times when a simpler approach is helpful and expedient. The “Markdown to TEI” module of Criticus enables a user to capture a transcription in any text editor if it is saved as a text document.\(^{235}\) This module is midway between the abstracted

\(^{235}\) For example, files with extensions including “.txt”, “.md”, “.xml”, and others.
interface of the Online Transcription Editor and the excruciatingly detailed method of creating TEI entirely by hand.

“Markdown to TEI” accomplishes this by defining a superset of the Markdown syntax. MD Markdown is intended to be a simplified way to create HyperText Markup Language (HTML). HTML marks up text by placing an opening and closing tag to the left and right of the target content, exactly like TEI (see the above discussion of TEI). For composing documents by hand, this is too verbose to be productive. The Markdown syntax was created to enable users to mark text with much less verbose characters. Markdown syntax is converted to HTML—this is its purpose. However, the similarity between HTML and TEI is such that I was able to repurpose Markdown syntax. Instead of converting to HTML, Criticus can convert Markdown to TEI.

See, for example, the following block of text that is marked up with Markdown syntax.

```
# A line that begins with a single hash is rendered as an H1 element.
If there is no markup, then the line will be rendered as a paragraph element.
Words enclosed with *single asterisks* will be rendered as emphasized text.
Words enclosed with **double asterisks** will be rendered as strong text.
HTML Markup <div>tags in angle brackets</div> are passed through the converter unchanged.
```

Figure 29. Example of Markdown Source Code

From this example it is apparent that Markdown is a lightweight way to indicate how text may be styled in a plain text context. Now consider the HTML that is rendered from the above Markdown.

```
<h1>
A line that begins with a single hash is rendered as an H1 element
</h1>
<p>
If no markup, then the line will be rendered as a paragraph element. Words enclosed with <em>single asterisks</em> will be rendered as emphasized text. Words enclosed with <strong>double asterisks</strong> will be rendered as strong text. Markup <div>tags in angle brackets</div> are passed through unchanged.
</p>
```

Figure 30. Example of HTML Rendered from Markdown

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Notice that each tag is a minimum of three characters, whereas many Markdown syntax units consist of a single special character. But this is HTML and not TEI.

“Markdown to TEI” includes the Python-Markdown library which enables the conversion of Markdown to HTML. This source code library includes a mechanism for creating extensions. The “Markdown to TEI” module uses this feature to extend the utility of the Python-Markdown library to support additional characters. Further, “Markdown to TEI” alters the behavior of Python-Markdown so that it renders custom TEI elements instead of HTML elements. It does this by preprocessing and postprocessing the input and output text in addition to extending the core functionality of Python-Markdown.

```xml
# A Simple Transcription Example
## FirstName LastName
### 2021-05-12

# Romans
<pb n="323v"/>
<lb/> words are tokenized
<lb/> <sup n="5">shortcut tag for verse unit
<lb/> [supplied [text] in brackets
<lb/> unclear `text` in backticks
<lb/> some text followed by commentary <comm/>
<comm lines="3"/>
<lb/> **marginalia in double-asterisks**
<lb/> a word broken
<lb/> {unencoded notes in braces}
<lb/> *encoded editor’s note in single asterisks*
<lb/> ++ corrected text | corrected text ++
<lb/> add attributes to an `element`{reason='damage to page'}</v>
```

**Figure 31. Example of “Markdown to TEI” Custom Syntax**

The example above uses each of the custom syntax units defined by “Markdown to TEI.” The hash (or pound) characters indicate that a line belongs to the TEI header. Some TEI elements are entered directly because they are simple and easy to remember, such as the page break `<pb/>` and line break `<lb/>` elements. The rest, however, are repurposed Markdown. Any TEI elements that are present will be passed through the conversion unchanged. So, nothing is lost in “Markdown to TEI.”

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• An opening and closing "v" element `<v/>` are a shortcut for marking the boundaries of a verse.

• Square brackets `[ ]` and `[ ]` indicate supplied text.

• Text enclosed with backticks `` indicate unclear text, or letters that would receive an underdot in a rich text document.

• Double asterisks `**` indicate marginalia.

• Text enclosed with braces `{ }` and `{ }` will be entirely stripped out during conversion to TEI. This is normally for notes from the transcriber for personal use.

• Text enclosed by single asterisks `*` will be encoded as a transcriber's note and carried into the TEI transcription.

• First hand and corrected text is placed between double addition signs `++` and separated by a vertical bar `|`.

When the above example of custom Markdown text is converted to TEI by *Criticus*, the result will match the example below.
<TEI xmlns="http://www.tei-c.org/ns/1.0">
  <teiHeader>
    <fileDesc>
      <titleStmt>
        <title type="document">A Simple Transcription Example</title>
        <respStmt>
          <resp when-iso="2021-05-12">Transcribed by</resp>
          <name type="person">FirstName LastName</name>
        </respStmt>
      </titleStmt>
    </fileDesc>
  </teiHeader>
  <text xml:lang="grc">
    <body>
      <div type="book" n="B06">
        <div type="chapter" n="B06K11">
          <pb n="323v" type="folio"/>
          <lb/>
          <w>words</w> <w>are</w> <w>tokenized</w> <w>/</w>
          <lb/>
          <ab n="B06K11V5">
            <w>shortcut</w> <w>tag</w> <w>for</w> <w>verse</w> <w>unit</w> <w>/</w>
            <lb/>
            <w><supplied>supplied</supplied></w> <w>Lied</w> <w>/</w>
            <w><supplied>supplied</supplied> text</w> <w>/</w>
            <w><supplied>back</supplied></w> <w>unclear</w> <w>ticks</w> <w>/</w>
            <lb/>
            <w><supplied>s</supplied></w> <w>followed</w> <w>/</w>
            <w><supplied>text</supplied> w</w> <w><supplied>commentary</supplied> w</w> <w>/</w>
            <note type="commentary">untranscribed commentary text</note> <lb/>
          </ab>
        </div>
      </div>
      <seg type="margin">marginalia in double-asterisks</seg>
      <lb/>
      <w>encoded editor's note in single asterisks</w> <lb/>
      <app>
        <rdg type="orig" hand="firsthand"/>
        <rdg type="corr" hand="corrector"/>
        <app>
          <lb>/</lb>
          <w><supplied>supplied</supplied></w> <w>text</w> <w>/</w>
          <lb/>
          <w><supplied>commentary</supplied></w> <w>/</w>
          <lb/>
          <w>add attributes to an element</w> <lb/>
          <w>unencoded notes in braces</w> <lb/>
          <w>some</w> <w>text</w> <w>followed</w> <w>/</w>
          <w><supplied>text</supplied> w</w> <w><supplied>commentary</supplied> w</w> <w>/</w>
          <note type="commentary">One line of untranscribed commentary text</note>
          <lb/>
          <note type="commentary">One line of untranscribed commentary text</note>
          <lb/>
          <note type="commentary">One line of untranscribed commentary text</note>
          <lb/>
          <seg type="margin">marginalia in double-asterisks</seg>
          <lb/>
          <w>add</w> <w>attributes</w> <w>to</w> <w>an</w> <w>/</w>
          <w>unclear reason "damage to page" element</w> <w>/</w>
        </app>
      </app>
    </body>
  </text>
</TEI>

Figure 32. Example of TEI rendered from Custom Markdown by Criticus
In addition to the correct TEI elements, note that words have been identified, tokenized, and placed within word elements `<w/>`.

The rendered TEI is interoperable with the Online Transcription Editor. Indeed, it is possible to upload the example above directly to the Online Transcription Editor and continue editing it in that interface. The advantage of using this modified Markdown syntax to transcribe documents is that the user may control their own data. The Online Transcription Editor, is, by definition, intended to be used in an online context whereas “Markdown to TEI” can be used entirely offline. However, the range of TEI elements that this module supports is much more limited than those supported by the Online Transcription Editor. This is both its drawback and strength. The limited TEI is much easier to predict and successfully convert to JSON for use in the Collation Editor, but the Online Transcription Editor is easier to use and supports many encodings which make a transcription more accurate.

**TEI to JSON**

The TEI to JSON module will appear to the user as nearly identical to the Plain Text to JSON module discussed above. Indeed, it performs the same function: it converts from one format into the JSON format required by the Collation Editor. The user interface is even simpler than the Plain Text to JSON module. However, its implementation is far
more complex from a developer’s point of view. This is because of the challenges posed by programmatically interpreting TEI collations discussed earlier in this chapter. The input and output steps for the user do not need further explanation since they are carried over from the Plain Text to JSON module, but the logic involved in accurately parsing the TEI requires explanation.

The first of many steps to convert from TEI to JSON is to first apply some preprocessing to the TEI file. After reading the text of the TEI into memory, 17 different bits of text are replaced with alternatives or entirely removed. These are all performed on the TEI file as if it were simply text.

1. White space such as tabs and multiple spaces are all reduced to be a single space. New lines are removed.
2. Supplied tags `<supplied/>` are replaced with square brackets ([ and ]).
3. Line break `<lb/>`, column break `<cb/>`, page break `<pb/>`, abbreviation `<abbr/>`, highlighted `<hi/>`, editorial expansion `<ex/>`, and punctuation `<pc/>` tags are all removed entirely since they have little to no use in the Collation Editor.

After “cleaning” the TEI text, is then parsed with an XML Python library. The library used by Criticus is the "lxml" XML and HTML processing library. This enables the TEI document to be manipulated as a Python object. From this point, the operations are XML specific and not general text processing. The following is the logic currently employed to extract an accurate transcription:

1. A Unicode underdot (țiș) is added to each letter that is within an `<unclear/>` element. This makes it easier to tell when letters are unclear in the Collation Editor. Then the unclear tags are removed.
2. Criticus gathers the scribal hands present in the TEI document.

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3. *Criticus* attempts to identify the witness siglum by checking if there is a title `<title/>` element with an `[n]` attribute. If one is not found here, then *Criticus* pauses and prompts the user to enter a siglum into a text input. Once the user submits the text, the conversion process continues.

4. The verses present in the transcription are gathered into a list. Verses are contained within anonymous block `<ab/>` elements. From here, *Criticus* can iterate over the list performing the same functions on each item in the list. Every iteration of the loop will produce one verse-length JSON transcription file.

   a. The full reference is collected from the `[n]` attribute of the anonymous block element.

   b. Now *Criticus* iterates through the list of scribal hands collected earlier and returns the full text of the verse for each hand if more than one is present in the verse.

   c. *Criticus* then iterates through each child element of the anonymous block, however now it is impossible to know ahead of time what the child elements may be.

      i. If a child is a word element `<w/>` has no child elements of its own, and it has text content, then it can be safely collected as one of the transcribed words.

      ii. If the element is a word element and does have other child elements, then *Criticus* must iterate through these, handling elements such as abbreviations and corrections until it reaches the text content of a word element.

      iii. Once all the words for a scribal hand have been collected, this loop is repeated for correctors. The result is that for any verse with corrections, the corrector's text is not
merely the correction, but the entire verse with their corrections.

iv. Lacunae are handled in a special way because the Collation Editor does respect these. The Collation Editor may be instructed that a lacuna exists to the beginning of the word, to the end of the word, or includes the word and extends either the preceding or following direction.

d. At the completion of the loop, all the identified verses will have been converted to JSON files and placed within a directory named after the witness siglum.

e. The Collation Editor requires that an additional file be placed within the directory and named `metadata.json`. This metadata file simply states the `id` and `siglum` text values. The last thing Criticus does is write the metadata file into the directory.

This conversion script can only handle nesting combinations which I have anticipated. Anytime a user creates a previously unexpected nesting and reports the issue, I can include it in the script.

Combine Collation Files

![Combine XML Files](image)

*Figure 34. Screenshot of the Combine Collation Files module from Criticus*

Because the Collation Editor works best when collating a single verse at a time, the user will accumulate many single-verse collation files. However, most users will generally want to analyze a collation in larger portions, such as chapters and entire biblical books. However, the TEI output of the Collation Editor cannot simply be concatenated with
other output files because this would cause the duplication of header elements which are intended to be used once per file. To solve this issue, the “Combine Collation Files” module safely combines many single-verse files into one file with proper headers and nested apparatus elements. To combine collation files, the `<ab/>` elements need to be extracted and combined into one file while preserving the headers. See the Collation Editor TEI collation output example above for more on the `<ab/>` element.

To use this module, the user first selects a folder which contains TEI collation files. The only other input required is one or more text characters. For example, if a user selects a folder containing many collation files and enters the text “Romans_1,” then Criticus will combine all files in that directory whose filenames begin with “Romans_1,” such as Romans_1.1.xml and Romans_1.2.xml but not Romans_8.28.xml. Alternatively, if the user enters only “Romans,” then all three of the above would be combined. This module enables a user to store all collation output files in a single folder and combine verses into chapter-length files or book-length files depending on the user's choice.

**Reformat Collation File**

![Screenshot of the Reformat Collation File module from Criticus](image)

Figure 35. Screenshot of the Reformat Collation File module from Criticus

This module reformats the collation output from the Collation Editor in order for it to be used as input for the open-cbgm. For the basic reformatting, Criticus uses Joey McCollum’s “itsee-to-open-cbgm” utility, though I have modified it to be used as a software library instead of a standalone command line interface. In addition to this basic reformatting, which removes redundant elements and adds others in order to be fully TEI compliant, I have extended it to also disambiguate multiple readings with the same name.
This is necessary because the *Collation Editor* will often export multiple readings of the same variation unit with the same `n` attribute value. For example, if the user has set multiple readings to be subreadings of reading “a,” then all will be named “ar.” This makes setting a local stemma impossible. When running this module on a collation file, *Criticus* will detect multiple instances of the same reading name in a variation unit (an `<app/>` element) and version them. Instead of readings a, ar, ar, ar, and b, *Criticus* will change these to a, ar1, ar2, ar3, and b.

### View TEI Transcriptions

![Launch TEI Transcription Viewer](#)

*Figure 36. Screenshot of the View TEI Transcriptions module from Criticus*

As demonstrated above, TEI transcriptions are not very useful for consulting or reading in their raw format. However, XML can be styled for use in a web browser using XSLT (Extensible Stylesheet Language Transformations).[^230] This is ideal for publishing TEI transcriptions online. For an example of a TEI collation which uses XSLT to render it in a human-friendly manner on in the browser, see the IGNTP transcription of Galatians in GA 33.[^241] This transcription is simply the raw TEI source code that has been linked to an XSLT file. A visitor to the IGNTP transcription website may view either the raw TEI version, or the rendered version.


The “View TEI Transcriptions” module of Criticus enables a very similar viewing experience. The user need only select a folder that contains IGNTP TEI transcription and click “Launch TEI Transcription Viewer.” Upon this action, Criticus will start an HTTP server in the directory (folder) selected by the user, copy the XSLT file into that directory, and finally open the user's default browser. All files and subfolders will appear as clickable hyperlinks. If the user opens a TEI transcription, it is linked to the XSLT file and a human-friendly version is displayed. See the rendered example below.
A Transcription of GA 1506

Transcribed by David A Flood, II

Pages: 323v
Chapters: 11

Folio 323v

Figure 37. Screenshot of a TEI transcription rendered in the browser using Criticus²⁴⁰

Configure Collation Editor

²⁴⁰ The XSLT style sheet used was first acquired from the IGNTP transcriptions website, https://itseeweb.cal.bham.ac.uk/epistulae/XML/igntp.xml, and modified.
Figure 38. Screenshot of the Configure Collation Editor module from Criticus

The Collation Editor uses a configuration file in the JSON format to set many available options and settings. For my research, only two settings are necessary: the witnesses to be collated, and the witness designated to be the basetext. See the following example of a configuration file for the Collation Editor.
Figure 39. Example of a JSON configuration file for the Collation Editor

This file can be edited directly in a text editor, but the module from Criticus provides a human-friendly graphical interface for setting the important values. It also adds two additional features not otherwise possible. (1) The “Configure Collation Editor” module facilitates not only the addition and removal of witnesses from the witnesses array—the JSON object which indicates each witness to be collated—but adds an additional array, excluded_witnesses. By including this additional array of witnesses, Criticus enables the user to exclude a witness from the collation, but later add it back into the included array with a few clicks of the mouse. Further, witnesses can be moved between the included and excluded arrays in bulk. In this way, the user always has all potentially relevant witnesses before them.

(2) The “Configure Collation Editor” module also includes functionality to launch the Collation Editor. This is a convenience for the user, since it can be launched relatively easily from the command line. To launch the Collation Editor without Criticus on MacOS, for example, the user would need to open a terminal and first navigate to the root directory of the Collation Editor. Then the user must execute `sh ./startup.sh`. If the user
has Java and Python installed, two local HTTP servers are started: one for CollateX, and one for the Collation Editor's browser-based interface. Finally, the user must open a web browser and navigate to the address [http://127.0.0.1:8080/]. Alternatively, the user can instead simply click “Start Collation Editor,” which will cause Criticus to start the HTTP servers and automatically open a web browser to the correct localhost address. This is ideal because many users are unfamiliar with command line interfaces.

**Analyze Collation**

![Screenshot of the “Analyze Collation” module from Criticus](image)

*Figure 40. Screenshot of the “Analyze Collation” module from Criticus*

The “Analyze Collation” module of Criticus provides a way to query a TEI Collation file for readings which meet the conditions set by the user. The user may place one or more witness sigla into one or more of the fields labeled “All of,” “Any of,” and “None of.” Once witness sigla are entered and the user clicks “Find Agreements,” this module will list the reference, variation unit indices, and the reading name for every reading that matches the conditions. The logic is straightforward:

- **“All of”:** matching readings must be attested by every witness listed here.
- **“Any of”:** matching readings may be attested by one or more of the witnesses listed here.
- **“None of”:** matching readings must *not* be attested by witnesses listed here.
This module was developed specifically for identifying readings in which GA 0150, GA 1506, and GA 2110 agree against GA 0151 and the Majority Text. Using only these three filters enables the user to query their collation files in a flexible and intuitive manner.

The procedure for applying the logic is as follows:

1. Read the TEI file into memory and parse with the “lxml” library.\(^{224}\)
2. Iterate over every `<rdg/>` element.
3. Process the value of the `wit` attribute in the `<rdg/>` element. It is a text string of witness sigla separated by a space. *Criticus* generates a Python list of witness sigla by splitting the string at each space.
4. *Criticus applies the base logic:*
   a. If the user has entered one or more witness sigla into the “All of” field, *Criticus* checks if each one exists in the Python list for the given reading and returns `True` or `False`.
   b. If the user has entered one or more witness sigla into the “Any of” field, *Criticus* checks if any of these exist in the Python list for the given reading and returns `True` or `False`.
   c. If the user has entered one or more witness sigla into the “None of” field, if *Criticus* returns `False` if any of the user-entered witnesses is present, and `True` if none are found in the reading witnesses.
5. If one or more of the above conditions returns `False`, then *Criticus* skips the `<rdg/>` element and continues to the next. Otherwise, *Criticus* collects the `n` attribute value from the `<rdg/>` element and the `n`, `from`, and `to` attribute values from the parent `<app/>` element.

\(^{224}\)“Lxml.”
6. The returned values are formatted into a string, for example

```
Rom 13.3 26–32 reading B
```

The formatted string is appended to a list of matches.

7. The list of matches is presented to the user with one match per row in a popup window.

**open-cbgm Interface**

![Screenshot of the "open-cbgm Interface" module from Criticus](image)

*Figure 41. Screenshot of the "open-cbgm Interface" module from Criticus*

The **open-cbgm** uses a command line interface which requires users to interact with it by typing out and running commands. **Criticus** provides a graphical user interface for two of the **open-cbgm** modules. The first is the foundation of the **open-cbgm**: importing of collation data. The **open-cbgm** provides a module that takes a TEI collation file as input and then generates a single-file database against which it can query. When populating a new database, **Criticus** exposes five optional but important settings: 1) The “Readings
Threshold setting is used to filter out witnesses that are not extant for the given number of variation units. For example, if a collation includes up to 200 variation units, then the user may wish to skip fragmentary papyri which are present for only a few variation units. By setting the threshold to 100, extremely fragmented witnesses would be excluded. 2) The “Treat as Trivial” setting enables the user to designate certain reading types as insignificant. The types are user chosen but may include “orthographical differences” or “scribal errors.” Readings of the listed types will be counted as if they agree with their parent reading. 3) Reading types listed in the “Exclude” field will be ignored. This is especially important when the reading type is “lacunose.” 4) “Merge Split Attestations” is a simple on or off setting along with 5) the rules setting. For more on how these settings are used by the open-cbgm, see the official documentation. Criticus facilitates the creation and deletion of new databases for the open-cbgm. To execute an open-cbgm command, Criticus constructs the command and executes it using the subprocess module from the Python standard library.

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The second module of the open-cbgm for which Criticus provides an interface is the “Compare Witnesses” module. This provides what some will recognize as pre-genealogical coherence tables. The “Compare Witnesses” module from the open-cbgm takes only a few necessary parameters: 1) the populated database to use; 2) the primary witness to which others are compared; and optionally, 3) a limited selection of witnesses to compare against the primary witness. If the third option is blank, all witnesses in the database will be compared to the primary witness. Criticus constructs the proper...
command and parses the returned data from the open-cbgm for displaying in a familiar table format.

Export Collation to DOCX

![Screenshot of the “Export to DOCX” module from Criticus](image)

As with TEI transcriptions, TEI collation files are not human-friendly or easily read. I have addressed this in two ways: create a born-digital critical apparatus which embraces the advantages unique to a digital platform, and the ability to export a TEI collation file to a Microsoft Word document suitable for print publication. I will address the first option in the following chapter when discussing my virtual research environment, Apatosaurus. The second option is included in Criticus.

Criticus includes a custom Microsoft Word template document from which the styles are imported. The user may modify much about the display by modifying these styles and indicating which file from which to import styles. Beyond this, there are seven additional options:

1. “Reading Text and Witnesses Separator” allows the user to input their preferred text or symbol to be placed between the reading text and reading witnesses.
2. “Reading ID and Reading Text” provides the same as above but between the reading ID, or name, and reading text.
3. The “Witness Separator” field allows the user to designate any punctuation or character(s) to be placed between each witness in the print apparatus. This will commonly be a full-stop or comma.

4. The “Basetext Words Per Line” setting is a number that corresponds to the number of words that will be printed per line for the basetext or lemma text. The basetext is printed with its corresponding index centered and under each word, which requires the use of a table in Microsoft Word. This option sets the number of columns in the table.

5. “Make Reading Text Bold” will cause the reading text to be bold if this box is checked.

6. “Collapse regularized readings to parent reading” will simplify an apparatus. If the user has marked some readings as subreadings when using the Collation Editor, then it is possible to include the witnesses to the subreadings as witnesses to the parent reading.

7. If the previous option is checked, then checking “Add ‘r’ suffix to each witness moved to its parent reading” will mark each witness which was moved with an “r” at the end of its siglum to communicate that the regularized reading of this witness attests to the reading but not in the strict sense.

To write text to a DOCX file, Criticus uses the open-source library “python-docx.” Criticus writes to the DOCX file as it iterates over every `<ab/>`, `<app/>`, and `<rdg/>` element in the TEI collation file using “lxml.”

1. The reference is extracted from the `<ab/>` element. If it matches a dictionary of abbreviated New Testament book names, then Criticus will convert the reference to a full spelling. For example, “Rom1.1” should be

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converted to “Romans 1:1.” This full reference is used as the header for the verse section.

2. For each `<ab/>` element, which usually encapsulates one verse, Criticus must reconstruct the full basetext by concatenating the text value from `<seg/>` elements—text for which there are no alternative readings and—and `<lem/>` elements—the reading of the basetext within an `<app/>` element.

3. Pair each word of the basetext with an even-numbered integer and write it to a table in the DOCX file. Each word is placed into its own column on one row and its corresponding index number is placed in same column on the row immediately below.

4. Criticus then iterates over the `<app/>` units and the `<rdg/>` elements within each one. The variation unit indices are printed, followed by the reading name, reading text, and supporting witnesses.
Figure 44. Screenshot of a Microsoft Word document generated by the “Export to DOCX” module from Criticus

The example above shows one option for the display. For a full example, see the apparatus in section 6.2.1 above which was generated using this feature from Criticus.

7.3 Chapter Conclusion

This chapter introduces the landscape for both this chapter and the one that follows. That landscape begins with existing computer tools developed specifically for New Testament textual criticism and related text and manuscript studies. The most important for this thesis include the Workspace for Collaborative Editing—which includes the Collation Editor and Online Transcription Editor—along with the open-cbgm. As powerful and useful as each of these tools is, there is no path for moving one’s own transcription and collation data from one to the other without special support. Seeing this as an opportunity and a need, I developed my own bespoke software packages to better connect the pre-existing tools and extend them. In this chapter, I introduced Criticus, a desktop application...
that is a suite of eleven modules for providing file conversions, transformations, visualization, configuration, analysis, and help for bridging the gap between digital data and print editions.
8 *Apatosaurus*: A New Web Application and Platform for Digital Textual Scholarship

In the previous chapter, I detailed the features of the desktop application that I developed for conducting research for this thesis. Desktop applications are ideal when the goal is to process local files on disk and, in the case of *Criticus*, when orchestrating other user-installed applications. The desktop environment is preferred for *Criticus* because it interfaces so closely with the standalone version of the *Collation Editor*, which is essentially a desktop application even if it uses a web browser as the graphical user interface. The standalone *Collation Editor* runs entirely on the user’s local computer and does not make external HTTP calls to the internet. However, in this chapter I will explain the design and usage of a web-based application which I have also developed for use in this thesis and beyond: *Apatosaurus.*

This discussion can be divided into two categories: planning and design followed by implementation details and examples. Concerning planning and design, the following topics will be discussed:

1. The advantages of a web-based application compared to a desktop application.
2. A listing of the goals and design requirements.
3. Explanation of the technical requirements including the use of a relational database, dynamic server application, and my commitment to open-source collaboration.
4. Discussion of the guiding principles for choosing technologies and frameworks on which to build the application and the selection of those technologies.

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345 I have named the web application “*Apatosaurus*” because it sounds like “apparatus,” and dinosaurs make textual studies sound exciting.
Concerning implementation:

1. I discuss the implementation of the technologies related to the server, especially the data structure of collation data in a relational database and the logic for importing TEI formatted data into such a database.
2. Finally, I will provide a complete walk-through and tutorial for the user interface. This is the capstone to the chapter since the user interface sits at the very top of the technology stack. Everything must work in concert to provide a valuable user experience.

8.1 The Advantage of a Web-based Application

*Apatosaurus* is a web application and platform for creating, editing, visualizing, analyzing, and publishing a digital critical apparatus. Web applications have the advantage over desktop applications when the goal is distribution and ease of use. In this case, it was my goal to make a virtual research environment available to other researchers working in textual studies *and* to create a platform for publishing a digital critical apparatus. Whereas desktop applications must be packaged for each operating system by the developer, and each user must download and install the app, web applications, on the other hand, require only that the user knows how to navigate to the web address. To access and use a web app, the user only needs access to a web browser and an internet connection. Therefore, a well-designed web application will work on Apple, Windows, Linux, mobile devices, and other operating systems. And because software must be updated over time both for bug fixes and for feature updates, a web application is easier to update because it does not require action from the user. The virtual research platform which I have engineered is available to anyone at the web address [https://apatosaurus.io](https://apatosaurus.io).

8.2 Goals and Design Requirements for *Apatosaurus*

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A critical apparatus is valuable to the extent that it is useful. A digital critical apparatus has the potential to be more useful than a print apparatus because it is not constrained by the limitations of ink, paper, word processors. In a word, print apparatuses are static. From interactivity to accessibility for the visually impaired, a digital edition has the potential to be far more flexible. However, this requires a platform to exist which enables viewing and interacting with a digital critical apparatus. Until I launched *Apatosaurus*, there was no available platform to which users might upload and import TEI collation data. A few editions have an online digital critical apparatus, such as the online ECM. However, this is not an entirely open platform to which a user may upload their own collation data for the purpose of visualization, neither does it visualize more than a few components of a TEI collation. For example, it does not include local stemmata or a way to edit these.

Therefore, in order to take advantage of the benefits of a digital critical apparatus, it is necessary to design, engineer, and deploy a platform for viewing and publishing. The initial requirements were as follows:

1. The medium for the digital critical apparatus should be a web-based platform for widest distribution, ease of use, and accessibility.
2. The web platform should both visualize and enable the user to edit every component of a TEI collation, including variation unit definitions, reading names, reading text, witnesses attesting to the reading, support for ambiguous witnesses, the local stemma for each variation unit, etc.
3. The web platform should allow public users to register an account for the purpose of working with their own collation data on the platform.
4. The platform should allow users to download their collation data on demand.

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5. The platform should enable users to mark any collation project for publication and create a stable URL which the user may share publicly.

After successfully accomplishing the above requirements, I widened the scope of *Apatosaurus* to include not only the visualization, editing, and publishing of an apparatus, but also the analysis of a collation. The following goals were added:

1. The platform should provide full support for the CBGM workflow based on the user’s own collation data.
2. The platform should use the *open-cbgm* in the server back end to provide the essential CBGM functions.\(^\text{248}\)
3. The platform should generate graphs and diagrams using GraphViz automatically and present these to the user on demand.\(^\text{249}\) The *open-cbgm* generates DOT files, which the platform will use to generate the actual graph images.

The successful inclusion of all requirements should indicate that *Apatosaurus* will be an open platform available to public users and should enable them to import their own collation data to be visualized, edited, analyzed, and published. Although it is my long-term goal that *Apatosaurus* becomes a tool for collaboration between researchers, its initial purpose is to equip those lacking institutional resources: individual researchers unaffiliated with official projects related to the INTF or IGNTP.

### 8.3 Technical Requirements for *Apatosaurus*

The following requirements are broad because the implementation and practical details that I decided upon involve countless choices that constitute one way among many to accomplish the above goals. Before the precise implementation details and various technologies can be selected, however, I first need to define a technical foundation.

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\(^{248}\) McCollum, "Open-Cbgm-Standalone."

\(^{249}\) “GraphViz,” *GraphViz*, 10 August 2021, https://graphviz.org/.
8.3.1 Database

At the core of the platform described above is interaction with data. Therefore, considering how the data are stored, accessed, and modeled must be a primary consideration for subsequent design decisions. The most complicated data structure with which *Apatosaurus* will interact is collation data. At a minimum, a collation contains many variation units, each of which has attributes such as its boundaries and the segment of the basetext to which it is a variation. The variation unit contains readings. Each reading of a variation unit contains, at least, an identifier (often basetext word indices), the reading text, the reading type, and the witnesses that attest to the reading. Each reading must also be able to be related to other readings of the same variation unit for the purpose of communicating which reading descends from the other—the local stemma. Additionally, consider that any witness will attest to many readings across all variation units for which that witness is extant.

Therefore, while not the only legitimate choice, it is clear that a relational database will be a good fit for the core data structure of a platform specifically designed for working with digital collations. Some elements in the collation are necessarily related, such as the multiple readings of a single variation unit, while others are related without any hierarchy, such as the many witnesses that relate to each reading.

8.3.2 Dynamic Server

While many websites simply serve static files to users’ browsers, the design requirements require that *Apatosaurus* be a dynamic application that is capable of editing live data and dynamically generating views and visualizations into that data to the user in real time. Therefore, *Apatosaurus* requires an application to be continually running on the server which can take input and produce useful output. For example, if a user edits a reading in a collation, the server application must react to this by validating the change, updating the database, and then updating the user’s view of the collation. To use the technical terms of web technology, “input” and “output” is better known as a “request” and
“response” cycle. Internet web browsers make HyperText Transfer Protocol (HTTP) requests to a server which returns responses back to the user's browser. It is the response from the server which must be dynamically generated based on the user's request, and the current state of the database. In the case of Apatosaurus, the server response should include not only the updated data, but also the information and instructions necessary for the user's browser to display the data in an accessible manner and enable further exploration and editing of the newly returned data which will result in further iterations of the request and response cycle.

8.3.3 Open-Source Collaboration

Apatosaurus should be open source, that is, the source code should be available to everyone. This is not only so that others may use the software outside of its original context, but it enables collaboration with other software developers. By making the source code to Apatosaurus publicly available, not only may it be repurposed, but it is an invitation for others to collaborate on my implementation of the software and to spread the tasks related to improvement throughout a community. To this end, the complete source code for Apatosaurus is provided on GitHub.com, which is a web platform specifically designed for collaborating on software projects.

8.4 Practical Decisions

There are countless ways to implement the above design and technical goals and requirements. Complex and data-driven web applications require many components working in coordination for an application to be functional. From programming languages to server providers to browser considerations, building a web-based application requires

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decisions that stretch from the user’s browser all the way to the physical application and database servers.

8.4.1 Guiding Principles and Factors

With many reasonable and legitimate choices for each of the many components of Apatosaurus, there must be some way to evaluate the options. Most of the following guiding principles are subjective, while a few are more objective. None, however, can be accurately described as the inevitable or “best” choice since the field of software development famously produces many ways to accomplish the same task.

Community Engagement

Does the component already enjoy wide use by the open-source community, especially those involved in similar work in Digital Humanities? If a goal of the development of Apatosaurus is to invite collaboration from other researchers capable of contributing to computer-based research tools, then the technological components should already be in wide use, thus lowering the bar for entry to contribute to this project. Another benefit of choosing technology around which there is robust community engagement is that both support and documentation are likely to be readily available.

A related aspect of this principle involves noting the technology used in similar or complementary software applications, such as INTF’s New Testament Virtual Manuscript Room or ITSEE’s Workspace for Collaborative Editing.52 It is advantageous if my software is as interoperable as possible with existing tools.

Additionally, the more community engagement for a programming language—for example—the more third-party source code libraries are likely to exist. The use of open-source third-party libraries is fundamentally collaborative, but it also saves a considerable amount of time when another community has already solved one problem and made the source code available.

52 INTF, “INTF VMR”; “The Workspace for Collaborative Editing.”
Personal Familiarity

All projects must have time limits. Therefore, in addition to asking which technological component is best suited to the task, it is equally important to evaluate the learning curve and time cost associated with the option. All else being equal, I should choose a technology with which I am already proficient.

Performance

Will the chosen piece of technology result in a smooth user experience, or does it suffer from poor performance and optimization? Some technologies are better suited than others for certain types of problems. As an actual example, I initially chose SQLite for the relational database implementation of Apatosaurus. This database technology performed very well under the load of an individual user, however, once it was deployed to a server and used by several users at once, it began failing to write new information to the database. SQLite, while an excellent choice in many situations, failed to perform under the conditions required by Apatosaurus.

Platform Considerations

While a major advantage of web applications is that they can run on any device with a browser, the process of developing web applications can be different on various platforms, such as Microsoft Windows versus Apple MacOS. Since I have access to and use a Windows computer, any technological choice must be one for which I can develop software using my personal computer's platform. It is unlikely that a popular piece of technology is not able to be developed on multiple platforms, but the work required may vary considerably from platform to platform.

8.4.2 The Technology Stack of Apatosaurus

Database: PostgreSQL

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Having already determined that a relational database is a good fit for *Apatosaurus*, the selection of a specific implementation of a relational database remains. I have chosen *PostgreSQL*, because it is a production and enterprise level database that is also open source. As an open-source database, it is integrated well with other open-source tools. Like other database engines, *PostgreSQL* runs on a server and is accessed by an application over the network.

**Back end programming language: Python**

The “back end” of web development refers to the business logic of an application that runs on a server—the computer with which the user’s browser makes requests to, and from which receives responses. The back end can be a complex application involving multiple programs, applications, programming languages, and servers. For *Apatosaurus*, I have selected Python to be the main programming language—the main part of the application that orchestrates all others. There are many languages equally suitable for this task, though a few reasons led to the selection of Python in this case.

Python is the “programming language of choice in humanities research.” The community support and documentation related to tasks common in humanities research is most readily available for Python. Python is also open source and can be used for free even in commercial contexts. Python is also the most used language for data science. Because New Testament Textual Criticism combines humanities research and data science, there is abundant community support, and because Python is open source, it is one of the best choices for an application such as *Apatosaurus*.

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Back end web framework

The python web framework that I chose to use for building Apatosaurus is the Django web framework.\textsuperscript{38} As a web framework, Django does what all other web frameworks do: it abstracts many aspects of web programming, such as the parsing of HTTP requests and the creation of HTTP responses. However, several points make Django stand out for a project such as this. (1) It is open source and free to use even in commercial contexts.

(2) It describes itself as “batteries included,” which means that it provides functionality for more than the HTTP request/response cycle. One of the most important features of Django as it relates to a data-driven application such as Apatosaurus is its Object-Relational Mapper (ORM). This enables a web developer to define data models in Python code, instead of SQL—the native language of most relational databases. The Django ORM maps Python classes (see section 8.5.1 below for examples of these classes) to database tables. This enables the database schema to be defined in Python code and for database queries and migrations to be managed from within the web framework. Django also includes authentication and authorization workflows to manage user logins and permissions. A final abstraction included in the Django web framework worth mentioning here is its HTML templating engine. Apatosaurus requires data delivered to a user’s browser to be dynamically generated HTML—it is not possible to create these files ahead of time because a user may edit data, which in turn will alter the HTML.

(3) Django is a mature web framework, having been in use since at least 2005. Despite a history of nearly 20 years, new versions of Django are leased on an eight-month cycle, so it receives regular security patches and feature updates. Django is used by websites such as Instagram, the MacArthur Foundation, Pinterest, and National

Because it is so well established and used, the community, support, and documentation are robust and accessible.

**Front end technologies**

"Front end" refers to all the files and code that are delivered to a user’s browser. The core of this includes HTML files, which is what web browsers interpret to display a visual representation of the website which may be viewed and with which the user may interact. The styling—or “look and feel”—of a web page is determined by the Cascading Style Sheet (CSS).\(^{260}\) CSS can either be written directly in the HTML delivered to the browser, or it can be included in separate text files to which the HTML file can specify a link. Basic interaction with a website involves clicking on hyperlinks which instruct the browser to reload a new page, which is a new HTML document and associated styling. To enable interactions that do not require a full page reload, such as loading new or updated data into the existing HTML document, software developers write code in the JavaScript programming language.\(^{261}\) JavaScript code can be executed directly in a user’s web browser, which enables a web developer to do something as simple as dynamically updating the current weather report on a website without requiring the user to refresh the page, or it can be used to deliver applications that mimic desktop applications due to the level of interactivity. HTML, CSS, and JavaScript are the foundation of modern front end web development, and all three are text that is interpreted by a web browser to create a graphical user interface and empower other modes of interaction such as screen readers. I have employed specific technologies and tools related to each of these three key components—HTML, CSS, and JavaScript.

All HTML files are dynamically generated by the *Django* templating engine and delivered to the browser as HTML text.\(^{262}\) Using *Django* templating enables the developer

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to avoid writing so-called “boilerplate” code in multiple places and provides functionality for dynamically generated content. For example, in the *Apatosaurus* web app, published collations are listed at https://www.apatosaurus.io/published/. A complete HTML page is delivered to the user’s browser containing links to each published collation. If a user of *Apatosaurus* publishes or unpublishes a collation, a visitor to this page will find that change immediately reflected in the HTML content. This is because the “Published Collations” page in *Apatosaurus* is dynamically generated using the *Django* templating engine. I wrote all the HTML by hand, but in a template format that can be filled in with additional data on demand.

For CSS, I used relatively little plain CSS—both inline and in a separate file. Rather, I have included and utilized the *Tailwind* CSS framework, which is open source. As a styling framework, it may seem relatively unimportant, however, improper styling of a website can make it inaccessible to people who, for example, experience color blindness. The *Tailwind* CSS framework does not provide prebuilt themes or components, so the developer must still design and plan out every detail of the design. Since the implementation details of styling are not discussed further below, a few brief examples here are appropriate.

```css
.heading {
  font-style: normal;
  font-weight: 700;
  font-size: 1.25rem;
  line-height: 1.75rem;
  color: rgb(0 0 0);
}
```

*Figure 45. Plain CSS Example*

The code example above depicts standard CSS source code. The `heading` at the top is a CSS selector; in this example, it will apply the style declarations inside of the brackets to an HTML element that contains “heading” in its class attribute, e.g.,

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The text value of this `<h1>` element, “Page Title,” will be rendered with the styling defined above. Aspects other than text may be styled, such as the border, background, shadows, etc. Note that styling the `<h1>` in the example requires both that the CSS block exists and that the defined class exists on the target element. It is normal for CSS styling to be a coordination between these two places, often in separate files. Now consider the same example but using Tailwind's system instead.

In this example, no second block of code is required for styling because Tailwind includes these in a separate file automatically. From the developer's point of view, they need only use these utility classes and Tailwind manages the dynamic inclusion of the plain CSS—only including the CSS source code that is required. This contrasts with many other frameworks which require the user's browser to download significantly more CSS source code than will ever be used. As can be seen from the example, the developer still needs to specify each aspect of styling from the font size to the shape of borders and background colors.

The use of JavaScript libraries and frameworks is similar to my implementation of CSS. I have written a few key plain JavaScript blocks, but the majority of this is managed through two libraries: HTMX and _hyperscript_. These JavaScript libraries are primarily deployed so that the application and state can be updated without requiring a full-page refresh from the browser. The HTMX JavaScript library enables smaller components of a

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web page to be replaced with new data from the server seamlessly. For example, when a user clicks on a “Submit” button at the bottom of a form, instead of redirecting the browser to an entirely new page, HTMX enables a targeted replacement of the form HTML, leaving the surrounding HTML in place. Because of the centrality of this behavior to the user’s experience of Apatosaurus, specific details and examples concerning how this was implemented will be provided below. As for _hyperscript, this is a scripting language written on top of JavaScript. It is used to improve user interactions that do not require a response from the server. For example, I have used it to enable a tabbing behavior in which different content is revealed depending upon which tab is active. All the content for every tab exists on the page at once, but only one section is visible at a time, and the _hyperscript package is responsible for this. It improves user experience without fundamentally changing the logic of Apatosaurus. Many examples of this user interaction will be shown below in the documentation for Apatosaurus.

8.5 Implementation Details

In the above sections, I have explained the rationale and justification for the choices of some technologies and tools over others. In this section I will outline how these technologies were used and orchestrated to create a complete web-based application working with digital collation data.

8.5.1 Data Models

The core of Apatosaurus is the ingestion, creation, editing, analysis, and publishing of collation data. Therefore, it is easy to argue that the most important component of the application is data modeling. In terms of the actual database, this refers to the database schema: the definition of tables, rows, columns, and relationships. Since Apatosaurus uses a Postgres database, there is an SQL schema, however, most of the database management is handled by the Django web framework. Django allows the developer to define database tables using, what Django calls, “models.” The use of these
models enables the use of Object-Oriented Programming by way of the *Django* Object-Relational Mapper (ORM). These “models” are well-structured and easy to read even for non-software engineers. The term “model” refers to the schema, the structure and shape of a database. The term “object” refers to an instance of a model, i.e., a model is a template and when it is filled with data, it is called an object. All key data models will be discussed below.

Because it is a key design principle of *Apatosaurus* to both import and export collations in TEI, using this to make the application interoperable with existing tools, the models related to collation data are influenced by the structure of TEI formatted collations.²⁶⁵ TEI collations have a tree structure of relationship between most of the nodes and this is reflected in the relationship between each data model. A discussion of the tree-shaped data models could start at the “trunk” (the “root” node), or from the outmost branch. While it might be easiest to define relationships by working from the outmost nodes toward the root, the overall structure is probably best captured by working from general to specific, from “trunk” to “twig.”

*The “Collation” Model*

The “Collation” model serves as the root node and has relatively few attributes—which correlate to a database table column.

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²⁶⁵ For more information about TEI, see the earlier discussion in section 7.1.2.
Django data models are Python classes that inherit from `models.Model`, which is a Python source code class provided by the Django web framework. Every instance of text in the example above is prefixed with `models.`, is a use or extension of a class provided by Django. The first line in the example defines the class, which is named `Collation`. The second line defines an attribute variable, `user`. This is a column in the `Collation` database table. Assigned to the `user` attribute is a `ForeignKey` field, which means that `user` is a relationship to a different data model—a different database table. That model will be discussed below. The next attribute, `name`, is assigned to a `CharField` (character field) with a maximum character length of 64 characters. This is a column in the database table whose value is text. This is simply the user-provided title or name of the “Collation.” After `name` is `description`, which is assigned to a `TextField`. The arguments passed within the parenthesis, `null=True, blank=True`, mean that this table column is allowed to have no value and that a form is still valid without any text entered for the `description` field. The `TextField` is different than a `CharField` because it does not have a maximum length. These

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Source code will be referenced by file path from the source repository root directory, and line numbers. Additionally, a URL to the source code where it is hosted on GitHub will also be included, https://github.com/d-flood/Apatosaurus/blob/a1f326586cf3c9a85362a8c2f3e/collation/models.py#L30. The advantage of viewing source code on GitHub is that the Python syntax is highlighted, and it may be explored beyond what is possible in a text document. Also note that I have chosen, for brevity, to omit some source code which is not directly relevant to understanding the data structures and behavior. The unabbreviated source code is available at the URLs provided.
are the only three attributes defined within the “Collation” model, however there is a method and one nested class. A class attribute corresponds to a value such as characters, numbers, or dates. A class method is an action; it is code that can be executed. A class, then, can be thought of as an object that has state (values stored in attributes), and it can do things. The method is defined with the `def` keyword and creates a TEI formatted version of the entire collation. It is a function that iterates over the related `section` objects (see below) and assembles the TEI returned from those objects. I have designed each model to know how to convert itself to TEI. The process cascades throughout the entire tree of data, down to the readings and witnesses in the collation. The `lxml` Python library is used for both parsing and creating TEI formatted transcriptions in `Apatosaurus`. The nested class, `Meta`, is used to add two important rules to the database schema: (1) any combination of `user` and `name` must be unique, in other words, each user can use the same name for a collation exactly once, but any two or more users may have a collation of the same name; (2) an index is created for the `name` field in the database. At the cost of memory, this makes it much faster to lookup a collation by its name. There is one important field in the model (or column in the table) that exists but is not explicitly defined in most of the models discussed in this chapter: the “ID” field. Every data model has an “ID” field whether it is explicitly declared or not. In the `Apatosaurus` codebase, the “ID” field is usually a positive integer, though there is no technical requirement that the “ID” be numerical. Although a specific model object (table row) can be looked up by any attribute, a guaranteed way to look up a specific object is to use its “ID.” In almost every case, I have allowed or set the “ID” to be the primary key for the model.

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*Lxml.*

For the collation data of this thesis, the “Section” model correlates directly to biblical chapters, e.g., Romans 13 is a “section” of a collation. The decision to use “section” instead of “chapter”—in both the name of the data model, and in the user interface in the web app—is intended to make room for other collations which may not be suited to being divided into chapters as the major units of division. For example, someone may legitimately choose to organize by pericope, or indeed a user of _Apatosaurus_ may wish to collate non-biblical material and I wish to support this use.

```python
class Section(models.Model):
    collation = models.ForeignKey(
        Collation, on_delete=models.CASCADE, related_name='sections'
    )
    name = models.CharField(max_length=32, null=True, blank=True)
    number = models.SmallIntegerField()
    published = models.BooleanField(default=False)

    def __init__(self, *args, **kwargs):
        super(Section, self).__init__(*args, **kwargs)
        self.abs: QuerySet[Ab] = self.abs.all()
        for ab in self.abs:
            self.tei_root.append(ab)
        wits = add_tei_header(self.tei_root)
        self.tei_root = et.tostring(self.tei_root, encoding='unicode', pretty_print=True)

    def all_app_labels(self)
        apps: list[str] = []
        for ab in self.abs:
            apps.extend(f'{ab.name}U{app.index_from}U{app.index_to}' for app in ab.apps)
        return apps

class Meta:
    ordering = ['number']
```

_Figure 49. “Section” Data Model, collation/models.py, lines 47–73_

The “Section” model has four explicit attributes and three methods. The first attribute, `collation`, is a ForeignKey field, which means that it maps to a value in a different (“foreign”) model. In this case, the “Collation” model. Every “Section” object must relate to exactly one “Collation” object. This type of relationship is called “many to one” because each “Section” is related to only one “Collation,” but one “Collation” may have many

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See original source code at [https://github.com/d-flood/Apatosaurus/blob/a1f326058cfcdf5c4f2ad0f339a83562ac12f0e/collation/models.py#L47](https://github.com/d-flood/Apatosaurus/blob/a1f326058cfcdf5c4f2ad0f339a83562ac12f0e/collation/models.py#L47).
“Sections” related to it. The practical example is that a collation of Romans will have many chapters, but each chapter belongs to Romans. This is the first branch in the tree-shaped data of the *Apatosaurus* collation structure.

The `name` attribute is simply a label for the section, e.g., “Romans 13.” The `number` attribute is an integer used to control the ordering of sections. This enables the user to explicitly declare the order of sections. This is important because section `name` attributes may not follow an alphabetical or numerical order. This controls the order that sections are displayed in the *Apatosaurus* user interface and the order of the sections in any exported TEI formatted files. The `published` attribute is a Boolean field, which means that its value is either “True” or “False.” This attribute controls whether the collation section should be displayed publicly in the “published” page in *Apatosaurus*. As with the “Collation” model, the “Section” model does not directly contain critical collation data, rather, it is a container for other models. Whereas “Collation” had one method related to the creation of TEI formatted data, the “Section” model has two methods for creating TEI data. The first, `ab_elements`, iterates over the entire tree that branches from a specific “Section” object and returns that partial TEI tree. This method is normally called from a “Collation” object that is constructing a complete TEI representation of that collation. The `as_tei` method is very similar, but instead returning a partial TEI formatted representation, it creates a complete TEI collation with the “Section” object as its root and adds all appropriate TEI headers to the file. This exists so that a user may, for example, export only Romans 13 as a complete TEI file. The former method, `ab_elements` is used to create an unrooted TEI representation of, for example, Romans 13, because it will be a child node of a parent, e.g., Romans. The final method, `all_app_labels`, returns a Python list of text labels that represent every variation unit which is related to the “Section” object. An example of a label is “Romans_13.5U4–8.” This contains the verse and variation unit index or indices. Finally, the nested Meta class indicates that anytime a group of “Section”
objects are requested from the database, they should be ordered using the number attribute.

The “Ab” Model

In the IGNTP guidelines for TEI transcriptions, the `<ab/>` element is designated as the container for chapter verses. In the TEI specification, the `<ab/>` element refers to an “anonymous block,” which is a container for marking textual divisions that cannot otherwise be defined as paragraphs. The name “ab” is not shown to a user of Apatosaurus, but it is used in the source code instead of “verse” for the same reason that “section” was chosen over “chapter”: it provides freedom for units of text which some researchers may choose not to identify as verses, such as sentences or lines. In the context of this thesis, however, the “Ab” model corresponds to New Testament chapter verses. Additionally, because the meaning of “ab,” unlike “section,” is ambiguous. So, in the user interface, “ab” is displayed as “verse” at the present time.

---

class Ab(models.Model):
    section = models.ForeignKey(
        Section, on_delete=models.CASCADE, related_name='abs'
    )
    name = models.CharField(max_length=32, verbose_name='ID')
    basetext_label = models.CharField(max_length=32, verbose_name='Basetext Label')
    basetext = models.TextField()
    number = models.SmallIntegerField()
    indexed_basetext = models.JSONField(null=True, blank=True, default=list)
    note = models.TextField(null=True, blank=True)

    def as_element(self):
        ab = et.Element('ab')
        ab.set(f'{XML_NS}id', self.name.replace(':', '.').replace(' ', '_'))
        ab.text = self.basetext
        for app in self.apps.all():
            ab.append(app.as_element())
        return ab

    def as_tei(self):
        tei_root = et.Element('TEI', nsmap={None: TEI_NS_STR, 'xml': XML_NS_STR})
        tei_root.append(self.as_element())
        add_tei_header(tei_root)
        return et.tostring(tei_root, encoding='unicode', pretty_print=True)

    def set_indexed_basetext(self):
        self.apps: QuerySet[App]
        indexed_basetext = []
        if self.apps.count() > 0:
            for i, word in enumerate(self.basetext.split(), start=1):
                index = i*2
                for app in self.apps.all():
                    if app.index_from % 2 != 0 and index-1 == app.index_from:
                        indexed_basetext.append({'word': '-', 'index': index-1,
                                                  'is_variant': True, 'app_pk': app.pk})
                    elif app.index_from <= index <= app.index_to:
                        indexed_basetext.append({'word': word, 'index': index,
                                                  'is_variant': True, 'app_pk': app.pk})
                        break
                else:
                    indexed_basetext.append({'word': word, 'index': index,
                                              'is_variant': False, 'app_pk': None})
        else:
            indexed_basetext = [
                {'word': word, 'index': i*2, 'is_variant': False, 'app_pk': None}
            for i, word in enumerate(self.basetext.split(), start=1)]
        self.indexed_basetext = indexed_basetext

class Meta:
    ordering = ['number']

Figure 50. “Ab” Data Model, collation/models.py, lines 76–128

The previous two models primarily function as containers for other, more
descriptive models as they relate to a collation. It is at this point in the data tree, at the

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57 See original source code at https://github.com/d-flood/Apatosaurus/blob/a1f326058cfcdf5c4f2ad0f339a83562ac12f0e/collation/models.py#L76.
“Ab” model, that collation data begins to be visible. The first attribute of the “Ab” model,
section, relates the “Ab” object to a “Section” object. That is, it normally identifies the
chapter to which the verse belongs. The name attribute is a user-defined identification for
the verse. The user may choose to fully identify the verse, for example, “Romans 13:5,” or
the user may identify only the verse number “5” since the section object is already known. I
recommend to users that they use full references so that they are free to export a single
verse of a collation, which means that it will exist outside of the context of the related
section. The basetext_label attribute identifies the basetext of the collation in abbreviated
form. This will normally reference an edition, such as “NA28” or “RP” (Robinson-Pierpont).
The basetext attribute is a field that stores the actual text of the basetext for the “Ab”
(verse) object. The number attribute enables the user to explicitly determine the order of
verses, as with the “Section” model instead of relying on automated alphanumerical
ordering. The note attribute enables a user to store any notes they may want to save that
concern the verse. The indexed_basetext attribute is different from others we have
examined up to this point. This is not a normal text field, rather it is a structured set of data
that represents the basetext, indices, and variation unit boundaries. It is impossible to set
this attribute until its child nodes are known. The indexed_basetext data enables
Apatosaurus to display the basetext with the associated index numbers and identify where
variation units begin and end.

As with the “Section” model, the “Ab” model includes two methods related to
the production of a TEI formatted collation. The first method, as_element, returns the “Ab”
object as a single TEI XML <ab/> element, along with all its child nodes. The as_tei
method returns the “Ab” object as a fully rooted TEI document. This second method exists
so that a user may export a single verse as a TEI collation. The third method,
set_indexed_basetext, contains the logic for creating and setting the data that is stored in
the indexed_basetext attribute. To do this, it must iterate over the child nodes (the model
of which is discussed immediately below). This is a method that must be called anytime
the user edits a reading. If no child nodes exist, then it will generate an indexed basetext without any variation unit boundaries. The indices begin with “2” for the first word and continue with the next even number for each word. This leaves “1” as the index for variation units that exist prior to the first word, and odd numbers for variation units that exist between basetext words.

*The “App” Model*

Like the “Ab” model, the “App” model is named after its corresponding TEI XML element. The `<app/>` TEI element refers to an “apparatus entry,” which is itself a container for the variation units and readings. In the user interface, this is labeled a “variation unit.”
class App(models.Model):
    ab = models.ForeignKey(Ab, on_delete=models.CASCADE, related_name='apps')
    index_from = models.SmallIntegerField()
    index_to = models.SmallIntegerField()
    connectivity = models.SmallIntegerField(default=10)

class Meta:
    ordering = ['index_from']

    def as_element(self) -> et._Element:
        self.rdgs: QuerySet[Rdg]
        app = et.Element('app',
            {'n': f'{self.ab.name.replace("":"", ".replace" ", ":")}',
            'type': self.atype,
            'from': str(self.index_from),
            'to': str(self.index_to)}
        nsmap={None: TEI_NS_STR, 'xml': XML_NS_STR})
        graph = et.Element('graph', {'type': 'directed'}, nsmap={None: TEI_NS_STR,
            'xml': XML_NS_STR})
        for rdg in self.rdgs.filter(witDetail=False):
            app.append(rdg.as_element())
            graph.append(et.Element('node', {'n': rdg.name}))
        for wit_detail in self.rdgs.filter(witDetail=True):
            app.append(wit_detail.as_element())
            graph.append(et.Element('node', {'n': wit_detail.name}))
        note = et.Element('note', nsmap={None: TEI_NS_STR, 'xml': XML_NS_STR})
        fs = et.Element('fs', nsmap={None: TEI_NS_STR, 'xml': XML_NS_STR})
        f = et.Element('f', nsmap={None: TEI_NS_STR, 'xml': XML_NS_STR})
        numeric = et.Element('numeric', nsmap={None: TEI_NS_STR, 'xml': XML_NS_STR})
        numeric.set('value', str(self.connectivity))
        f.append(numeric)
        fs.append(f)
        note.append(fs)
        note.append(graph)
        app.append(note)
        for arc in self.arcs.all():
            graph.append(et.Element('arc', {'from': arc.rdg_from.name, 'to': arc.rdg_to.name},
                nsmap={None: TEI_NS_STR, 'xml': XML_NS_STR}))
        return app

    def save(self, *args, ab_pk: int = 0, **kwargs):
        if not self.pk and ab_pk > 0:
            super().save(*args, **kwargs)
        words = []
        if self.ab.indexed_basetext:
            for word in self.ab.indexed_basetext:
                if self.index_from <= word['index'] <= self.index_to:
                    words.append(word['word'])
        Rdg(app=self, name='a', varSeq=1, rtype='-', text=''.join(words)).save()
        super().save(*args, **kwargs)

Figure 51. “App” Data Model, collation/models.py, lines 132–189"
The “App” model has four primary attributes. The first of these, ab, marks the “Ab” (verse) object to which the “App” (variation unit) belongs. The index_from attribute stores an integer which is first index number in the basetext to which the “App” object correlates. The index_to attribute, then, is the final index number. It is possible that the basetext index numbers for which the variation unit covers are a single word or space; in this case, both index_from and index_to may contain the same number. Finally, connectivity contains an integer which a user may set to signify how genealogically meaningful a variation unit is relative to others. This attribute is primarily used when the collation data are utilized in the course of applying the CBGM.

The “App” model includes one primary method, as_element, which—as with the above examples—returns a TEI representation of the data for the object. In this instance, it returns a TEI <app/> element. The nested class Meta controls the ordering of variation units, which is presently set to order by the value of index_from, which generally means that variation units appear in the order of the basetext indices. Additionally, though I did not present or discuss the save method of the previous data models, each has one. The “App” model’s save method is sufficiently modified to justify explanation. On creation of an “App” object, a related child object, the “Rdg” (discussed immediately below) is created. This is because the first reading of any variation unit will normally be the reading of the basetext. Therefore, the creation of this reading may be fully automated to save the user time and effort. The save method of the “App” model is overridden to do this whenever a new “App” object is created.

The “Rdg” Model

The “Rdg” model correlates to both the <rdg/> and <witDetail/> TEI elements.773 When a “Rdg” object is exported as TEI, it will be rendered into either a TEI <rdg/> or

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element depending upon the object’s attribute values. The “Rdg” model contains the data of a reading of a variation unit. There should normally be a minimum of two “Rdg” objects per “App” object, or at least two readings per variation unit: the reading of the basetext, and at least one alternative reading.

```
class Rdg(models.Model):
    app = models.ForeignKey(App, on_delete=models.CASCADE, related_name='rdgs')
    name = models.CharField(max_length=64)
    varSeq = models.SmallIntegerField(default=1)
    rtype = models.CharField(max_length=64, choices=RDG_CHOICES, default='0',
                            verbose_name='Reading Type')
    text = models.TextField(null=True, blank=True)
    wit = models.ManyToManyField(Witness, related_name='rdgs', blank=True,
                                  verbose_name='Witnesses')
    witDetail = models.BooleanField(default=False, verbose_name='Ambiguous Reading')
    target = models.ManyToManyField('self', blank=True, verbose_name='Potential Readings')
    modified = models.DateTimeField(auto_now=True)
    note = models.TextField(null=True, blank=True)

class Meta:
    ordering = ['name']

def as_element(self) -> et._Element:
    if self.witDetail:
        witDetail = et.Element('witDetail', nsmap={None: TEI_NS_STR, 'xml':
                                                XML_NS_STR})
        witnesses = ' '.join([w.siglum for w in self.wit.all()])
        rdgs = [r.name for r in self.target.all()]
        witDetail.set('varSeq', str(self.varSeq))
        witDetail.set('n', self.name)
        witDetail.set('wit', witnesses)
        witDetail.set('type', 'ambiguous')
        witDetail.set('target', ' '.join(rdgs))
        return witDetail
    else:
        rdg = et.Element('rdg', nsmap={None: TEI_NS_STR, 'xml': XML_NS_STR})
        witnesses = ' '.join([w.siglum for w in self.wit.all()])
        rdg.set('wit', witnesses)
        rdg.set('varSeq', str(self.varSeq))
        rdg.set('n', self.name)
        if self.rtype:
            rdg.set('type', self.rtype)
        rdg.text = self.text
        return rdg

Figure 52. “Rdg” Data Model, collation/models.py, lines 192–261
```

The “Rdg” model contains ten primary attributes—more than any other model up to this point. The “Rdg” model is the core of the collation data structure, after all, a

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274 See original source code, https://github.com/d-flood/Apatosaurus/blob/af5326b5864cfef1c41a2e8f339a83562ac12f0e/collation/models.py#L192
collation is a collection of readings from different witnesses to the same text. The `app` attribute relates a “Rdg” object to an “App” object, or, a particular reading to a particular variation unit. The `name` attribute contains the reading identifier. The reading identifier is commonly alphabetic, such as “a” or “b.” However, the user may select essentially any identifier. The `varSeq` attribute is named after its TEI equivalent, the `<varSeq/>` element, which marks the “variant sequence.” In other words, the order in which the reading should occur in the critical apparatus. This is used to order the “Rdg” objects of a single “App” object. The `rtype` attribute refers to the reading type. By default, a user may select from a list of predefined reading types: “Ambiguous,” “Correction,” “Defective,” “Emendation,” “Error,” “Insignificant,” “Lacuna,” “Lectionary Adaptation,” “Nomen Sacrum,” “Orthographic,” “Omission,” “Subreading,” and finally a normal alternative reading may be labeled with no type at all, which is displayed as a single dash. The `text` attribute contains the actual characters of the reading with any diacritics the user desires to include.

The `wit` attribute is a `ManyToMany` field, which means that it defines a relationship between many “Witness” objects, and many “Rdg” objects. Functionally, this attribute contains the textual witnesses to a reading. Rather than using a simple text field here, I have instead chosen to provide a “Witness” model (discussed below), from which any number of objects may be related to any number of “Rdg” objects. Structuring the data this way enables database queries not otherwise possible, such as a request for every reading to which a given witness is related. Or even more useful, every reading to which a given witness is related, but another witness is not related. In other words, this enables complex database lookups related to witnesses and readings.

The `witDetail` attribute is a Boolean field that determines whether Apatosaurus will interpret the “Rdg” object as a standard reading or an ambiguous reading; the former can be exported as a TEI `<rdg/>` element while the latter can be exported as a TEI

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If the value of \texttt{witDetail} is \texttt{True}, then the following attribute becomes useful: \texttt{target}. If a user signals that the reading is ambiguous, then the user may note that the reading is ambiguous and instead of entering a text value for the reading, the user may select any, all, or none of the other “Rdg” objects to the same variation unit as potential readings. The \texttt{target} attribute is a \texttt{ManyToMany} relationship the other “Rdg” objects which this “Rdg” object might share the reading. Normally, this is used when the material of a witness is damaged, or its reading cannot be clearly read or determined for other reasons. It provides maximum flexibility to the user for accurately including all information from every witness, even when it cannot be stored in a straightforward manner.

The \texttt{modified} attribute stores the last time that the object was edited or changed in any way. The \texttt{note} attribute provides a place for the user to enter and store any text related to the “Rdg” object, such as comments on the witnesses or further discussion of the type of reading. As with most other models discussed above, the “Rdg” object has a method for returning a TEI element that represents the data in both the “Rdg” object and its child objects. In the case of the “Rdg” object, however, \texttt{as_element} will return either a TEI \texttt{<witDetail/>} or a TEI \texttt{<rdg/>}. Each element has a slightly different structure and associated data. The decision is made based on the value of the \texttt{witDetail} attribute.

\textit{The “Witness” Model}

Each witness to a reading exists as an entire table in the database instead of storing the witness as a text value in a “Rdg” column. The same “Witness” object may be related to multiple readings in multiple collations. This enables database queries and comparisons not possible otherwise.
class Witness(models.Model):
    siglum = models.CharField(max_length=32)
    description = models.CharField(max_length=255, null=True, blank=True)
    user = models.ForeignKey(get_user_model(), on_delete=models.CASCADE,
        related_name='witnesses', null=True, blank=True)

    class Meta:
        unique_together = ('siglum', 'user')
        indexes = [models.Index(fields=['siglum'])]

Figure 53: “Witness” Data Model, collation/models.py, lines 16–27

The siglum attribute stores the abbreviated form of a witness' title. For this thesis, the sigla are most commonly Gregory-Aland designations. The description attribute may be anything a user chooses to include, but for this thesis, it includes the dates of witness manuscripts and the bibliographic information for editions. The user attribute maps each witness to the user that added it. The nested Meta class enforces two rules: (1) Each user may only have one “Witness” object with the same siglum value. (2) A database index is created for the “Witness” objects using the siglum value, which enables efficient lookup of “Witness” objects by their sigla.

The “RdgHistory” Model

This model is included for completeness because it is related to the “Rdg” model above, but it only exists for two reasons: (2) to store the attributes of a previous version of a “Rdg” model, and (2) a method for copying all attributes from itself back to the “Rdg” object. The “RdgHistory” model facilitates access to a full history of edits made to a “Rdg” object made by a user, and a way to restore a previous version of a “Rdg” object.

The “Arc” Model

This model is the furthest relation from the “Collation” model—the branch furthest from the trunk. The “Arc” model is named after the TEI <arc/> element of the same name, and it serves the same function, “the connection from one node to another in

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See original source code, https://github.com/d-flood/Apatosaurus/blob/a1f326058cfcdf5c4f24a0f339a83562ae1e6e/collation/models.py#L16.
The “Arc” object connects two “Rdg” objects. When taken together, a collection of “Arc” models define the local stemma of a variation unit.

```python
class Arc(models.Model):
    app = models.ForeignKey(App, on_delete=models.CASCADE, related_name='arcs')
    rdg_from = models.ForeignKey(Rdg, on_delete=models.CASCADE, related_name='arcs_from')
    rdg_to = models.ForeignKey(Rdg, on_delete=models.CASCADE, related_name='arcs_to')

class Meta:
    constraints = [
        models.UniqueConstraint(fields=['app', 'rdg_from', 'rdg_to'],
                                name='unique_arc'),
    ]
```

Figure 54. “Arc” Data Model, collation/models.py, lines 286–298

The `app` attribute marks the “App” (variation unit) object to which the “Arc” (edge) object belongs. The `rdg_from` attribute marks the “Rdg” object has been selected by the editor to be the posterior reading, while `rdg_to` relates to the “Rdg” object that has been determined to be the posterior reading.

Other Data Models

As a web application that includes user authentication, Apatosaurus includes data models that are fairly standard and need no extended explanation. These include the “User” model that manages data including the user’s username and email address, or models that store the text content of pages such as the “About” page. One model worth pointing out is the “Cbgm_Db” model, which is central to the incorporation of the open-cbgm application into Apatosaurus.

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878 See original source code, https://github.com/d-flood/Apatosaurus/blob/a1f326058cfcdf5c4f2ad0f0f3239a82f562ac2f0e/collation/models.py#L286.
879 See the “About” pages at https://www.apatosaurus.io/about/.
```python
class Cbgm_Db(models.Model):
    active = models.BooleanField(default=False)
    user = models.ForeignKey(get_user_model(), on_delete=models.CASCADE)
    db_name = models.CharField(max_length=64)
    db_file = models.FileField(upload_to=user_directory_path)
    amount = models.SmallIntegerField(choices=AMOUNT_CHOICES, default=0)
    threshold = models.SmallIntegerField(default=1, help_text='Minimum number of readings for a witness to be included.')
    trivial_types = models.CharField(max_length=255, null=True, blank=True, help_text='List of reading types to treat as agreeing with their parent. E.g., "subr err"')
    ignore_types = models.CharField(max_length=255, null=True, blank=True, help_text='List of reading types to ignore. E.g., "lac defi"')
    ignore_suffixes = models.CharField(max_length=255, null=True, blank=True, help_text='List of witness suffixes to strip away. E.g., "* T V"')
    merge_splits = models.BooleanField(default=False)
    use_classic_rules = models.BooleanField(default=False)
    witnesses = models.JSONField(null=True, default=list)
    app_labels = models.JSONField(null=True, default=list)

    class Meta:
        unique_together = ('user', 'db_name')

Figure 55. “Cbgm_Db” Data Model, cbgm/models.py, lines 13–45

The first step for using the open-cbgm involves the generation of a database file created by ingesting a TEI-formatted XML collation file. The module for making this database, “populate_db,” also accepts several options and settings. The “Cbgm_Db” model stores these settings in addition to managing the storage of the database file itself.

8.5.2 Import TEI Collation Data

Although collation data can be entered manually into Apatosaurus, the data for this thesis was imported from TEI XML files because I produced collations using the ITSEE Collation Editor. Therefore, Apatosaurus requires a reliable method of importing the TEI collation data. I will offer a terse outline of the logic employed to accomplish this.

1. The file is first processed as plain text in order to address potential issues that can cause errors during parsing, such as when the file contains attributes that start with numerical characters, which can cause parsing failures.

See original source code, https://github.com/d-flood/Apatosaurus/blob/a1f32658e6cd1faeda4f339a83562ac12f0e/cbgm/models.py#L13.
2. The TEI XML is parsed using the *lxml* library.

3. The import script iterates over the `<ab/>` elements and creates an “Ab” object in the database for each one. These `<ab/>` elements will usually be chapter verses. If the full basetext is not present, then it must be reconstructed by concatenating the text values of the `<lem/>` and `<seg/>` elements nested within the `<ab/>` element.

4. For each `<ab/>` element, the script iterates over every nested `<app/>` element and creates an “App” object in the database for each.

5. For each `<app/>` element, the script iterates over each of its child `<rdg/>` elements and creates a “Rdg” object in the database. The script also iterates over any existing `<witDetail/>` elements and creates a “Rdg” object in the database with its `witDetail` attribute set to `True`. Finally, the script iterates over any existing `<arc/>` elements within the `<app/>` element and creates “Arc” database objects.

8.6 User Interface

As important as it is to document the core technical details of *Apatosaurus*, equally important is the user interface. Most users of *Apatosaurus* will experience it through the “front door,” so to speak. The following section documents how a user and researcher will experience and use *Apatosaurus* from the first data input to the application of the CBGM.

8.6.1 Home page

When a user visits the home page, they will see a brief description of the major capabilities of *Apatosaurus*. The page will display in either a light or dark theme, depending on the user’s system settings. While I have programmed the styling to respect a

<sup>26</sup>“Lxml.”
user's system, they may also choose to change the theme, which will be remembered for the next visit.

*Figure 56. Screenshot of Apatosaurus “/”: Dark Theme*  

Live page at https://www.apatosaurus.io/. Live pages are identified by path, e.g., “/” refers to the home or landing page—it is the URL path to the right of the domain “apatosaurus.io.”
One of the advantages of web-based applications is that tutorials are easily included. The “About” page includes a general introduction to Apatosaurus and three tutorials on its usage complete with screenshots and screen recordings for illustration. Additionally, this section of the website includes a history of Apatosaurus, a colophon explaining the technology and fonts used, and an explanation for how to receive support on the use of the web app. The screenshot below shows the first two of twelve steps in the collation tutorial.
8.6.3 “Published Collations” Page

The “Published Collations” page lists all user collations that have been set to be public by the user. Users have the convenience of using the same platform to create, edit, and publish digital collations. Indeed, the major collations used to analyze the catenae of John of Damascus have been published and made freely available to other researchers.

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The screenshot below shows the “Published Collations” page on the website. On this page, users can browse collations by content or editor. The content is organized into various sections, including 1 Corinthians, Damascus Catena, Romans, and more. The editor section lists individuals who have contributed to the collations. This feature allows users to easily access and edit content as needed.
The user may browse the published collations by either content or by the editor. At the time of writing, I am the only active user of Apatosaurus to have chosen to set some collations to be publicly viewable. Selecting one of the collations will reveal the published “Sections.”

The editor can select specific sections to make public or keep private. The case of the above screenshot, four chapters from 1 Corinthians have been published. Selecting a chapter will open a new page which contains the digital apparatus.

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<sup>a84</sup> This was the live “Published Collations page as of August 13, 2023, https://www.apatosaurus.io/published/

<sup>a85</sup> Live page at https://www.apatosaurus.io/published/browse-collation/1/. 
In the section page, all verses are displayed in a scrolling column on the left. In the specific example above, the collation was created using the ITSEE Collation Editor and imported into Apatosaurus. To view the critical apparatus, the user selects a verse from the list on the left.

See the live page at https://www.apatosaurus.io/published/browse-section/1/.
Selecting a verse reveals the first section of the digital critical apparatus, the basetext and variation unit boundaries. The section of the page labeled “Variation Units” shows all the variation units as buttons and the indices of the basetext to which they refer. In the screenshot above, there are four basetext units. The first one is “4,” which identifies κλητος in the basetext. The third variation unit is “8–10” which are the indices for the nomina sacra χυ ιυ. Note also that these variation units are delimited in the basetext as well. The user opens the readings table by selecting from either the variation unit buttons or from the basetext itself—clicking in either place will work.

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See the live page at https://www.apatosaurus.io/published/apparatus/1/.

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Selecting a variation unit fully reveals the collation data visualization. The variation unit is highlighted both in the basetext and among the “Variation Unit” buttons. Below the basetext, the “Readings” table is loaded. It is a straightforward way of visualizing different readings: four columns and one row for each reading. The first column contains the reading “ID” or name; this facilitates differentiation between readings to the same variation unit. For the collations in this thesis, the first reading is always named “a” and is the reading in the text. The second column contains the reading “Type,” which may be blank, though it often makes sense to set the type. In the example above, reading “b” has been assigned a type of “Omission,” which clarifies why there is no text value in the “Reading” column. Finally, the fourth and last column includes the list of witnesses to that reading. The “Local Stemma” graph appears below the readings table. Here, any genealogical relationships defined by the editor are displayed as a directed graph. The graph is generated on the server using GraphViz and delivered to the browser as an SVG.
image. In the instance above, reading “a” has been marked as the prior reading and the reading from which reading “b” arose.

![Witnesses](image)

*Figure 64. Screenshot of Apatosaurus “Witnesses” column from the readings table showing a witness tooltip*

If a user hovers their mouse over a witness, its description as entered by the editor of the collation will be displayed.

It is also important to demonstrate that *Apatosaurus* is a responsive web application, which means that the styling considers the width of the screen on which it is displayed. I specifically designed *Apatosaurus* to be useable on mobile devices as well as desktop computers. This sets it apart from any other publicly available virtual research environments designed specifically for text and manuscript studies.

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*GraphViz.*
In the mobile (phone) view, the navigation menu is hidden and revealed by the “hamburger” icon (three stacked horizontal lines). Likewise, the list of verses has been hidden and can be shown or hidden by using the icon with arrows pointing left and right, on the same plane as the breadcrumb menu.

8.6.4 User Authentication

All other pages and functionality of Apatosaurus require a user to create an account and authenticate to the server by logging in with a username and password. A user can access the authentication page from any location in Apatosaurus by clicking on the user logo in the top right of the navigation bar at the top of every page.
If the user is not currently authenticated, then only a “Login” link will display. Following that link will bring the user to the “Log In” page.

Users with an account may enter their username and password to log into the web application, but new users will need to select the “Register” link.

See the live page at https://www.apatosaurus.io/accounts/login/.
I am committed to following the best security practices and to protecting user data, which explains why registration is a two-step process. Step one involves completing every field on the registration page. The new user’s email address is required both for the second step of registration and for enabling password reset. The new user may

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Figure 68. Screenshot of Apatosaurus “/accounts/register/”

See the live page at https://www.apatosaurus.io/accounts/register/.
choose any username; at this time, the username is never displayed publicly. The “Registration purpose” field asks the new user to briefly explain their purpose for creating an account. This is asked primarily to differentiate legitimate users from attackers. Finally, the new user must enter a password twice. It is important to note that user passwords are not stored in plain text and cannot, therefore, be leaked. Rather, the entered password is used as a seed in a complex cryptographic equation, the output of which is an unrecognizable hash of characters. This set of characters is anonymized a second time so that it is exceedingly difficult and often impossible to reverse engineer the input password from the result of this calculation. The Django web framework provides all this functionality.

Upon selecting “Register,” the user account is created but quarantined and unusable. *Apatosaurus* will send an email to the address entered by the user. If the user follows the registration link contained in the email, then the account becomes marked as valid and active. This check ensures that the email address is accessible by the user, which is the only method for recovering an account for which a user has forgotten their password. This second step also helps to ensure that the user is a legitimate user and not part of an automated scheme.

### 8.6.5 User Profile

Upon logging in successfully, the user will be taken to their profile. The profile page is never viewable by any other user nor is it public. Additionally, three new links in the navigation bar should appear to authenticated users: “My Collations,” “Witnesses,” and “open-cbgm.”
There are two tabs available in a user’s home profile page. The first, “Your Information” enables the user to change and update their information. It is this page where a user may select a custom display name to accompany any published collations.

The second tab, “Background Jobs” lists all long-running tasks that have been triggered by the user. Many actions performed by Apatosaurus are computationally expensive, that is, they cannot be completed in a short duration that might be perceived as

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Full URLs cannot be provided for the remainder of the example screenshots because they pertain only to a specific and authenticated user.
instant, or nearly so. The request and response cycle of a website should be as instantaneous as possible and any operation that may need more time to run should be performed as a background task. Whenever a task must be moved to a background worker, the server schedules the task and then immediately responds to the user that the task has been enqueued. The user may monitor tasks from this tab.

These tasks will have one of four states. (1) “Enqueued” means that the task has been successfully scheduled but has not yet begun to be processed. This state normally lasts for less than a second since *Apatosaurus*’ capacity for background tasks is considerable since each one is processed as a serverless function. (2) A task “In Progress” has begun processing and a progress bar will normally be displayed, though it is not always possible to put a number to the progress since the total iterations may not be known. (3) A “Complete” task has been successfully processed and completed. (4) A “Failed” task was started, but experienced an error before it could reach completion. The best guess at the reason for the failure will be included as a message to the user. Importing TEI data is performed as a background task, and this may fail because of malformed XML.

8.6.6 “My Collations”

This page appears like the “Published” pages, however, only the present user’s collations will be displayed, including their private collations. A new user will not see any collations; however, they will see the “New Collation” button.
Selecting “New Collation” will open a simple form. The only required field is “Name." Upon submitting the form, a new “Collation” object will be created in the database and associated with the user that submitted the form. It will then appear in the sidebar on the left. The collation name can be edited later by clicking on the gear icon immediately adjacent to the collation on the left.

This will display the same form as before, but now there are three additional options on the bottom. First, the collation may be downloaded by selecting “Download.” This will first cause the collation to be converted to a TEI formatted collation file and the user’s browser
will be prompted to download it as a file with the same name as the user named the collation. I will explain the purpose and use of the “Import to open-chbgm” button below in section 8.6.9. The “Delete” button will remove the collation from the database, but only after protecting the action with a dialogue which requires the user to select “OK” to allow the deletion.

![Figure 73. Screenshot of Apatosaurus: confirmation of collation deletion dialogue](image)

Selecting a collation will cause all its sections to be listed in the left sidebar.

![Figure 74. Screenshot of Apatosaurus “/collation/” with collation selected](image)

If the collation has just been created, then no sections will be listed; only the “New Section” button will appear.
The “New Section” button will open the form for adding a new section. A section needs only a number, though a “Name” may also be provided. The “Number” field determines the ordering of sections—both the order in which they are displayed in the sidebar and the order of the sections in the exported TEI formatted collation file. In the example above, I have chosen to include the book name, though it is acceptable to omit this because it is implicit based on the collation name. Selecting the “Published” checkbox will cause this section to be publicly viewable from the “Published” page.

As with the collations, clicking on the gear icon adjacent to an existing collation will open the same form and enable the user to edit the data or take any of the same three actions available to collations. Downloading a section will, intuitively, download only that section, whereas selecting “Download” from within a collation will export every section from the
collation into a single file. Selecting a section button will reveal all that section's verses or otherwise smallest units of textual division.

![Figure 77. Screenshot of Apatosaurus “/collation/” with section button selected]

The verses are displayed on the left unless, of course, no verses exist yet. In that case, only the “New Verse” and “Upload Collation File” buttons will display.

![Figure 78. Screenshot of Apatosaurus “/collation/,” “New Verse” and “Upload Collation File” buttons]

Selecting “New Verse” will open a form similar to the others, though with additional input fields.
The “ID” field will normally be a full reference, even if abbreviated, since it must be a unique name among all verses, even across different sections. The “Basetext Label” should identify the edition or source from which a basetext for the verse is taken. The “Basetext” field should contain the full basetext for the verse under consideration. The “Number” field serves the same purpose as the previous examples, and the “note” field is available for whatever note a user may choose to enter. The “Note” field is also editable from within the apparatus as will be demonstrated below. Upon submitting this form, a new “Ab” object will be created and added to the database.
Again, selecting the edit button (gear icon) will open the same form for editing but with the familiar three actions that can be taken. In this case, clicking “Download” will export only a single verse as a complete TEI formatted collation file.

The “Upload Collation File” button is only visible at this level, that is, a section is selected, and its verses are listed. Clicking on this button reveals an upload form.
The upload form includes a note that *Apatosaurus* has been most tested with the output from the ITSEE *Collation Editor* and output from *CollateX*. Several TEI hand collations have been successfully imported, but this is far from guaranteed. Once a user browses for and selects a file to upload and submits it, *Apatosaurus* will immediately acknowledge the action and create a background task for the upload and import job. The user may monitor progress from their profile. A TEI collation file may contain one or more `<ab/>` elements. The import script will create a verse instance for each one that is discovered. In the example screenshot above, every verse was imported from the same TEI collation file. That TEI file is the product of using *Criticus* to combine an entire chapter’s worth of output files from the ITSEE *Collation Editor*.

8.6.7  “My Collations”: Edit Apparatus

The apparatus editing page is a child page of “My Collations,” but it includes so much functionality that it should be discussed within its own section in this chapter. The apparatus is opened by selecting a verse from the left sidebar—exactly like the “Published” page.
The editing view on the apparatus is similar to the public view with notable differences. Notice that immediately to the right of the verse label there is a button with a notebook symbol. Clicking on this will open a floating, draggable, and resizable note field.

The note box can be moved anywhere on the screen by dragging it by its top bar. It automatically saves the text content after one full second of no typing while the box is in focus. The top bar turns red when unsaved changes are made and reverts back to green when they are saved; the saved state is always clear to the user. This note box is provided as a convenience to the user for taking notes at the verse level.
The next difference between the editing view and the published view is the addition of an edit button immediately to the right of each variation unit button.

Selecting one of these edit buttons opens a popup menu with the options to “Delete” or “Edit” the variation unit. The “Delete” option is protected by a dialogue as with other deletion options in Apatosaurus. The “Edit” option opens the following form.

A variation unit is essentially only three values: (1) The starting basetext index number, (2) the ending basetext number, (3) and the connectivity number. The user should consult the indexed basetext display in the frame just below the form for selecting index numbers. “Connectivity” is for the user to subjectively enter a value for how genealogically important
the variation unit is. This value is used by the open-chgm. Entering different index values will cause the basetext displayed below the form to be rendered again with the new variation unit boundaries. Clicking on the addition sign button will open a blank variation unit from in which the user may define a new variation unit. The readings table and local stemma sections are likewise updated with editing functions.

As in the “Published” view, the variation unit is highlighted in the basetext to make clear which text to which the readings table refers. The readings table, however, has an additional column, labeled “Edit.” In this column, in every row, there are three buttons. The first from the left, with a pencil icon, opens the reading in that row as a form that can be edited.
This form is for editing a “Rdg” database object. The “Rdg” object can be assigned to either a regular reading, or it can be assigned to be an ambiguous reading, which is what the first item in the form indicates, the "Ambiguous Reading" checkbox. Next is the “Name” field, followed by the reading type, "Rtype." The “Text” field is afforded more space in the case of long readings. Adding witnesses is complicated by my decision to make each Witness its own object in the database instead of a plain text value. The consequence of that is that any witness must already exist in the database, then witnesses to a given reading are selected from that list. The “Selected Witnesses” box displays, as a convenience, the users currently selected in the form. To add or remove witnesses to the selection, the user must use the “Witness” list box directly under and hold the Control key (Windows) or Command key (Mac) to select multiple witnesses. The “Filter Witnesses” text input just below will live search through the witnesses and only display matches. This makes it possible to find target witnesses with ease. The original witnesses may be restored by selecting the “Reset
 Witnesses" button prior to submitting the form. The entire reading may be removed by selecting “Delete,” which is protected by the confirmation dialog.

The next button in the reading row has a notebook symbol and opens a floating, draggable, and automatically saving note similar to the verse level note. The difference with the reading note is that it is connected to the reading and not the entire verse. The user may open all reading notes and the verse note simultaneously and move them around the window as needed. The intention is to make it easy to make comments on readings that are incorporated directly into the analysis tool. The final button, with a clock symbol, opens the edit history for that reading.

Figure 88. Screenshot of Apatosaurus “/collation/” with reading history opened

Apatosaurus keeps a history of edits for every reading. Any previous version of a reading which is in the database may be restored to be the current version again. The example above shows three previous versions and when they were created along with every value of the reading.

Note that after the “Readings” table, there is a similar table, “Ambiguous Witnesses” (see Figure 88). Like a reading, the ambiguous row has columns for the “ID,” “Type,” and “Witnesses.” However, it substitutes a “Reading” value for “Potential
An ambiguous witness may be connected to multiple readings. It may be that one or more readings may be ruled out as potential readings, while others remain a possibility—this is the value of adding the flexibility of ambiguous witnesses.

Scrolling down reveals the last section of the apparatus, “Genealogical Relationships.” Here the current local stemma is displayed, but it is also here that it can be edited. If no relationships between readings have been defined, then the reading identifiers will be listed as edgeless nodes.

![Genealogical Relationships](image)

**Figure 89.** Screenshot of Apatosaurus local stemma from “/collation/”

To add or edit a directional relationship, the user must select the prior node from the options to the left of the arrow. Valid options will automatically appear to the right of the arrow.

![Genealogical Relationships](image)

**Figure 90.** Screenshot of Apatosaurus local stemma from “/collation/” with a prior reading selected

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290 The example “Ambiguous Witness” in the screenshot was created for illustration and is not a statement about the reading of P46 at 1 Corinthians 1:1.
Selecting a posterior reading will cause the “Add” and “Remove” buttons to appear.

Once the user selects “Add” or “Remove,” the local stemma graph will immediately update.

Relationships can be removed the same way. Editing the local stemma is valuable for tracking textual decisions but these decisions are also the foundational data utilized by the open-cbgm for generating textual flow diagrams.

8.6.8 “Witnesses”
Since witnesses are database objects related to readings by a many-to-many relationship, users require a way to add, edit, and remove witnesses from the database. To start, a user selects “Witnesses” from the navigation bar at the top of every page.

The page contains two tabs. The first one, “Default Witnesses,” lists all witnesses to which every user of Apatosaurus has access by default. I have included every manuscript witness with a Gregory-Aland designation in the database and made them available to every user. New Testament textual scholars should find most witnesses are already available to them. The list of default witnesses shows both the witness siglum and extra information that will pop up when a user hovers their mouse over the witness in the apparatus. Even with over 5,500 witnesses included, users will almost certainly need to add additional witnesses. The second tab, “My Witnesses” fulfills this need.
Witness objects added by the user are listed in this tab. For new users, this tab will be blank. To add a new witness, the user needs only to fill in the form at the bottom of the page. The witness siglum is required—this is what will be displayed in the apparatus. The description is optional, but it is helpful to see extra information about a witness, especially unfamiliar ones. To edit a previously added witness the user may click on the button to the right of every witness. The custom witnesses added by each user are only visible to the user that created it.

8.6.9  “open-cbgm”

Import Collation Data to open-cbgm
Before documenting the "open-cbgm" page, let us first return to the previous page to explain how user collations are sent to the "open-cbgm" page. The “Import to open-cbgm” button was noted in Figure 74, in section 8.6.6 above. This button exists in the edit view of collations, sections, and verses. Clicking on any one of these buttons opens the following form.

![Figure 95. Screenshot of Apatosaurus "collations/" with the “Import to open-cbgm” button selected](image)

Whether the import button is selected for a collation, section, or verse, the form is the same. What changes is the amount of data imported to the open-cbgm. If it is imported from a collation edit view, then the entire collation—all sections and verses—will be imported. But if it is selected from a verse, then just that verse will be imported.

The “Db name” field is where the user creates a name for SQLite database that will be created and populated on their behalf using their collation data as input. New changes to the apparatus are not reflected in the open-cbgm database; this will effectively be a snapshot of the collation data as it was at the time of import. The “Threshold” field is a numerical value that determines the minimum number of readings for which a witness must be extant in order for it to be included in the CBGM database. Very fragmentary witnesses are difficult to put into graphs automatically because they are not extant at enough points of comparison, so it can be helpful to remove them at the front and add
them back in manually. The “Trivial types” field enables the user to enter reading types that should be counted as agreeing with their parent reading if a genealogical relationship exists which marks a parent reading. The “Ignore types” field is similar, but instead of marking the readings of listed types as agreeing with the parent reading, they are ignored from the count entirely. This is ideal for lacunose text. The “Ignore suffixes” is for users to indicate that their witness sigla have extra characters at the end that should be removed, such as “***” or “V.” This option is not needed for the witnesses collated for the content of this thesis because I chose, instead, to handle apparent readings by noting so in the reading type rather than adding characters to a witness siglum. Finally, there are two checkboxes with settings that are either on or off: merge split lines, or use the standard CBGM rules as articulated by INTF and Gerd Mink. If the latter is left unchecked, then the open-cbgm default rules are used. Upon submitting this form, a background task is enqueued because this process can take some time, over an hour in some cases. The collation data is first converted to TEI before it is passed to the open-cbgm's populate_db script. In the standalone version of the open-cbgm, this is all performed from the text-based command line interface. Apatosaurus provides a “point and click” method for using open-cbgm that should prove to be a user-friendly experience.

Once the database has been successfully created and populated, it is uploaded to cloud storage and its storage path is stored in the “Cbgm_Db” object discussed above. It is then ready for exploring and analyzing in the “open-cbgm” page.

The “open-cbgm” page

Upon navigating to the “open-cbgm” page using the navigation bar, the user will first be presented with some introductory information on the CBGM including a brief introduction in general, links to resources for learning more about the CBGM, a brief note and links concerning the open-cbgm, the use of the open-cbgm in Apatosaurus, and finally

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395 For a fuller explanation of the settings for the open-cbgm, see the official documentation, McCollum, “Open-Cbgm-Standalone.”
notes for citing the open-cbgm." Navigation on the “open-cbgm” page is managed by a sidebar on the left. To get started, the user must select “Manage Databases.”

![Manage open-cbgm Databases](image)

**Figure 96. Screenshot of Apatosaurus "/cbgm/" with "Manage Databases" selected**

Any databases that have been successfully imported to the open-cbgm will be visible in the “Databases (Imported Collations)” scrolling select box. The imported collations are grouped by amount: entire collation, single section, or single verse. Note that until a database is selected, the six links in the side bar are inactive.

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294 Authenticated users can access this at https://www.apatosaurus.io/cbgm/. 
Once a database is selected, it will be noted under “Active Database:” in the top of the left sidebar. Additionally, all of the buttons in the sidebar will become active, and the database details will be listed in the “Manage Database” frame. The database can be renamed or deleted. On the right, the database settings set by the user are displayed for reference. Below that, every witness in the database is listed along with every variation unit. From here the user may begin to experiment with the CBGM tools.
Selecting “Compare Witnesses” from the sidebar opens a comparison tool that is also known within the CBGM as pregenealogical coherence. In the left of the “Compare Witnesses” pane there are two form fields. The “Witness” text field designates the witness to which others should be compared. This field is empowered by an HTML datalist element which provides autocomplete. This field will autocomplete any witness that exists in the open-cbgm database. The “Witness to Compare” list select is for determining which witnesses should be compared to the witness in “Witness.” If no witnesses are selected, then all witnesses will be compared to the one designated in the “Witness” field. The comparison table is generated on the server and, when ready, it is displayed on the right of the pane. The table will clearly identify the witness to which the others are being compared, and the total number of extant variation units in that witness.
The “Find Relatives” pane, similar to its counterpart in the implementation of the CBGM by INTF, displays the percentage agreement of witnesses, but adds to it the reading which each witness contains. To display a relatives table, the user must enter a witness siglum—supported by autocomplete, and a single variation unit. Optionally, the user may limit the displayed witnesses to those that support one of the extant readings. All valid options are presented, which contrasts with other implementations that require the user to know the variation unit and reading names.

Figure 99. Screenshot of Apatosaurus “/cbgm/" with “Find Relatives” selected

Figure 100. Screenshot of Apatosaurus “/cbgm/" with “Optimize Substemma” selected
The “Optimize Substemma” tool identifies potential ancestors. The user must only enter the witness siglum into the “Witness” field and select the “Identify Potential Ancestors” button. This will generate a table of potential ancestors with columns for the ancestor siglum or sigla (potential mixture can lead to multiple ancestors in the same row), the cost, and the number of agreements. The optional “Max Cost” field is provided so that the user may limit results to witnesses which have a cost lower than the entered number. If the number here is “-1” it is ignored.

![Screenshot of Apatosaurus "/cbgm/" with "Local Stemma" selected](image)

*Figure 101. Screenshot of Apatosaurus "/cbgm/" with "Local Stemma" selected*

The “Local Stemma” pane is a simple way to browse all local stemmata. Click on an item in the “Variation Unit Address” and it will be rendered on the page.
The “Textual Flow” tool generates graphs that designed to help the editor track the rise of readings. When witnesses flow to other witnesses, it should not be interpreted to mean that one witness is a descendent of the other. This is a tool for tracking the flow of texts, not witnesses. Anytime a reading is changed from one node to another the edge between them is colored blue. The graph is delivered to the browser as an SVG in a zoomable viewer. SVGs can be enlarged without losing clarity, making it an ideal format for web graphics when deep zooming is desired.

Textual flow diagrams are tied to a specific variation unit, so one must first be selected. Once a variation unit is selected, the graph type may be a general “Flow” diagram, depicted in the sample above. The graph type may also be “Attestations,” which will show where variation takes place, when one reading becomes another. This option will normally return several graphs—one in its own zoomable viewer. Finally, the “Variants” type shows an overview of the arise of each variant, often displaying only one or
two witnesses per variant. The “Show Strengths” option will style the edges to communicate the degree to which one witness is mathematically prior to another using dots, dashes, and lines. The “Email Graph” option is provided because graphs can take a long time to generate depending on the size of the collation—number of witnesses and number of variation units. If this option is selected, then the graph will be emailed to the address provided by the user in their account. This ensures that no processing power goes to waste, and the user will not lose a graph by accidentally navigating away from the page.

Figure 103. Screenshot of Apatosaurus “/cbgm/” with “Global Stemma” selected

The “Global Stemma” tool generates a single graph with two customizations: strength indications and the costs of each edge. As with other graphs, the user may decide to have it delivered to their email address in addition to waiting for it to generate and load on the page. Even complex graphs like the one above may be viewed in detail by using the zoomable viewer.
Figure 104. Screenshot of Apatosaurus “/cbgm/” with “Global Stemma” selected and the graph enlarged using the included viewer

The above example is the same graph viewed zoomed nearly to completeness.

8.7 Conclusion

*Apatosaurus* is a web based virtual research environment that was developed to support the research contained within this thesis in addition to any other textual scholars who might make use of such a platform. Therefore, because a major goal was to make it available as a research tool to others, specific goals and technical requirements were created and executed to that end. The major advantage of a web application over a desktop application is accessibility; it will perform equally well on Windows, MacOS, and even mobile devices such as tablets and smartphones. The technologies employed were carefully considered and the implementation details had both my research and that of my colleagues in mind. These decisions include the selection of Postgres for the relational database, the Django web framework, and minimal JavaScript on the client. These decisions make it possible to maintain *Apatosaurus* as a solo engineer. The capabilities of *Apatosaurus* include the viewing of published digital critical apparatuses, creating
apparatuses from scratch, importing TEI formatted collation files, editing the apparatus and adding genealogical relationships, and access to a full implementation of the CBGM. This is in addition to the documentation and tutorials included within the application itself complete with animated screen recordings and screenshots. A core value of my development of *Apatosaurus* is openness, which is to say that its source code is open, but so is its development. I am open to the contributions of other software developers and open to how *Apatosaurus* can be adapted for use in different but adjacent projects. The proof of the usefulness of *Apatosaurus* will be seen in the research of this thesis and others.
9 Conclusion

This project began with the straightforward question, “When comparing their overlapping text, Rom 13–1 Cor 4, do GA 0150, GA 2110, and GA 1506 prove to be a textual family?” Before answering, several limitations need to be in place. First, the present study was mostly performed upon the material for which all three witnesses are extant. These triple readings are limited to Romans 13–15 and 1 Corinthians 1–4. Second, in Chapter two I defined what sense of “family” is intended. For Colwell, a family includes witnesses so closely related that the archetypal text can be recovered by applying a genealogical analysis of the manuscripts’ readings. Established families in the field can sometimes be referenced with a single reference, as Family 1 and Family 13 can often be cited as a group in a critical apparatus. Likewise, GA 0150, GA 2110, and GA 1506 could—with very few exceptions—be cited with a single reference.

The manuscripts that are the object of study in this thesis are not straightforward, however. That is, they are not simply carriers of some Greek New Testament text—they are more interesting than that. All three manuscripts are witnesses to the catena by John of Damascus. In Chapter two I argued that we have little reason to doubt that John of Damascus was responsible for both the scholia and the lemmata. The implications are striking: If the textual archetype is clearly identifiable from among the witnesses, then it is a text that can be located to a geographical location and time: near Jerusalem during the Umayyad Caliphate between the mid-seventh and mid-eighth century. Additionally, if the Damascene himself was responsible for the edition, then this alters the goal of deciphering quotation from allusion in his theological writings for places attested by Family 0150. We now have a primary source for the text of Rom 13–1 Cor 4 in John of Damascus. If his quotations were to imply a different textual character, why? Would it be because John of Damascus had multiple sources for Paul, or might the witnesses to his theological writings be themselves corrupted? What we can say
confidently is this: When John of Damascus set out to prepare an edition, this is the text he selected—whether from one or many options.

When taken together, the primary research question and material observations raise additional related questions: “Having identified that GA 0150 and GA 2110 have an uncanny resemblance, might they be exemplar and copy?” Additionally, given that all witnesses contain the same edition of scholia, do these commentary extracts demonstrate the same level of agreement? While the primary questions remained primary throughout the study, these other questions were addressed as well.

9.1 Summary of Method

I expounded on the methods chosen for answering the research questions in Chapter three. After tracing the development of the quantitative method from Colwell to Mink and Wachtel, I determined that a quantitative analysis method would be helpful for establishing relative relationships between the family witnesses and outside witnesses to the same Pauline epistles. However, I argued that simply counting was not sufficient. As Fee said, readings should be weighed after counting. Having access to readings of variation units necessitates several prerequisite activities: transcription of the manuscripts, collation of these transcriptions, and a way to interact with the collation data. The tools and method required for transcribing and collating are briefly discussed in Chapter three but described in detail in Chapters seven and eight. Not only did I make use of existing computer software developed for textual research, but I also engineered my own desktop application and web application to support the transcription, collation, and analysis of these manuscripts.

9.2 Summary of Research Findings

Chapter four presents all significant variants in which GA 0150, GA 2110, and GA 1506 agree with each other. I identified 101 significant family readings. Of these, only 27 were agreements with the Majority Text and against the reading in the text of the NA28. Of
these 27 agreements with the Majority Text, 19 are also witnessed by others such as GA P46, GA 01, 01<sup>c2</sup>, GA 02, GA 03, and GA 06. Therefore, even when Family 0150 agrees with the Majority Text, it is highly likely that it is a demonstrably ancient reading. When Family 0150 agrees with the Majority Text, it is likely to be an early reading that would later become part of the majority.

That leaves 74 of 101 readings that disagree with the Majority Text. Of these, nine are exclusive family readings and more than 60% are agreements between Family 0150 and the readings in the NA28. The rest are rare agreements with a handful of other witnesses. Given these data, we cannot conclude that Family 0150 has a peculiar text, rather, the family readings are generally suitable for their context and shared with other important witnesses.

In Chapter five, I presented every significant reading in which one member of Family 0150 disagreed with the other two witnesses. This revealed that, excluding singular readings, GA 2110 and GA 0150 each read against the other family witnesses only once. Even including singular readings, GA 2110 contains three and GA 0150 has eight. We find that these two witnesses are remarkably homogenous. GA 1506, contains four non-family readings supported by other witnesses and 23 singular readings. The high number of singular readings in GA 1506 causes it to have lower agreement with all other witnesses. GA 0150 and GA 2110 are its closest matches by a considerable margin.

The data presented in chapters four and five prove that the three witnesses surely form a family and also that GA 0151—despite also being a witness to the Damascene catena—is significantly removed from the family text. For nearly all significant readings, especially those found in the NA28 apparatus, the three witnesses could be accurately represented by a single siglum. As for the type of text in Family 0150, it may appear “mixed”—as the Alands have said—to the degree that it has all the markings of a text that was popular in the seventh century. The archetypal text contains many of the early Byzantine readings, but it is missing even more of the later readings found in the Majority
Text. Since the earliest witnesses of the family are dated to the ninth century, the family represents a text two-hundred years older than its material members.

Part of Chapter six is devoted to looking more closely at whether GA 0150 and GA 2110 are exemplar and copy. Additional minor readings are examined, and all marginal notes in each manuscript from Romans 13–1 Corinthians 4 are compared. GA 0150 seems to demonstrate a stronger tendency toward earlier readings, but this is only true in minor readings. There is also a little text content in GA 0150 that is lacking in GA 2110. With no positive evidence that they are exemplar and copy combined with contrary evidence, we can finally conclude that they are not copy and exemplar. The type of relationship that best describes the two witnesses is that of two siblings of a common parent or grandparent.

The second half of Chapter six is given to the second of the additional research questions, related to the relationship of the scholia. I transcribed the scholia in GA 0150 for Romans 13–15 then collated the other two family members plus GA 0151. When comparing scholia, the degree to which GA 0151 is distantly related is greatly diminished even if GA 0151 often disagrees with a reading shared by GA 0150, GA 2110, and GA 1506. When considering the scholia, GA 0150 and GA 2110 have a near identical text and neither can be shown to have more prior readings than the other. The relationship of GA 1506 to the other two family members is demonstrably posterior, but only slightly. Therefore, the shape of relationships remains the same whether one compares the scholia or lemmata, but all differences are muted when comparing the scholia.

9.3 A Digital Contribution

In addition to the research and textual data that are an original contribution to the field of New Testament textual criticism, I have developed two major pieces of software during researching and writing on Family 0150. These software programs are discussed in Chapters seven and eight. While a different type of contribution compared to a traditional text and manuscript study, releasing this software to the field is a contribution, nonetheless. The first of these is the desktop application Criticus, which is a
suite of eleven tools for managing the input and output of existing tools, analysis, and moving from digital data to visualization in print. *Apatosaurus* is a web-based application that provides a platform for creating a TEI-compliant collation from scratch, importing it from the *Collation Editor*, setting local stemmata, applying the full set of CBGM tools, and serves as a platform for digitally publishing a critical apparatus.

9.4 Further Research

What, if any, are the relationships between the use of Paul by John of Damascus in his theological writings and his edition of Paul represented by Family 0150? Further research is needed to confirm that the quotations either match or suggest a more interesting use of multiple texts by John of Damascus.

Additionally, this study covered triple readings of the three family members, but it is now necessary to expand the study to include all places where two family members are extant. Related to this is the curious case of GA 2110, which contains lemmata and scholia by two different scribes and likely two different exemplars. A second scribe adds text intermittently and then takes over the rest of the copying in Galatians. By inspecting the intermittent sections and comparing them with GA 0150, one may be able to gain insight into the nature of the block mixture in GA 2110.

9.5 Final Remarks

Family 0150 is important because it can be located within a time period and geographically positioned. It is connected to John of Damascus and provides a rare window into a form of the text of the New Testament in use during the mid-seventh to mid-eight centuries. Additionally, it is distinctly non-Byzantine. Even if not for these reasons, it represents three nodes on the global stemma that can be confidently connected. Finally, since the archetype of the family proceeds from a single well-known theologian, citation of the Family should focus on John of Damascus. These are more akin to the commentary tradition than the direct continuous text manuscript tradition. It is strongly
suggested that when citing Rom 13–1 Cor 4 from the family text in an edition, editors use the reference for John of Damascus and apply it exclusively to these witnesses. For example, when citing John of Damascus between Rom 13–1 Cor 4, a reference such as “Dam” should refer exclusively to the family text.
Bibliography


