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# Scribal Attribution across Multiple Scripts: A Digitally Aided Approach

By Peter A. Stokes

It is well known that people at many points in history wrote (and still write) using different scripts, alphabets, and writing systems.<sup>1</sup> For most of the Middle Ages, scribes used different scripts for different purposes: the Insular script system included Half uncial, Cursive minuscule; the Gothic system included Textualis Libraria, Textualis Formata, Textualis Currens, and so on.<sup>2</sup> This practice is by no means restricted to Latin writing, however: Tibetan scribes used the more formal *dbu-can* and more cursive *dbu-med* scripts in the same documents, for example. To consider other alphabets and writing systems, Sicily and the Iberian Peninsula both abound in documents and inscriptions combining Latin, Greek, Arabic, and Hebrew; documents from the Silk Road, such as those found in the Dunhuang caves, include Chinese, Tibetan, Sogdian, Uyghur, Syriac, Hebrew, Greek, and numerous Indic scripts; documents such as Codex Mendoza contain both Latin (Spanish) and Aztec writing systems alongside each other; and, even today, modern so-called foreign-look fonts for the Latin alphabet are designed to imitate Indic, Chinese, or other writing systems.

This phenomenon of multigraphism, namely the use of different scripts, alphabets, or writing systems in the same time and place, has been studied in some detail in its social context, such as Greek and Hebrew and Greek and Egyptian; hiero-

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<sup>1</sup> The term “script” will be discussed further below. Note, however, that “script” is used throughout this article in the paleographical sense, namely to designate a graphic model of letters, somewhat like a modern font. Contrast (for example) Unicode’s rather different use, which seems closer to a set of graphemes and without reference to any particular graphic model (“A collection of letters and other written signs used to represent textual information in one or more writing systems,” s.v. “Script,” in *Glossary of Unicode Terms*, available at <http://unicode.org/glossary/#script>).

<sup>2</sup> For this terminology see T. J. Brown, “The Irish Element in the Insular System of Scripts to circa A.D. 850,” in *A Palaeographer’s View: Selected Writings of Julian Brown*, ed. Janet Bately, Michelle Brown, and Jane Roberts (London, 1993), 201–20; and Albert Derolez, *The Palaeography of Gothic Manuscript Books from the Twelfth to the Early Sixteenth Century* (Cambridge, UK, 2003); respectively.

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glyphic and cuneiform scripts from Hittite Anatolia; Hebrew additions to Latin documents, and so on.<sup>3</sup> However, as Armando Petrucci has pointed out, current paleographical theories and methods tend to assume that societies are “absolutely monographic” (*monografico assoluto*); he also argued persuasively that the difference between this and multigraphism (*multigrafismo*) is not superficial but that multigraphism requires us to rethink our theories very deeply.<sup>4</sup> He has also drawn the important distinction between “relative” multigraphism (*multigrafismo relativo*), in which two or more different scripts are used for the same alphabet, and “absolute” multigraphism (*multigrafismo assoluto*) where different alphabets or, presumably, nonalphabetic writing systems were used;<sup>5</sup> it seems likely that each requires a different approach. Although probably all paleographers recognize the existence of multigraphism, few have attempted to develop a coherent method or theory for approaching it, particularly in its “absolute” form, because of the significant methodological challenges that it brings.<sup>6</sup> A related and perhaps more manageable phenomenon, which has received somewhat more attention, is “digraphism,” which has been defined by Teresa De Robertis as the writing of different scripts at approximately the same level of expertise by a single scribe; as she is at pains to emphasize, this is not a case of one script being executed at different levels of formality, but rather of entirely different scripts.<sup>7</sup> Even the question of digraphism is challenging, however. As De

<sup>3</sup> Nicholas de Lange and Natalie Tchernetska, “Glosses in Greek Script and Language in Medieval Hebrew Manuscripts,” *Scriptorium* 68 (2014): 253–64; James K. Aitken and James Carleton Paget, eds., *The Jewish-Greek Tradition in Antiquity and the Byzantine Empire* (Cambridge, UK, 2014), with Aramaic also at 251–54; Naphtali Lewis, *Greeks in Ptolemaic Egypt: Case Studies in the Social History of the Hellenistic World* (Oxford, 1986); and Marja Vierros, “Greek or Egyptian? The Language Choice in Ptolemaic Documents from Pathyris,” in “*Et maintenant ce ne sont plus que des villages . . .*”: *Thèbes et sa région aux époques hellénistique, romaine et byzantine*, ed. Alain Delattre and Paul Heilporn (Brussels, 2008), 73–86; Massimiliano Marazzi, “Il cosiddetto geroglifico anatolico: Spunti e riflessioni per una sua definizione,” *Scrittura e Civiltà* 15 (1991): 31–125, at 47–51; Emmanuel Laroche, “L’Asie mineure: Les hittites, peuple à double écriture,” in *Histoire et art de l’écriture*, ed. Marcel Cohen and Jérôme Peignot (Paris, 2005), 556–70; Judith Olszowy-Schlanger, *Hebrew and Hebrew-Latin Documents from Medieval England: A Diplomatic and Palaeographic Study*, Monumenta Palaeographica Medii Aevi: Series Hebraica (Turnhout, 2016).

<sup>4</sup> Armando Petrucci, “Funzione della scrittura e terminologia paleografica,” in *Palaeographica, diplomatica et archivistica: Studi in onore di Giulio Battelli* (Rome, 1979), 1:1–30, at 21–23.

<sup>5</sup> Armando Petrucci, “Digrafismo e bilettrismo nella storia del libro,” *Syntagma: Revista del Instituto de Historia del Libro y de la Lectura* 1 (2005): 53–75, at 53.

<sup>6</sup> See, however, Guglielmo Cavallo, “Écriture grecque et écriture latine en situation de ‘multigrafismo assoluto,’” in *L’écriture: Le cerveau, l’œil et la main: Actes du colloque international du Centre National de la Recherche Scientifique, Paris, Collège de France, le 2, 3 et 4 mai 1988.*, ed. C. Sirat, J. Irgoin, and E. Pouille (Turnhout, 1990), 349–62, at 362; and a brief reference by Marc H. Smith, “Les ‘gothiques documentaires’: Un carrefour dans l’histoire de l’écriture latine,” *Archiv für Diplomatik* 50 (2004): 417–65, at 429.

<sup>7</sup> Teresa De Robertis, “Digrafia nel Trecento: Andrea Lancia e Francesco di ser Nardo da Barberino,” *Medioevo e Rinascimento* 26 (2012): 221–35, at 223. See also De Robertis, “Una mano tante scritture: Problemi di metodo nell’identificazione degli autografi,” in *Medieval Autograph Manuscripts: Proceedings of the XVIIth Colloquium of the Comité international de paléographie latine*, ed. Nataša Golob (Turnhout, 2013), 17–38, at 17; and Irene Ceccherini, “Poligrafia nel Quattrocento: Sozomeno da Pistoia,” *Medioevo e Rinascimento* 26 (2012): 237–51, at 237 (citing De Robertis, “Digrafia”); see also Petrucci, “Digrafismo e bilettrismo,” 53. This same phenomenon is called “polygraphism” by Thomas Dewartes: “[n]ous utilisons ce néologisme, afin de désigner la capacité à maîtriser plusieurs écritures”: “Polygraphisme et mixité graphique: Note sur les additions d’Arias (1060–1070) dans l’*Anti-Speculum* 92/S1 (October 2017)

Robertis has reminded us, most paleographical discussion of scribal attribution assumes that we are trying to distinguish two scribes writing very similar scripts, rather than identifying one scribe writing very different scripts, and this change in perspective raises some fundamental questions about what we should be looking for.<sup>8</sup> How can we determine if two specimens of writing, each in different scripts or writing systems, were written by the same scribe? The question of scribal attribution is challenging enough even with the same script, but when different scripts are involved the problems multiply.<sup>9</sup> When comparing a *precissa* script with a *cursiva*, for instance, not only are the strokes and pen movements very different, but so also is the cut of the pen itself, and this in turn further alters the writing very significantly. Similarly, in the Middle Ages Greek and Arabic were typically written with much thinner pens and much less contrast between thick and thin strokes than was the case for Latin, even in the same manuscript, as is clearly visible in (for instance) a twelfth-century trilingual psalter from Palermo, which is now preserved in the British Library;<sup>10</sup> trying to establish how many scribes were involved in a manuscript like this is very difficult indeed.<sup>11</sup> There have been some important discussions here, but there does still seem to be some way to go before we have a clear method in place.<sup>12</sup> One new direction in which we might turn is the digital: recent developments in computer simulation of handwriting might begin to show how an individual's hand changes according to pen cut and direction, for example, but such work in this context looks some way off.<sup>13</sup> Similarly, techniques in image processing and machine learning are "script agnostic" in principle and have successfully been applied to writing in entirely different alphabets and writing systems, but to my knowledge they have been applied only to one system at a time and have not yet been effective in identifying a single scribe writing entirely different scripts; and even the former simpler case is not without its difficulties, although rapid progress is being made.<sup>14</sup> Instead, this article will propose a

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phonaire de León," *Territorio, Sociedad y Poder: Revista de Estudios Medievales* 8 (2013): 67–84, at 70 n. 7. In contrast, De Robertis and Ceccherini use "polygraphism" and "multigraphism" interchangeably but in a different sense that does not seem useful here: see De Robertis, "Una mano," 31 and De Robertis, "Digrafia," 229. In an attempt to avoid confusion, the discussion here will use "multigraphism" in Petrucci's sense and "digraphism" following De Robertis; "polygraphism" will be avoided.

<sup>8</sup> De Robertis, "Una mano," 17–18. Compare also Ceccherini, "Poligrafia nel Quattrocento," 238.

<sup>9</sup> For a survey of just some of the many discussions of attribution with the same script, see Peter A. Stokes, "Computer-Aided Palaeography: Present and Future," in *Kodikologie und Paläographie im digitalen Zeitalter—Codicology and Palaeography in the Digital Age*, ed. Malte Rehbein, Patrick Sahle, and Torsten Schassan (Norderstedt, 2009), 309–38, at 310–19.

<sup>10</sup> London, British Library, MS Harley 5786. A digital facsimile of the complete manuscript is available online at [http://www.bl.uk/manuscripts/FullDisplay.aspx?ref=harley\\_ms\\_5786](http://www.bl.uk/manuscripts/FullDisplay.aspx?ref=harley_ms_5786).

<sup>11</sup> Judith Olszowy-Schlanger and Patricia Stirneman, "The Twelfth-Century Trilingual Psalter in Leiden," *Scripta: An International Journal of Codicology and Palaeography* 1 (2008): 103–12, at 106–7.

<sup>12</sup> For these discussions see n. 8, above, but especially De Robertis, "Una mano," 35–38.

<sup>13</sup> One such example is Vinodh Rajan Sampath, "Quantifying Scribal Behaviour: A Novel Approach to Digital Paleography." PhD diss., University of St Andrews, 2016, available online at <https://research-repository.st-andrews.ac.uk/handle/10023/9429>.

<sup>14</sup> For some of the challenges see Stokes, "Computer-Aided Palaeography"; Peter A. Stokes, "Digital Approaches to Palaeography and Book History: Some Challenges, Present and Future," *Frontiers in Digital Humanities* 2/5 (2015), doi:10.3389/fdigh.2015.00005; and Tal Hassner, Malte Rehbein, Peter A. Stokes, and Lior Wolf, eds., "Computation and Palaeography: Potentials and Limits," *Dagstuhl Manifestos* 2 (2013): 14–35, doi:10.4230/DagMan.2.1.14.

different approach, one that attempts to draw on the rigor and precision of terminology and modeling that digital methods bring and to combine these with existing “nondigital” paleographical discussion and theory. The result of this discussion will certainly not be an answer to the question of multigraphism (if indeed there is such a thing), or even necessarily of digraphism, but it will offer some theoretical and practical steps towards a framework within which this work can usefully progress.

In terms of method, a useful starting point seems to be that of the DigiPal project and the subsequent work that has built on it.<sup>15</sup> A key outcome of this project was a new method for describing handwriting, one which used conceptual modeling and semantic labels that paleographers could understand while still providing sufficient rigor to significantly reduce ambiguity and allow the descriptions to be stored, searched, and communicated effectively by computer.<sup>16</sup> The method has been implemented in a generic digital framework, but it does not involve automated detection of letters: rather it relies on users selecting those examples of letters which they consider to be significant, and then applying descriptive labels to those letters in ways that are meaningful for the given script and research questions under consideration. This approach avoids the well-known problems of paleographical terminology by keeping these descriptions customizable according to the given implementation:<sup>17</sup> it is up to the researcher(s) to decide what forms and features are

<sup>15</sup> The DigiPal project ran from 2010–14 and was funded by the European Research Council (for full details see the acknowledgements to this article). Two important outcomes of the project were the DigiPal Framework, which is the generic software developed by the Department of Digital Humanities at King’s College London and available at <https://github.com/kcl-ddh/digipal>. The software and underlying method has been used numerous times to create websites, as discussed below; one of these, applied to eleventh-century Anglo-Saxon script, is the DigiPal website at <http://www.digipal.eu>. Since 2014 the Framework has been extended further, particularly through the Models of Authority and Conqueror’s Commissioners projects funded by the UK Arts and Humanities Research Council (for which see the acknowledgements once again). The websites for these two projects, including further instances of the (extended) DigiPal Framework, are <http://www.modelsofauthority.ac.uk/> and <http://www.exondomesday.ac.uk/>, respectively.

<sup>16</sup> Peter A. Stokes, “Modeling Medieval Handwriting: A New Approach to Digital Palaeography,” in *DH2012 Book of Abstracts*, ed. Jan Christoph Meister et al. (Hamburg, 2012), 382–85, available at <http://www.dh2012.uni-hamburg.de/conference/programme/abstracts/modeling-medieval-handwriting-a-new-approach-to-digital-palaeography>; Tessa Webber, “The Handwriting of Scottish Charters 1100–1250 in the National Library of Scotland,” *Models of Authority: Scottish Charters and the Emergence of Authority 1100–1250* (London, 2015), available at <http://www.modelsofauthority.ac.uk/blog/handwriting/>.

<sup>17</sup> The literature on challenges in paleographical terminology is vast. For a selection regarding Latin script, see Armando Petrucci, *La descrizione del manoscritto: Storia, problemi, modelli*, 2nd ed. (Rome, 2001), 70–71; Derolez, *Palaeography of Gothic Manuscript Books*, 13–17; Albert Derolez, “The Publications Sponsored by the Comité international de paléographie latine,” Comité international de paléographie latine (2003), available at <http://www.palaeographia.org/cipl/derolez.htm>; and Elaine M. Treharne, “Medieval Manuscripts: The Good, the Bad, the Ugly,” in *The Genesis of Texts: Essays in Honour of A. N. Doane*, ed. M. T. Hussey and J. D. Niles (Turnhout, 2012), 265–87. For Arabic, see the bibliography provided by Adam Gacek, *The Arabic Manuscript Tradition: A Glossary of Technical Terms and Bibliography* (Leiden, 2001), 221–24, and esp. Paola Orsatti, “Gli studi di paleografia araba oggi: Problemi e metodi,” *Scrittura e Civiltà* 14 (1990): 281–331, at 300–312; for Greek, Guglielmo Cavallo, “Methoden der Schriftbeschreibung in der griechischen Paläographie,” in *Methoden der Schriftbeschreibung*, ed. Peter Rück (Stuttgart, 1999), 17–20; and Daniele Bianconi, “Greek Palaeography,” in *Comparative Oriental Manuscript Studies*, ed. Alessandro Bausi et al. (Hamburg, 2015), 297–305, at 304–5.

described and what terms are used in describing them. For example, in DigiPal itself the allograph “Caroline h” is described in terms of two components, an “arch” and an “ascender”; the “ascender” can have various features, such as “long” or “short,” “forked” or “tapering,” and so on. For Models of Authority, however, which is a different instance of the same software applied to twelfth-century Scottish charters, the allograph h is described as having three components: an “arch,” a “limb,” and a “shaft”—and the “shaft” can have features such as “forked,” but also “looped” or “elongated.”<sup>18</sup> In other words, the framework provides a common “syntax” for the description of handwriting, within which researchers can place their own vocabularies.<sup>19</sup> This then allows asking questions such as “Show me selected examples of all letters with ascenders written by scribes from Worcester, and also those from York, and let me see how the labeled stylistic features are similar or different.”<sup>20</sup> The spirit in which this is done is not that of the computer providing definitive answers to paleographers’ questions, but rather of seeking to improve transparency and clarity of communication, evidence, and argument: goals which have been those of the paleographer for more than a century but which have come to the forefront once again with the advent of digital methods.<sup>21</sup> The ability to ask such questions and communicate the results has proven extremely effective for the detailed analytical study of handwriting, for instance by revealing close stylistic similarities between scripts from different places, which in turn indicates close cultural contact.<sup>22</sup> The flexibility in vocabulary and the absence of any need to train the software has also meant that it can be applied very easily to non-Latin writing systems and even to decoration. A PhD student supervised by the author has used the DigiPal method for Hebrew and decoration, and the method has also been applied successfully to coins and inscriptions.<sup>23</sup> The software has also been tested in small-scale “proof of concept” implementations

<sup>18</sup> For examples see [http://www.modelsofauthority.ac.uk/digipal/search/facets?allograph=h&result\\_type=graphs](http://www.modelsofauthority.ac.uk/digipal/search/facets?allograph=h&result_type=graphs).

<sup>19</sup> This use of “syntax” is inspired by Patrick Andrist, Paul Canart, and Marilena Maniaci, *La syntaxe du codex: Essai de codicologie structurale*, Bibliologia 36 (Turnhout, 2013).

<sup>20</sup> For results of this search see [http://www.digipal.eu/digipal/search/?terms=scriptorium%3AWorcester+OR+scriptorium%3AYork&component=ascender&basic\\_search\\_type=graphs&result\\_type=graphs](http://www.digipal.eu/digipal/search/?terms=scriptorium%3AWorcester+OR+scriptorium%3AYork&component=ascender&basic_search_type=graphs&result_type=graphs) (shortened URL: <http://goo.gl/D34ORS>). For some insights into using the DigiPal interface, see the project documentation “The DigiPal Framework,” available at <https://github.com/kcl-ddh/digipal/wiki>; as well as Peter A. Stokes, “Using DigiPal: A Quick Introduction to the Framework,” (London, 2015), available at <http://www.digipal.eu/blog/a-quick-introduction-to-the-digipal-framework/>; Tessa Webber, “The Handwriting of Scottish Charters”; Peter A. Stokes, “Change and Variation in Eleventh-Century Script,” in *Proceedings of the Nineteenth Colloquium of the Comité international de paléographie latine* (Berlin, forthcoming); as well as in the discussion below.

<sup>21</sup> See, for example, Stokes, “Digital Approaches”; and Hassner et al., “Computation and Palaeography,” esp. 26–27.

<sup>22</sup> Peter A. Stokes et al., “The DigiPal Framework for Script and Image,” in *Digital Humanities 2014 Book of Abstracts* (Lausanne, 2014), 512–14, available at <http://dharchive.org/paper/DH2014/Poster-193.xml> (abstract) and [http://www.digipal.eu/media/uploads/uploads/images/blog\\_posts/2014/DH2014 Poster.pdf](http://www.digipal.eu/media/uploads/uploads/images/blog_posts/2014/DH2014%20Poster.pdf) (poster).

<sup>23</sup> The application to Hebrew is by Debora Marques de Matos and is described by Stewart Brookes, Peter A. Stokes, Matilda Watson, and Debora Marques de Matos, “The DigiPal Project for European Scripts and Decorations,” in *Writing Europe 500–1450: Texts and Contexts*, ed. Aidan Conti, Orietta da Rold, and P. Shaw, *Essays and Studies*, n.s., 68 (2015): 25–58; the coins are by Florence Codine, “Polices de caractères et inscriptions monétaires: Le projet PIM,” *Document numérique* 16 (2013): 69–79.



for Chinese, Arabic, and Cuneiform as well as modern draft manuscripts. In total, the method and framework are now being used in fourteen different research projects, to date, and the approach has had a very wide impact on paleography as a whole.<sup>24</sup> Furthermore, the use of a common “syntax” in these descriptions provides substantial flexibility in application but still raises the very real possibility of cross comparison: as long as terms in one vocabulary can be mapped more or less directly to terms in another, it follows that comparisons across the two (or more) instances can be applied. A method such as this that appears to allow at least partial comparison between different scripts suggests promise in addressing questions of digraphism and the attribution of different scripts to a single scribe.

In order to develop a method and test its effectiveness, it is always useful to apply it to a corpus, and for this we turn to the manuscripts and particularly charters of late Anglo-Saxon England. These materials are very well studied and the corpus clearly defined; it also constitutes a clear case of “relative” multigraphism and contains numerous identified examples of digraphism.<sup>25</sup> Specifically, scribes in this period wrote both Caroline and Vernacular minuscule, the former normally used for writing in Latin and the latter for Old English.<sup>26</sup> In addition to these—and rather less studied—are majuscule letters, which were used at the start of sentences (as in modern English) and also in headings, often for personal names, and occasionally in blocks of text and even marginal additions. Scribes typically used forms close to those of Rustic capitals, although some scribes wrote clearly distinguished Square capitals, Rustic capitals, and Uncial; others produced more “mixed” majuscules, combining forms from two or even all three majuscule scripts with little distinction.<sup>27</sup> A significant part of the corpus has already been analyzed in a public instance of the DigiPal framework, and the resulting website includes over 950 images of writing, predominantly in Vernacular minuscule but also including some Caroline script and, incidentally, capital letters (primarily Rustic capitals). Over 62,000 images of letters on the page have been annotated and are available for search, and recent additions to the database include some examples of Caroline and various majuscule letters, particularly when those were clearly written by scribes who also wrote Vernacular minuscule. Indeed, within this corpus the set of diplomas consti-

<sup>24</sup> Most of these projects are listed by Stokes et al., “DigiPal Framework.”

<sup>25</sup> Neil R. Ker, *Catalogue of Manuscripts Containing Anglo-Saxon* (Oxford, 1957); Helmut Gneuss, *Handlist of Anglo-Saxon Manuscripts: A List of Manuscripts and Manuscript Fragments Written or Owned in England up to 1100* (Tempe, AZ, 2001); Peter H. Sawyer, ed., *Anglo-Saxon Charters: An Annotated List and Bibliography* (London, 1968); Sawyer et al., *Electronic Sawyer: A Revised Catalogue of Anglo-Saxon Charters* (London, 2010), available at <http://www.esawyer.org.uk>; DigiPal: Digital Resource and Database of Palaeography, Manuscripts and Diplomatic (London, 2010–14), available at <http://www.digipal.eu/>.

<sup>26</sup> For detailed discussion of these scripts, see T. A. M. Bishop, *English Caroline Minuscule* (Oxford, 1971); D. N. Dumville, *English Caroline Script and Monastic History: Studies in Benedictinism A.D. 950–1030* (Woodbridge, 1993); and Peter A. Stokes, *English Vernacular Minuscule from Æthelred to Cnut, c. 990–c. 1035* (Cambridge, UK, 2014). Handlists of scribes identified as writing in English are published by Donald Scragg, *A Conspectus of Scribal Hands Writing English, 960–1100* (Cambridge, UK, 2012); Stokes, *English Vernacular Minuscule*; and DigiPal: Digital Resource.

<sup>27</sup> More details of these capital scripts can be found in standard introductions to paleography, such as Bernhard Bischoff, *Latin Palaeography: Antiquity and the Middle Ages*, transl. Dáibhí Ó Cróinín and David Ganz (Cambridge, UK, 1990), at 55–61 and 66–72.

tutes a particularly rich source for digraphism, since they were normally written in both Caroline minuscule and English Vernacular minuscule, with differentiated script for boundary clauses, and also often with important names of people or places written entirely in Rustic capitals or mixed majuscules. It also seems clear that the vast majority of these documents were written by single scribes: the risk of circularity in argument is always present here, but they have been studied in great detail by many paleographers and historians over many years and, apart from the odd specific exception, the general principle that the documents were normally written by a single scribe has not been challenged. Although by no means a complete representation of the surviving corpus then—and, of course, the surviving corpus is by no means necessarily representative of what was produced in the eleventh century—nevertheless this constitutes a significant body of evidence from which to begin.

Before proceeding further, however, our consideration of this corpus raises one fundamental question that is pertinent to any discussion of multi- or digraphism. What exactly do we mean by “script”? When do we have two different scripts and when variations of the same script, for instance with different levels of formality or speed of execution? How different must scribal production be before being considered “multigraphic”? Specifically here there is some debate whether Caroline minuscule and English Vernacular minuscule constitute different scripts at all or whether they are simply variant allographs within the same script.<sup>28</sup> For anglophone paleography the standard definition of “script” is typically that of Malcolm Parkes: “an alphabet regarded by many contemporary scribes as a suitable model, or, more frequently, a precedent, which each scribe had in his mind’s eye when he produced his own rendering of it on the page.”<sup>29</sup> Script, in other words, is a model that may show variation in execution but which must be shared by a community of scribes. To take this further, Malcolm Parkes’s distinction between “essential elements” and “elements of style” is useful here. Parkes defined “essential elements” as “those characteristics of a letter shape, which enable a reader to distinguish one letter from another,” and indeed this definition often equates to the “components” in DigiPal’s terminology as described above. In contrast are Parkes’s “graphic ideas” and the related “elements of style” that are not as clearly defined but which are very similar to DigiPal’s “features” and incorporate those additional forms such as wedges, serifs, and other “elements . . . [that] embellish details in the components of a letter shape.”<sup>30</sup> In general, then, whereas the essential elements that make up different letters and indeed allographs are clearly different, the elements of style are normally

<sup>28</sup> For further discussion of this question, see Peter A. Stokes, “Rule and Variation in Eleventh-Century Minuscule Script,” in *Ruling the Script: Formal Aspects of Medieval Written Communication*, ed. Sebastien Barret, Dominique Stutzmann, and Georg Vogeler (Turnhout, 2016), 485–504; and Erik Kwakkel, review of Stokes, *English Vernacular Minuscule*, *Speculum* 91 (2016): 561–62.

<sup>29</sup> M. B. Parkes, *Their Hands before Our Eyes: A Closer Look at Scribes* (Aldershot, 2008), 154. Compare also the similar but perhaps rather stronger definition by De Robertis, “Digrafia,” 223: “non gradazioni della medesima scrittura (ad esempio una *littera textualis* di altissima formalità accanto a una sua versione dimessa o disgregata). Intendo scritture che sono differenti per struttura e/o per sistema, a prima vista inconciliabili e non riconducibili ad una stessa mano.”

<sup>30</sup> Parkes, *Their Hands*, 152–53: “Graphic ideas: for example, the choice of module, ratio of nib-width to minim height, variant forms borrowed from different scripts and, especially, the exploitation of particular elements or resources of style to embellish components of letter shapes, in order to enhance the image of a scribe’s handwriting on the page.”



consistent across allographs in a given script and give that script its coherence. For example, *m* is made up of three minim strokes, whereas *r* has a minim and a hook, to use one possible terminology; but the minims in both letters in the same script would normally show the same features of style, for instance a wedge at the top and a foot on the bottom. Granted there may be some variation here depending on factors like the ability of the scribe and the care and speed in execution, but the model behind the writing can still be determined. Returning to our Anglo-Saxon scribes, they consistently used different allographs when writing English and Latin, with the same usage being common across almost all scribes of the period; in other words, for some cases the “components” or “essential elements” used to construct a given letter (or, more precisely, grapheme) were different when writing Caroline compared to English Vernacular minuscule; but that variation was consistent and determined by clear principles that were shared by the community of scribes. Furthermore, some of the “features” or “elements of style” were also different, such as the consistent use of wedges on ascenders when writing the vernacular but tapering tops on ascenders when writing Latin; these differences were again consistent both within and between different texts copied by a given scribe (allowing for occasional examples of hybridity or variation in execution). This consistent and surely conscious distinction in both “essential elements” and “elements of style” indicates that the scribes had two different models “in [their] mind’s eye” and that these differences were shared by that community; it is therefore argued here that they were writing different (if similar) scripts.<sup>31</sup> Similarly, as will be discussed further below, Anglo-Saxon scribes used Rustic or Uncial capital letters after major punctuation and for proper nouns in a way very similar to modern conventions. Here again, the “graphic ideas” applied to the capitals are typically different from those of the minuscule letters, and indeed there (normally) appears to be a conscious difference between Rustic and Uncial forms of the same letter; this therefore implies that the capital letters form a different script (or scripts) from the minuscule one(s). In contrast to this are examples such as those found in the Codex Bezae, Cambridge, University Library, MS Nn.2.41. This contains writing in both Greek and Latin, but the “graphic ideas” applied to the writing in both languages are the same: an ascender in Greek is written in the same way as an ascender in Latin, with the same length, decoration, and so on.<sup>32</sup> Allographs that have the same “essential elements” in Greek and Latin, such as Greek omicron and Latin *o*, are therefore indistinguishable, and this in turn suggests that the scribe’s image “in mind’s eye” is the same and so therefore is the script.<sup>33</sup>

Returning to digraphism and questions of attribution, Parkes’s distinction between “essential” and “graphic” elements is helpful here too. If we are lucky then we may be able to find forms that are common to both scripts. The extreme form of this is what Thomas Dewartes has called “graphic mixing” (*mixité graphique*),

<sup>31</sup> This argument is followed by Stokes, *English Vernacular Minuscule*; and (by implication) Bishop, *English Caroline Script*; and Dumville, *English Caroline Script*. For an alternative suggestion and further discussion see the references in n. 29, above.

<sup>32</sup> For a full facsimile and discussion of the script, see “MS Nn.2.41,” University of Cambridge Digital Library (Cambridge, 2012), available at <http://cudl.lib.cam.ac.uk/view/MS-NN-00002-00041/>.

<sup>33</sup> Note parallels with Armando Petrucci’s distinction between two different types of multigraphism: the Anglo-Saxon example is comparable to “relative” multigraphism and the Greek/Latin manuscript to the “absolute.”

namely when scribes do not maintain the distinction between scripts but mix forms from different scripts in the same word or phrase;<sup>34</sup> scribes who do this are not necessarily digraphic, since they may only know one (hybrid) script, though this hybridity does suggest that they are working in a multigraphic context. Even skilled digraphic scribes may sometimes “slip up” and introduce forms from other scripts, and these can be important clues for establishing identity because they give clear points of comparison and the analysis is relatively straightforward.<sup>35</sup> Often, however, this is not the case, and indeed Dewartes’s analysis suggests that at least in his case. One striking example of this is discussed by Theresa De Robertis regarding fourteenth- and fifteenth-century scribes and the range of scripts that they demonstrably used.<sup>36</sup> As she has shown, most of the typical points of paleographical comparison do not straightforwardly hold in this context. In Parkes’s terms, the essential elements of letters are clearly different, for example between minuscule *a* and majuscule *A*, and so comparison at this structural level is not helpful. Similarly, however, the scripts in the Gothic system vary in terms of their graphic ideas since features such as the treatment of loops on ascenders or feet on minims, the angle of the pen, and weight of the script are an essential part of the difference between a Gothic Textualis and Cursiva, and so on. Using Parkes’s terminology again, in these examples neither essential nor graphic elements provide points of comparison. De Robertis has suggested that the internal characteristics of the text may prove helpful here, as well as very specifically idiosyncratic use of allographs; the latter would need to be determined on a case-by-case basis, however, and the former would rarely transfer across language if the scribe is working in a multilingual context. If one cannot find such footholds, so to speak, then she proposes that one must rely on nonpaleographical information to make such assertions, although she does leave open the door to a paleographical approach by noting that the trained eye can sometimes intuit scribal identity in such cases.<sup>37</sup>

In the late Anglo-Saxon context, the scripts are relatively similar, as discussed above. Regarding Caroline and English Vernacular minuscule, the essential elements in some letters vary between the two scripts: specifically, in *a*, *d*, *f*, *g*, *h*, *r*, and *s*. However, in all clear examples of the same Anglo-Saxon scribe writing both scripts, the elements of style and indeed the graphic ideas are identical, with the exception only of the treatment of the tops of ascenders and sometimes of descenders.<sup>38</sup> This has several important consequences. One is that scribes seem to have considered the

<sup>34</sup> For this definition see Dewartes, “Polygraphisme,” 70.

<sup>35</sup> Examples of this include Dewartes, “Polygraphisme,” esp. 72–78; Ceccherini, “Poligrafia nel Quattrocento”; and, for questions not of scribal identity but of the use of scripts, Stokes, “Rule and Variation”; and Peter A. Stokes, “The Problem of Grade in Post-Conquest Vernacular Minuscule,” *New Medieval Literatures* 13 (2011): 23–47.

<sup>36</sup> De Robertis, “Una mano.”

<sup>37</sup> *Ibid.*, 36. Cf. also the assertion by Collete Sirat that “[i]t is obvious that one cannot prove that two texts were penned by the same hand. The only way to persuade other people that this is so is to show them, to give them the feeling that it is the same hand”: *Writing as Handwork: A History of Handwriting in Mediterranean and Western Culture* (Turnhout, 2006), 493.

<sup>38</sup> For this stylistic similarity, see further Peter A. Stokes, “Rule and Variation”; for discussion of the treatment of descenders, see Peter A. Stokes, “Change and Variation in Eleventh-Century English Script,” in *Change in Medieval and Renaissance Scripts and Manuscripts*, ed. Martin Schubert and Eef Overgaauw (Turnhout, forthcoming).

scripts to have had no inherent difference in register, implying in turn that Latin may not necessarily have been perceived to be “higher” than Old English;<sup>39</sup> this is unlike the digraphic cases studied by De Robertis, Irene Ceccherini, and Dewartes.<sup>40</sup> More relevant to this discussion is that there appear to be no specific difficulties in identifying scribes even when they are writing different scripts in different manuscripts: there are enough points of comparison that the approach outlined above still holds. Rather more challenging is the comparison between majuscule and minuscule writing. Clearly the essential elements are very different in this case: indeed, the differences are such that very few elements are common to both. Potentially more similar are the graphic ideas, elements of style, such as wedges, which seem to be common at least between some forms of Rustic capitals and Vernacular minuscule in a late Anglo-Saxon context. However, this hypothesis remains to be tested. How common are the graphic ideas across majuscule and minuscule scripts in this context? And can one identify “components” in the DigiPal sense, such as ascenders, shafts, or bowls, which are common across both sets of letter forms? Are scribes consistent in this respect? All these questions are important in identifying what can and cannot be compared in a digraphic context.

Examining the corpus does reveal significant patterns in the formation of letters across scripts. In some cases, the commonality of elements of style seems very clear. Searching the DigiPal database for examples of majuscule and minuscule letters with wedges by the same scribe, for instance, reveals numerous instances where those wedges have identical shapes in all cases, with the same angles and size, and clearly written with the same pen (or cut of pen) held at the same angle. This is particularly striking as the corpus is known for showing a great deal of variation between different specimens of script, even within the same manuscript or document, and so close similarity is normally considered strong evidence for scribal identity.<sup>41</sup> A particularly clear example is the scribe of two surviving documents, London, British Library, Stowe Charter 34 and Oxford, Bodleian Library, Eng.hist. a.2, no. XIII.<sup>42</sup> The former is a royal diploma, dated to 997, issued by King Æthelred to Æthelwold, bishop of Crediton, and appears to be an original document but was probably written by a scribe from Crediton perhaps after the events that it records.<sup>43</sup> The second document is the vernacular will of Bishop Ælfwold and is datable to

<sup>39</sup> For this discussion, see further Stokes, “Rule and Variation”; and Stokes, “The Problem of Grade.”

<sup>40</sup> A point made explicitly by Dewartes, “Polygraphisme,” 81.

<sup>41</sup> This is discussed, *inter alii*, by Stokes, “Rule and Variation”; and Stokes, “The Problem of Grade.”

<sup>42</sup> The first of these is reproduced as DigiPal image no. 171, <http://www.digipal.eu/digipal/page/171/>; the second in Simon Keynes, *Facsimiles of Anglo-Saxon Charters* (London, 1991), no. 18; and a sample of graphs from both is reproduced by Stokes, *English Vernacular Minuscule*, 274 figure 7. For discussion of the documents see Stokes, *English Vernacular Minuscule*, 62–63; and for the script, 139; the former summarizes Pierre Chaplais, “The Origin and Authenticity of the Royal Anglo-Saxon Diploma,” in *Prisca Munimenta: Studies in Archival and Administrative History Presented to Dr A. E. J. Hollaender*, ed. F. Ranger (London, 1973), 28–42, at 42; Keynes, *Facsimiles*, 6; Simon Keynes, *The Diplomas of King Æthelred “The Unready”, 978–1016: A Study in Their Use as Historical Evidence* (Cambridge, UK, 1980), 121 n. 123; Pierre Chaplais, *Essays in Medieval Diplomacy and Administration* (London, 1981), xv, “Addendum;” and Pierre Chaplais, “The Royal Anglo-Saxon ‘Chancery’ of the Tenth Century Revisited,” in *Studies in Medieval History Presented to R. H. C. Davis*, ed. Henry Mayr-Harting and Robert I. Moore (London, 1985), 41–51, at 45.

<sup>43</sup> Electronic Sawyer, no. 890, <http://www.esawyer.org.uk/charter/890.html>.

1008 × 1012.<sup>44</sup> The Latin material of the royal diploma was written using the tapered ascenders that were typical of the “purer” forms of Anglo-Caroline minuscule of that date, and the scribe also used triangular wedges for the serifs of ascenders, when writing the vernacular boundary clauses and the vernacular will, and of minims in all scripts. The minuscule scripts have been discussed before, but the majuscule letters have received much less attention.<sup>45</sup> The scribe was consistent in his use and production of capitals. The vernacular writ contains only minuscule forms, except for an initial **P** at the start of the document and the occasional enlarged minuscule **a** at the start of some names. However, as was common for the time, the royal diploma included capitals at the start of sections and for prominent names, such as that of the beneficiary. The scribe normally used Rustic forms for these but employed Uncial ones to highlight changes in section, such as the Latin preface to the witness list, and indeed for the first column of the witnesses themselves. Furthermore, his production of all the letters themselves is very consistent, with the pen held at the same angle, the strokes being formed in the same way, and so on. Indeed, when the DigiPal framework is used to scale the script of the Latin main text and the vernacular boundary clauses, it is striking how similar the forms are of those letters such as **m** and **n**, which do not vary between scripts despite the change in pen size, as illustrated in Fig. 1, below.<sup>46</sup> Importantly, however, the Rustic capital letters also show triangular wedges, and once again these are formed in precisely the same way as those of the ascenders and minims in the Vernacular minuscule. This can be demonstrated by examining samples of such graphs from the DigiPal database, as illustrated in Fig. 2, and indeed by overlaying them on one another to emphasize the point still further, as shown in video 1 (available in the version of this article online at <https://doi.org/10.1086/693968>).<sup>47</sup>

Another different but comparable example of this is in the work of the scribe known as Eadwig Basan.<sup>48</sup> His case is slightly more difficult, because unlike the scribe of the Crediton documents, Eadwig did not use wedges on the ascenders of Vernacular minuscule. Indeed, from about the second quarter of the eleventh century onwards, Anglo-Saxon scribes distinguished their treatment of ascenders and descenders in the two forms of minuscule script: writing in the vernacular typically showed forking at the tops as opposed to tapering forms when writing Latin. Sim-

<sup>44</sup> Electronic Sawyer, no. 1492, <http://www.esawyer.org.uk/charter/1492.html>.

<sup>45</sup> For the minuscule see Chaplais, “The Royal Anglo-Saxon ‘Chancery,’” 45; Ker, *Catalogue*, xxxii; Dumville, *English Caroline Script*, 24; and Stokes, *English Vernacular Minuscule*, 139. The majuscule has been discussed by Susan Thompson, *Anglo-Saxon Royal Diplomas: A Palaeography* (Woodbridge, 2006), at 21 and following.

<sup>46</sup> See Stokes, “Rule and Variation,” and DigiPal, “Stowe Ch. 34,” [http://www.digipal.eu/digipal/search/?terms=Stowe+Ch.+34&basic\\_search\\_type=graphs](http://www.digipal.eu/digipal/search/?terms=Stowe+Ch.+34&basic_search_type=graphs). This should be compared with annotated forms by other scribes in the corpus; for example, DigiPal > “Search” > “Character: **m**,” [http://www.digipal.eu/digipal/search/?result\\_type=graphs&view=ggrid&character=m](http://www.digipal.eu/digipal/search/?result_type=graphs&view=ggrid&character=m).

<sup>47</sup> “Graph” is used here in the technical sense of a given instance of the letter on the page, as opposed to an allograph (a particular form of the letter), grapheme, and so on. For fuller discussion of these terms see (for instance) Tom Davis, “The Practice of Handwriting Identification,” *The Library*, 7th ser., 8 (2007): 251–76, at 254–55. Once again, the wedges can be compared and contrasted with other samples in the database: see DigiPal > “Search” > “Feature: wedged,” [http://www.digipal.eu/digipal/search/?result\\_type=graphs&view=ggrid&feature=wedged](http://www.digipal.eu/digipal/search/?result_type=graphs&view=ggrid&feature=wedged).

<sup>48</sup> See also Stokes, “Change and Variation.”

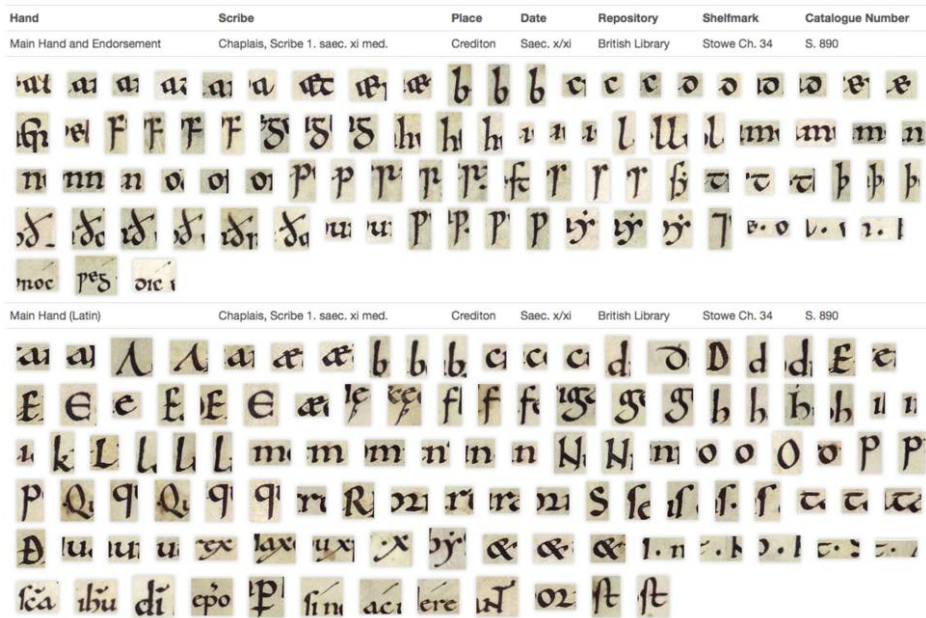


Fig. 1. Sample of results of search in DigiPal framework for graphs by Chaplais’s “Scribe 1.”<sup>49</sup>

ilarly, descenders of **p** and **q** were normally straight and often with a small serif at the foot, as opposed to those letters that had ascenders only in the Vernacular allographs (**f**, **r**, **wynn**, and some forms of **s**), in which case they were typically curved to the left.<sup>50</sup> In contrast, Rustic capitals were normally written with the now “old-fashioned” wedges, and Square capitals often with horizontal approach strokes. Despite these differences in elements of style, because Eadwig’s writing was so very consistent we can instead find very close parallels in the essential elements. For example, the stroke of the lower bowl of minuscule **b** and Rustic **B** are identical in the cut, angle, and curve of the pen, as becomes evident if one uses the Lightbox feature in the DigiPal framework to manipulate the images and overlay one on top of the other (see Fig. 3 and the associated video 2,<sup>51</sup> available in the version of this article online at <https://doi.org/10.1086/693968>). Similarly, in both Eadwig’s writing and that of the Crediton documents, strokes such as the ascenders in minuscule script and the vertical in allographs, such as Rustic capital **D**, are again identical in angle, width, and so on. Comparisons can also be made between Eadwig’s “regular” script and the altered script with which he wrote the boundary clauses of charters: by digitally expanding the smaller script and then overlaying the two, the strokes can again

<sup>49</sup> Reproduced from DigiPal > “Search” > “Chaplais, Scribe 1,” [http://www.digipal.eu/digipal/search/?terms=Chaplais,+Scribe+1&result\\_type=graphs&s=1&basic\\_search\\_type=graphs&page=1&pgs=100](http://www.digipal.eu/digipal/search/?terms=Chaplais,+Scribe+1&result_type=graphs&s=1&basic_search_type=graphs&page=1&pgs=100).

<sup>50</sup> For further discussion of the treatment of descenders see Stokes, “Change and Variation.”

<sup>51</sup> DigiPal Lightbox, [http://www.digipal.eu/lightbox/?annotations=\[68108,68113,68104,11854,11853,11875,11873\]](http://www.digipal.eu/lightbox/?annotations=[68108,68113,68104,11854,11853,11875,11873]).



## Search: Graphs (20)

Advanced Search



Fig. 2. Results of DigiPal search for majuscule letters selected from London, British Library, Stowe Ch. 34.<sup>52</sup>

be seen to be almost precisely identical, the difference being in the altered proportions (with ascenders and descenders very much longer in the boundary clauses). Once again this can be compared and contrasted with other annotated graphs in the corpus to demonstrate just how close Eadwig's forms are to one another, and how distinct these are from those by other scribes. The important details here are therefore in the essential elements more than in the elements of style.

In cases like these, then, namely eleventh-century English in which (at least) three different scripts were used, we can find enough similarities between them that we could have identified the scribe relatively easily even if the scripts were entirely separate. We can link Caroline minuscule to English Vernacular minuscule based on those allographs that are the same in both scripts, and we can link English Vernacular minuscule to Rustic capitals as well as some Caroline minuscule by the comparison of wedges and foot serifs. All three are also comparable in the formation of essential elements in terms of the angles of strokes, the angle and cut of the pen, and so on.

Examples such as these seem promising and suggest a workable and relatively transparent method for identifying the same scribe writing different scripts. The discussion does have some gaps, however. As noted briefly above, both scribes also wrote other scripts beyond the three considered so far. London, British Library, Stowe Ch. 34 includes some capital letters using Uncial form, and Eadwig Basan also wrote Square capitals. These cases are significantly more difficult to identify, however. The Uncial forms were written without any wedges but instead with horizontal approach strokes, and the serifs are of a very different nature. Furthermore, although the pen may have been the same, the letter was drawn more than written: that is, rather than being composed of single strokes, elements such as the back of Uncial E, H, and P were produced with deliberately thickened strokes. An exception

<sup>52</sup> DigiPal > Faceted Search > Character Type: majuscule + "Stowe Ch. 34," [http://www.digipal.eu/digipal/search/facets/?terms="Stowe+Ch.+34" &result\\_type=graphs&view=ggrid&character\\_form=majuscule](http://www.digipal.eu/digipal/search/facets/?terms=%22Stowe+Ch.+34%22&result_type=graphs&view=ggrid&character_form=majuscule).

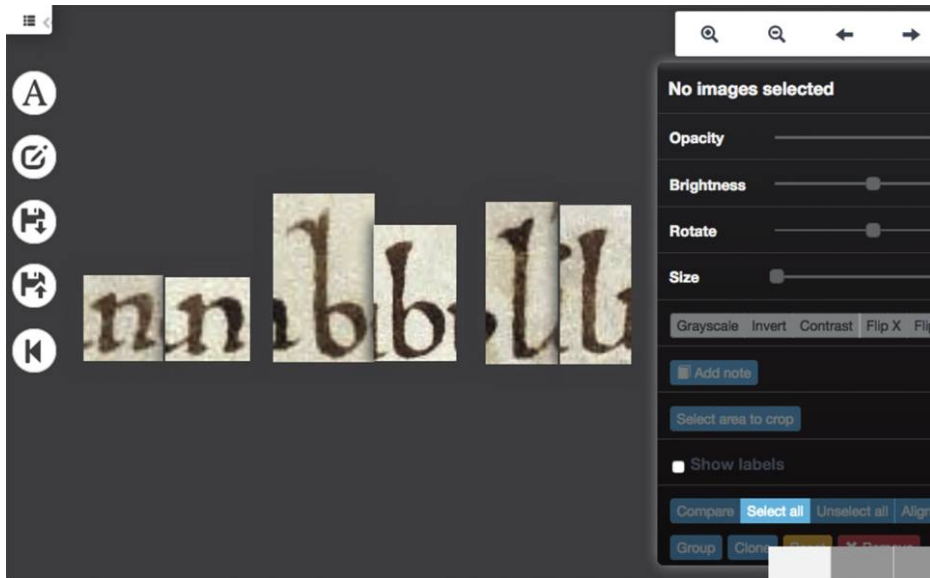


Fig. 3. Screenshot of DigiPal Lightbox with selected graphs of Eadwig Basan from London, British Library, MS Stowe Ch. 38. In each pair, the first graph is from charter bounds and the second from the main text.<sup>53</sup>

is Uncial D, which was written with the usual strokes and indeed is closely comparable to that of the round-backed minuscule d used in the Vernacula script. For the other cases, however, it is by no means obvious how such a comparison could be made.

However, the challenge goes further than this. As noted above, the examples given above from both Eadwig Basan and the Crediton documents were unusually skilled, and each scribe wrote in a highly consistent manner even across different books and documents. Although many scribes were highly trained professionals, particularly in the later Middle Ages, many others were not, and those of eleventh-century England are particularly well known in the scholarship for the degree of variation in their script both in terms of the allographs they selected and also (and especially) in their execution. This degree of variation is demonstrated particularly clearly by the DigiPal database, and some examples are illustrated in Fig. 4. This is an important consideration, because in order to identify scribes we must first consider what degree of variation is admissible in a single hand. For instance, as noted above, the specimens of handwriting that have been attributed to Eadwig Basan suggest that his handwriting is very consistent indeed; and therefore those other samples that are similar to these but show significant differences are normally argued to be by someone else. Certainly there is a degree of circularity here: the assertion that Eadwig Basan's writing is very consistent is predicated on the assumption that other samples similar to his were not in fact written by him, but in some

<sup>53</sup> DigiPal Lightbox, [http://www.digipal.eu/lightbox/?annotations=\[4309,4310,4285,4284,11613,11612,11636,11635,4306\]](http://www.digipal.eu/lightbox/?annotations=[4309,4310,4285,4284,11613,11612,11636,11635,4306]).

You are searching for:  (Change)

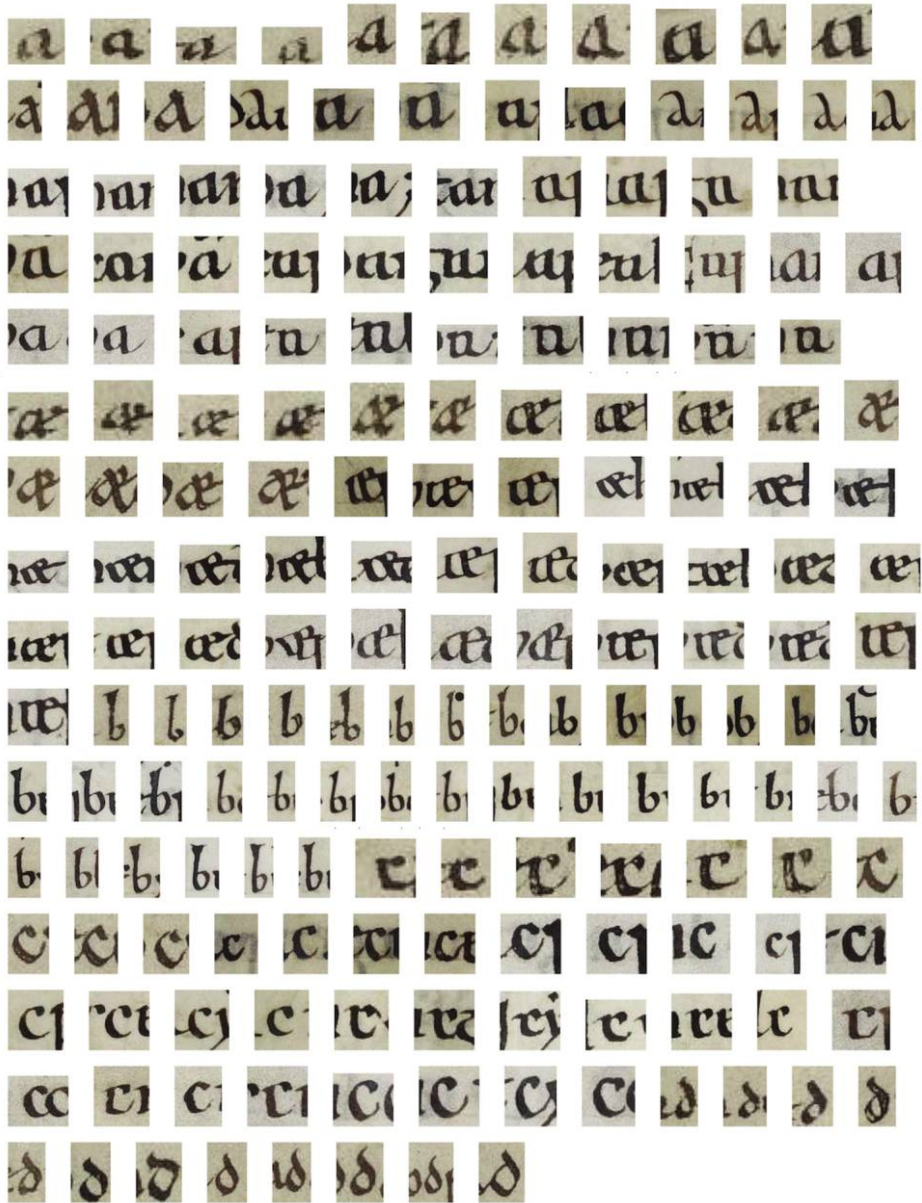


Fig. 4. Examples of variation in allographs and execution from the DigiPal database: sample of results from the scribal hands of Cambridge, Corpus Christi College, MS 140.<sup>54</sup>

<sup>54</sup> DigiPal > Search > Corpus 140, [http://www.digipal.eu/digipal/search/facets/?view=ggrid&page=1&terms=Corpus+140&result\\_type=graphs&pgs=200](http://www.digipal.eu/digipal/search/facets/?view=ggrid&page=1&terms=Corpus+140&result_type=graphs&pgs=200).

cases the argument against scribal identity is precisely that his script is normally very consistent. In general this argument seems reasonable and fairly compelling, if not watertight—since we can see just how varied this corpus is, and it seems rather strained to argue that scribes were generally very varied and made little or no attempt to write identical hands even in the same document, but that one or two scribes suddenly chose to and were able to reproduce the same script very closely and for no particular reason. Nevertheless there are obvious difficulties with this argument. Indeed, there is a set of documents entered into a Gospel book that is pertinent to this discussion, as they are in a hand that is undeniably close to Eadwig's but which shows significantly more variation than is found in the more securely attributed specimens of his script.<sup>55</sup> The argument that these other specimens were written by Eadwig is relatively weak for several reasons. The first is that we have a relatively large number of securely identified examples of his script, some of which are of the same register and level of formality as these additions, yet all of which are much closer to one another than to the disputed writing; if one allows these other specimens then one must also explain why they are so much less consistent than the known examples. Furthermore the date of the additional documents would require Eadwig's having had a career of several decades, which is rather longer than one might expect; and we have very many examples of scribes active decades later apparently emulating Eadwig's hand directly, or at least reproducing a common model, which would plausibly explain the similarities.<sup>56</sup> This case seems therefore relatively secure, but the problem resurfaces for other scribes and specimens and indeed is compounded further by multigraphism, since the degree of variation in one script (for example, Vernacular minuscule in a lower register, such as in annotations or in a rapidly written document) may be significantly different from that of another (for example, a formal display script).<sup>57</sup> Alternatively, or in addition, one may postulate that a scribe's "everyday" hand might be more consistent than one that is only used occasionally and therefore is less familiar, even if the former is more formal than the latter.

A relevant example here is Canterbury, Cathedral Archives, Chart. Ant. S.458 (formerly Schøyen MS 600). This is a short vernacular writ issued at Canterbury Cathedral under Bishop Lyfing and is datable to 1013 × 1020. Although it is not normally attributed to the same scribe as the Stowe charter and vernacular will discussed above, the minuscule script of this short writ is very similar indeed to that of the vernacular will.<sup>58</sup> Furthermore, both vernacular documents open with the same form of Uncial **h**. On the face of it there are numerous differences between the document from Canterbury and those from Crediton, such that one

<sup>55</sup> The additions are now London, British Library, MS Cotton Claudius A.iii, fols 4r–6r. For discussion of their attribution see Stokes, *English Vernacular Minuscule*, 130–31.

<sup>56</sup> Imitation itself is another thorny question that is beyond the scope of this article, but for discussion in the context of Anglo-Saxon charters, see J. Crick, "Insular History? Forgery and the English Past in the Tenth Century," in *England and the Continent in the Tenth Century: Studies in Honour of Wilhelm Levison (1876–1947)*, ed. David W. Rollason, Conrad Leyser, and Hannah Williams (Turnhout, 2010), 515–44; and Julia Crick, "Script and the Sense of the Past in Anglo-Saxon England," in *Anglo-Saxon Traces*, ed. J. Roberts and Leslie Webster (Tempe, AZ, 2011), 1–29.

<sup>57</sup> For further discussion of the alleged and actual differences in register and variation in Caroline minuscule versus English Vernacular minuscule, see especially Stokes, "Change and Variation."

<sup>58</sup> Stokes, *English Vernacular Minuscule*, 139.

would be reluctant to claim scribal identity. However, although the script is Vernacular minuscule in both documents, the methods discussed in this article so far are also relevant here. The writ from Canterbury shows slight forking in ascenders, which is not present in the Crediton documents; but, as noted above, the former document is slightly later in date and so perhaps it should come as no surprise that it shows these later elements of style. Perhaps more significantly, however, the register of the Canterbury document seems lower than that of the other two: physically it is much smaller and shorter, and it certainly lacks the formality of the royal diploma and even that of the will. This could also account for the different treatment of ascenders, namely that clear wedges like those of the Crediton documents require care in writing, whereas the slight forking is easier and more rapid to produce. The same could be said for the lack of wedges and different formation of feet in the writ. One might propose, then, that the differences illustrate multigraphism of this different sort, and are namely due to changes over time and circumstance. On the face of it this may seem implausible: the writ shows numerous minuscule allographs that are absent from the will and the charter bounds, particularly round *s* and the thick back of *ð*, which curves in the opposite direction from that of the Crediton documents. On the other hand, allographic variation is very common and easy to account for, particularly in *s*, which provided scribes of that time with the most options of any letter,<sup>59</sup> whereas graphic ideas and details such as the production of strokes and manipulation of the pen are normally considered to be more difficult to reproduce but also seem to have been areas where more innovation was allowed, and the results here are therefore more individual. This argument is particularly valid for a corpus such as the one under consideration here, where even a casual perusal of the DigiPal database demonstrates very clearly that scribes show significant variation both in allographic selection and in execution of allographs, but also that most specimens of script from this corpus are very different from one another, even in the same manuscript. One partial demonstration of this is shown in Fig. 5, which is simply the first page of graphs of the letter *a* in the DigiPal database but which gives some indication of how much variation there is within just this one letter among specimens of writing within the same manuscript and from the same region at around the same time. This high degree of variation between scribal hands adds support to the working assumption that those specimens that are very similar are more likely to have been written by the same scribe, since otherwise, as already noted, one must explain why some scribes wrote hands that are very close to one another while all others were very different, seemingly independently of the place or date of production and the degree of formality of the book or document.<sup>60</sup>

<sup>59</sup> See, for example, Ker, *Catalogue*, xxx; Stokes, *English Vernacular Minuscule*, esp. 190 and 237–38; and DigiPal, “Search” > “Graphs” > “Character: s,” [http://www.digipal.eu/digipal/search/facets/?view=ggrid&pgs=200&character=s&result\\_type=graphs&page=1](http://www.digipal.eu/digipal/search/facets/?view=ggrid&pgs=200&character=s&result_type=graphs&page=1).

<sup>60</sup> This variation is again evident from a perusal of the DigiPal database. Some examples of manuscripts containing very different scribal hands that were apparently produced at the same time and place include Cambridge, Corpus Christi College, MS 198; and Cambridge, Corpus Christi College, MS 140. The latter is illustrated in Fig. 6 below; and the former in Stokes, *English Vernacular Minuscule*, figure 4; and DigiPal > Search > Graphs > “Corpus 198,” [http://www.digipal.eu/digipal/search/facets/?terms=Corpus+198&result\\_type=graphs&view=ggrid](http://www.digipal.eu/digipal/search/facets/?terms=Corpus+198&result_type=graphs&view=ggrid).



In summary, then, the surviving specimens of eleventh-century writing from England demonstrate a high degree of variation not just in the English Vernacular minuscule, or even in the Vernacular and Caroline minuscules, but also in the Rustic and Uncial letter forms. Like the minuscule scripts, however, the capital letters also show a relatively clear pattern of use, with Rustic capitals employed as the “regular” forms for personal names and after punctuation, and Uncials tending to be used for more significant points, such as the start of major sections or important names. This pattern in the use of capital letters is also typically found in those manuscripts from the period that show a clear hierarchy of scripts, for instance in openings of major sections, particularly in biblical or liturgical manuscripts, two (of many) examples of which are illustrated in Fig. 6. This clear evidence of digraphism and “relative” multigraphism, namely the simultaneous use of different scripts for the same alphabet, raises real difficulties in scribal attribution as well as questions about the relationship between the different forms and how one might begin to compare letters that have few structural elements in common. The answer seems to be that there is no single approach but rather three different approaches to consider. Some scribes maintained consistent graphic ideas across their scripts, preserving a stylistic unity in the proportions, pen angle and cut, and use of decorative elements such as wedges and foot serifs. This is most evident in the minuscule scripts of bilingual documents such as cartularies or copies of the bilingual Rule of Saint Benedict, where one might be tempted to argue that the vernacular and Latin are in the same script, just with different selection of allographs.<sup>61</sup> Similar stylistic unity can sometimes be seen across majuscule and minuscule letter forms, specifically Rustic capitals and minuscule script in the work of more skilled (namely, consistent) scribes, and it is this consistency that allows a way in to scribal identification. In other cases, however, it is precisely these stylistic elements that the scribes varied for different purposes, such as to indicate different sections of text (header versus main text, charter bounds, glosses,<sup>62</sup> and so on). In this second scenario, it is the “essential” elements—the structural components—that can sometimes provide the point of comparison, such as the formation of vertical strokes or curves, or even the “rhythm,” namely the regularity of the strokes and the spatial relationship between them. In the more extreme cases that form our third scenario, neither the essential nor the graphic elements are common, and here it seems that we must turn to other factors, such as the occasional introduction of one form or graphic idea into a context where one would not normally expect to find it, or even (or in addition) other factors such as orthography, linguistic forms, and so on. All this strongly suggests that a digraphic context requires an even wider range of approaches and

<sup>61</sup> The most striking example of the cartularies here is London, British Library, MS Cotton Tiberius A.xiii, fols. 1–118, discussed by N. R. Ker, “Hemming’s Cartulary: A Description of the Two Worcester Cartularies in Cotton Tiberius A.xiii,” in *Books, Collectors and Libraries: Studies in the Medieval Heritage*, ed. A. Watson (Hambleton, 1985), 31–59; and Stokes, “Change and Variation.” For a detailed analysis of the paleography of the Rule manuscripts, see Francisco Jose Alvarez Lopez, “A Comparative Analysis of the Palaeography of the Manuscripts Containing the Aethelwoldian Translation of Regula Sancti Benedicti written in English” (PhD diss., University of Manchester, 2009), available at <http://ethos.bl.uk/OrderDetails.do?did=1&uin=uk.bl.ethos.516339>.

<sup>62</sup> For the possibility of a deliberately distinct “Glossenschrift” in eleventh-century England see Stokes, *English Vernacular Minuscule*, 198–201.

You are searching for: minuscule ✖ a ✖

Cambridge, Corpus Christi College	9		manuscript
			
Cambridge, Corpus Christi College	12	None	manuscript
			
Cambridge, Corpus Christi College	23		manuscript
			
Cambridge, Corpus Christi College	41	None	manuscript
			
Cambridge, Corpus Christi College	44		manuscript
			
Cambridge, Corpus Christi College	57		manuscript
			
Cambridge, Corpus Christi College	111		manuscript
			
Cambridge, Corpus Christi College	140		manuscript
			
Cambridge, Corpus Christi College	146		manuscript
			
Cambridge, Corpus Christi College	162		manuscript
			
Cambridge, Corpus Christi College	162		manuscript
			

Fig. 5. Sample of graphs of the letter a in the DigiPal database.<sup>63</sup>

<sup>63</sup> DigiPal > Advanced Search > Graphs > Character: a; Character Form: minuscule, [http://www.digipal.eu/digipal/search/facets/?\\_xp\\_character=1&character=a&page=1&cpgs=200&character\\_form=minuscule&result\\_type=graphs&view=ggrid](http://www.digipal.eu/digipal/search/facets/?_xp_character=1&character=a&page=1&cpgs=200&character_form=minuscule&result_type=graphs&view=ggrid).

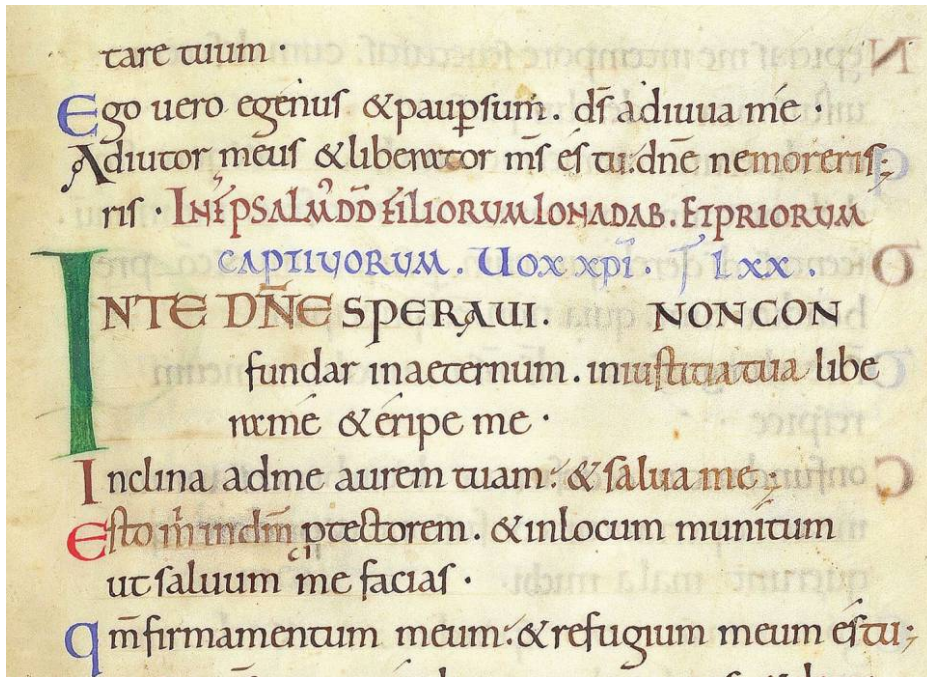


Fig. 6. London, British Library, MS Arundel 155, fol. 67r (detail).<sup>64</sup>

even more sensitivity to their use than is the case in a monographic context. In order to make these analyses, however, and in order to construct and communicate clear and convincing arguments around them, we need a clear analytic framework for the description of handwriting that can make such precise distinctions and convey them in ways that not just specialist paleographers but also other medievalists can understand. The development of such a framework remains a strong desideratum, but as this discussion has shown, it is by no means straightforward and will require a great deal more theoretical and practical work. What is clear is that it will require a combination of rigor and precision in conceptual analysis and description, along with a large corpus and the communication of visual and verbal content; and all this is what digital methods in general and the DigiPal project in particular have proven very effective in doing.

<sup>64</sup> Image reproduced from the British Library, “Arundel 155,” in *Catalogue of Illuminated Manuscripts* (London, n. d.), available at <https://www.bl.uk/catalogues/illuminatedmanuscripts/ILLUMIN. ASP?Size=mid&IllID=11261>. It has been released into the public domain (CC0) by the British Library, as documented on the above web page.



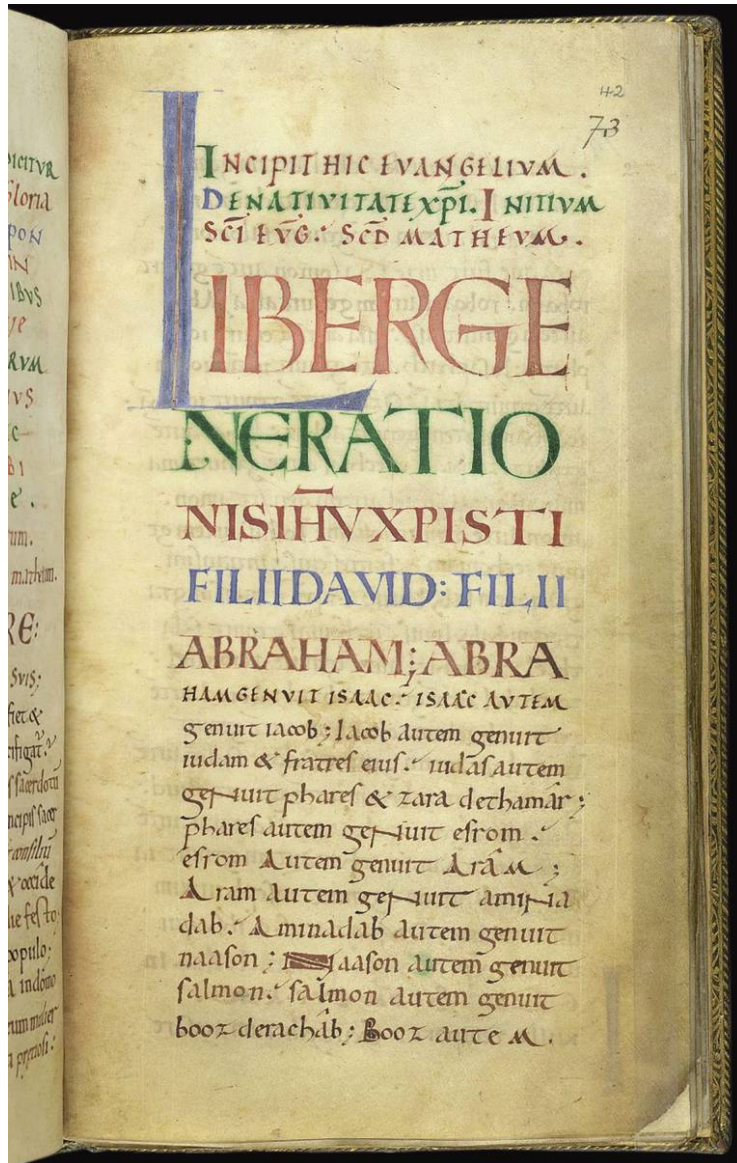


Fig. 7. London, British Library, MS Stowe 944, fol. 42r.<sup>65</sup>

<sup>65</sup> Image reproduced from the British Library, "Stowe 944," in Catalogue of Illuminated Manuscripts, available at <https://www.bl.uk/catalogues/illuminatedmanuscripts/ILLUMIN.ASP?Size=mid&IllID=5181>. It has been released into the public domain (CC0) by the British Library, as documented on the above web page.