

# ECHOE Documentation

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revision of September 8, 2024

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\*With a section on **Rhetorical Markup** contributed by Bente Offereins.

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## NOTE

Any deeplinks to [ECHOE Online](#) in this documentation refer to the release candidate expected to go live in October 2024. They will not work until the alpha website is superseded.

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## Front Matter

### License

**ECHOE: Electronic Corpus of Anonymous Homilies in Old English.** Copyright (C) 2024 ECHOE Project.

This corpus is free software: you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation, either version 3 of the License, or (at your option) any later version.

This corpus is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this corpus. If not, see <https://www.gnu.org/licenses/>.

## Acknowledgements

Please consult [ECHOE Online](#) for comprehensive acknowledgements of intellectual and financial support received.

The typeface used in this documentation and sourced in the included CSS stylesheet is Junicode by Peter S. Baker, available at <https://github.com/psb1558/Junicode-font> and licensed under the [SIL Open Font License v. 1.1](#).

## Corpus Definition and Taxonomy

ECHOE: Electronic Corpus of Anonymous Homilies in Old English is a text corpus, native to TEI P5-conformant XML but here additionally supplied in two flattened transformation outputs, containing manual transcriptions, newly produced for ECHOE, of all extant witnesses of anonymous and Wulfstanian prose homilies predating c. 1200 (excluding the late collections known as the Lambeth and Trinity homilies) and whose dominant language is Old English, as well as long-format anonymous Old English prose saints' lives from the same period. Defined another way, it transcribes all manuscript copies of all non-Ælfrician Old English prose homilies and saints' lives. Following the initial release of its XML source code in July 2024, the corpus is subject to revision on a rolling release basis. Corrections and technical queries may be directed to [Paul Langeslag](#), while [Winfried Rudolf](#) as the principal investigator is the project's contact person for strategic matters and press requests.

The definition of homiletic manuscript articles (hereafter “versions”) follows N. R. Ker's 1957 *Catalogue of Manuscripts Containing Anglo-Saxon* for materials known to Ker.<sup>1</sup> Each version (referenced using an identifier 18.40, 18.42, etc.) is contained in its own file (018.40.xml, 018.42.xml, etc.). The version identifier format follows Ker's alphabetical-sequential manuscript and article system, i.e. the first element represents a manuscript or fragment sorted (largely) alphabetically by location and library, while the element after the period is normally Ker's sequential article number (for longer articles) or letter (for shorter articles) within the manuscript. Materials that have come to light since the publication of Ker's *Catalogue* are numbered in accordance with the same principles but with x appended to Ker's manuscript number to allow its inclusion in the alphabetically appropriate position within the system. Thus we have used 284x for Westminster Muniment 67209, alphabetically between London, Lambeth Palace on the one hand and Oxford, Bodleian Library on the other; the other new entry is 386x for the Taunton fragments. Articles within such newly discovered manuscripts and fragments have been defined in accordance with Ker's principles, with the one difference that articles that have no peers within their fragment are given an article identifier a where Ker would have omitted such an identifier: thus 284x.a for the sole article contained in Westminster Muniment 67209, the superfluous article identifier facilitating uniform processing. In Ker's system, a single article may contain the same or similar material twice, first in Latin and then in Old English. Since ECHOE is

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<sup>1</sup>N. R. Ker, *A Catalogue of Manuscripts Containing Anglo-Saxon* (Oxford: Clarendon, 1957).

a language-specific corpus, however, it excludes complete Latin compositions of this kind. In such cases, we have added to the Ker numbering system by (implicitly) affixing a to the article number for the Latin and (explicitly) b for the Old English. Thus Ker's 49B, art. 29 is the same Wulfstan homily contained twice, once in Latin (Bethurum Xb, *De christianitate*) and once in English (Bethurum Xc, *Be cristendome*); we have included only the latter in our main corpus, under the identifier 49B.29b. The Hatton 113 witnesses to the same text follow a similar pattern: here 331.10a is the Latin (not in ECHOE), 331.10b is an Old English marginal translation of part of the Latin, and 331.10c is the full Old English text that follows the Latin in the manuscript. Where Ker subdivided his articles, this subdivision too is appended to the article number, as in 186.19a–186.19l for the range of brief compositions in Cotton Tiberius A.iii, or 338.1xix for the last of the sections into which Ker subdivides article 1 of Junius 121.

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#### NOTE

ECHOE file names use leading zeroes for both manuscript and article levels in the format 001.01.xml, but no such leading zeroes are used in any other context, whether it be scholarly reference or @xml:id. Thus the ECHOE version contained in 049B.01.xml is referenced as ECHOE 49B.1, while its sentences are encoded s49B.1.1 etc., and cited as ECHOE 49B.1.1 etc. The other discrepancy is in 336.02.xml, which in fact covers manuscript articles 2 and 4 and accordingly is properly referenced as 336.2+4, though its sentences are encoded s336.2.1 etc. to comply with XML validity constraints.

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At the time of initial release, acceptable images of London, British Library Cotton Otho A. viii, B. x, and Vitellius D. xvii were not available to us, so that the twelve Old English homiletic and hagiographical items therein contained are not at present included in ECHOE. Service disruptions at the British Library in 2020–2024 additionally prevented some final proofing of further London transcriptions.

## Citing ECHOE

Although any representation of an ECHOE version is derived from the underlying XML transcription, most users will want to cite the online edition. Please keep in mind that (1) the data are subject to rolling updates, lending relevance to the date of access; and (2) any one transcription may be rendered with different display settings, so that one and the same version or excerpt may be quoted in a range of realizations.<sup>2</sup> We recommend users feed their citation managers the following values:

```
@online{echoe-online,
  title = {{ECHOE} Online},
  subtitle = {Electronic Corpus of Anonymous Homilies in Old English},
  editor = {Winfried Rudolf and Thomas N. Hall and Paul S. Langeslag and
    Grant L. Simpson and Charles D. Wright and Susan Irvine and Julia Josfeld
    and Ruby Wai Ying Ku and Hasan M. M. Aldhahi and Sergio Gonzalez Orjuela and
    Julie Kraft and Esther M. Lemmerz and Bente Offereins-Gummelt and Sabine
    Ines Rauch and Carolina Ruthenbürger and Melanie Vollbrecht and others},
  location = {Göttingen},
  publisher = {{ECHOE} Project},
```

---

<sup>2</sup>We advise against quoting the text produced by the [sample CSS stylesheet](#) included in the XML corpus release, among other things because CSS is not equipped to render internode XML spacing.

```

    date = {2024/},
    url = {https://echoe.uni-goettingen.de},
    urldate = {(date of access here)}
}

```

Depending on your stylesheet, this may yield a citation like the footnote citation here embedded.<sup>3</sup> See the [Bibliography](#) at the end of this document for a bibliographical reference following the same Chicago Manual of Style conventions.

Once the web edition as a whole has been cited, specific content may be referenced e.g. as follows:

- (ECHOE 35.4) [no leading zeroes; see note above]
- “Cyrice is þære sawle scip and sceld on domesdæg” (ECHOE 68.11.8).

Even when citing a specific version or other particular content only, we recommend providing only the root URL of the web edition upon first citation rather than deeplinking individual entries, and reserving deeplinks for hyperlinked content.<sup>4</sup> References to particular content may then be incorporated as per the above examples, the pattern “ECHOE 35.4” identifying a version and “ECHOE 68.11.8” referencing a single sentence-like segment. Hyperlink formatting may likewise be inferred from the above examples, or from the URLs generated by the web edition.<sup>5</sup>

We recommend that the distributed corpus (i.e. the [XML source code repository](#) accommodating the present document) be cited in addition to the web edition only where some feature not available in the web edition is relevant to the discussion, e.g. in natural language processing research or any work evaluating ECHOE metadata directly. You may cite the full repository as follows:

```

@misc{echoe-repo,
  title = {{ECHOE} Repository},
  editor = {Winfried Rudolf and Paul Langeslag and Sabine Ines Rauch and
    Esther M. Lemmerz and Julia Josfeld and Irina Rau and Melanie Vollbrecht
    and Verena Klose and Bente Offereins-Gummelt and Carolina Ruthenbürger
    and Anna-Lena Vogt and Christine Voth and Susan Irvine and others},
  publisher = {{ECHOE} Project},
  date = {2024/},
  url = {https://github.com/ECHOEProject/echoe},
  urldate = {(date of access here)}
}

```

These data fields may yield a citation like the footnote citation here embedded.<sup>6</sup> See the [Bibliography](#) at the end of this document for a bibliographical reference following the same Chicago Manual of Style conventions.

<sup>3</sup>Winfried Rudolf et al., eds., “ECHOE Online: Electronic Corpus of Anonymous Homilies in Old English” (Göttingen: ECHOE Project, 2024–), <https://echoe.uni-goettingen.de>.

<sup>4</sup>Source reports are the exception; please consult [ECHOE Online](#) for the recommended citation practice.

<sup>5</sup>NB the anchor segment of URLs encoded in this document fails to materialize in the PDF; consult [the markdown source](#) for full links.

<sup>6</sup>Winfried Rudolf et al., eds., “ECHOE Repository” (Göttingen: ECHOE Project, 2024–), <https://github.com/ECHOEProject/echoe>.

## Repository Contents

The ECHOE repository at <https://github.com/ECHOEProject/echoe> hosts the following components:

- The XML corpus
- A flattened, plaintext transformation
- An ebook release of the corpus
- This corpus documentation
- A selection of metadata files extracted from the corpus
- A `misc/` folder with (1) schema files; (2) several sample XSLT transformation stylesheets users may adapt or consult for their own transformation purposes; and (3) a CSS stylesheet allowing users to access the XML corpus as a semidiplomatic reading corpus locally in their web browsers.

Please observe that neither the plaintext corpus nor the ebook retains the richness of the XML corpus, as these attempt to render only the readings intended by the most recent scribal reviser prior to c. 1200, but also silently emend readings following the editors' understanding of the text. Punctuation, capitalization, and virtually all metadata are absent from these output formats. The rendering produced by our CSS stylesheet similarly is just one possible way of displaying the text retaining a larger selection of metadata, and limited somewhat by the capabilities of CSS; users may find that spacing in particular is occasionally imperfectly rendered, as CSS has no formal way of disregarding internode spacing.

## Creating ECHOE

✍ ECHOE users may benefit from understanding how the corpus was created. This section offers a brief account of the approach used.

The text itself was transcribed directly from digital manuscript images into XML by human transcribers, along with much of the basic markup: script color and size, abbreviations, scribal interventions, and some emendations and biblical source references. A template of the TEI header was also manually populated at this time. Transcribers typically worked in teams of two proofreading each other's transcriptions. Transcriptions were subsequently proofread by a revision team consisting of a junior revising editor and a senior revising editor. In most cases, both revisers proofread the whole of the raw XML directly against the manuscript images again, so that the vast majority of transcriptions were subjected to a minimum of three proofreading stages. The final form of the transcriptions reflects the single-pair-of-eyes principle, with the senior revising editor, who has been involved in every decision on transcription and encoding alike since the start of the project, attempting to subject all transcriptions to the same formatting standard at the end of the revision process. This also involved adding further emendations and rejecting some emendations previously encoded, as well as adding and rejecting perceived scribal interventions. Illness prevented the senior revising editor from subjecting a modest proportion of the corpus to a final check ahead of the initial release, but this is expected to be redressed in the near future.

Sentence segmentation and the cross-referencing of cognate clusters of sentences was likewise carried out manually by the senior revising editor in collaboration with the principal investigator. This work predates the development of our "ECHOE Tool" for uncovering similarities between sentence-like segments across the corpus, so further connections may yet be discovered. However, segmentation is envisioned to remain unchanged after the initial release, as any subsequent changes to segmentation would render the scholarly citation

of specific segments or their deeplinking by other resources unreliable. Accordingly, any cognate material within the corpus discovered in future will have to be cross-referenced with segment boundaries remaining as they are, even if parallel witnesses differ in their segmentation strategies and the similarity of the material may as a consequence remain somewhat obscured.

Explicit word segmentation (tokenization) and the markup of names and numerals were carried out in an automated fashion and then manually corrected. TEI headers were proofread along with the text (i.e. several times), but global changes were repeatedly made to their structure both during and after revision, so not every part of the header has seen equal amounts of proofreading. Here, however, faulty metadata was typically quickly spotted in the proofing environment and corrected as needed. Rhetorical markup was conducted by hand in a separate stage. The entry of biblical source references was put on hold after the separate documentation of sources got underway, to avoid task duplication; but as source documentation remains incomplete, a modest proportion of biblical content continued to go unreferenced at the time of initial release. A range of cross-corpus structural changes to such matters as the encoding of transpositions and glosses, as well as the addition of such further metadata as geolocations, was carried out at a late stage with the help of scores of custom Python scripts.

The sequence of stages here laid out lacks a dedicated text-critical examination. Generally speaking, the transcription and first proofreading stages focused primarily on ensuring an accurate letter-for-letter representation of the manuscript text, whereas subsequent revision was carried out with more of an eye to ensuring readings are plausible and grammatical; but at every stage of proofreading the text-critical quality of the readings was only one among many points of attention. Whereas some of our transcribers and early-stage proofreaders worked with leading critical editions at hand, others did not, and final revision was carried out with reference to textual scholarship for suspect readings only. Time constraints in the face of the amount of text to be processed precluded a more thorough textual analysis, so that the text of ECHOE, though generally well considered, is not consistently as authoritative as that of leading editions. Having said that, we are confident that ECHOE improves on received readings in many places, particularly where text has been erased or the manuscript damaged. For more on our text-critical approach, see [Emendation and Conjecture](#) below.

## The TEI Header

✍ ECHOE's TEI header follows [TEI P5 recommendations](#) and makes substantial use of their provisions for [manuscript description](#). In the present documentation, we will only draw attention to project-specific resources and conventions.

## Conventional Titles

Multiple instances of `fileDesc/titleStmt/title` encode a range of received titles for the composition. `@type="main"` is reserved for what is considered the leading convention, while a series of `@type="alt"` entries may record additional titles, including titles found in manuscripts. As explained under [Bibliographical References](#) below, our choice of main title was guided among other things by Ker's textual boundaries, for instance where these were in turn informed by Napier.

## Scribal Hands

fileDesc/sourceDesc/msDesc/physDesc/handDesc identifies the scribal hands distinguished in the version as `<handNote>` nodes, each of which provides (as a value of `@xml:id`) an identifier to which the transcription refers as different hands intervene, as well as a prose description of the hand in question. Where available, hand identifiers follow DigiPal (recognizable from identifiers beginning with DP), or else Scragg's *Conspectus of Scribal Hands Writing English, 960–1100* (using the prefix SC); new identifiers may be recognized by the prefix EC (followed by a number referencing an adjacent DigiPal hand followed by an alphabetical suffix). Where DigiPal assigns a hand to a scribe, we have additionally supplied the attribute `@scribeRef` and used not DigiPal's scribal identifier intended for human processing but instead their database identifier: thus rather than give a value G.108, we supply DP0078, which may be transformed into <https://digital.eu/digipal/scribes/78/> to redirect to DigiPal's scribal entry for scribe G.108.<sup>7</sup> If a scribe's name is known (i.e. for Eadric, Wulfgeat, and Wulfstan), we have encoded it as a value of `@scribe`. In the running text, the attribute `@hand` is most notably found on the elements `<add>` and `<del>`. Uncertain hands are there marked uncertain, and lack corresponding header entries.

Any paleographical notes not on a specific hand are recorded as a `<p>` node directly within `<physDesc>`. As standard TEI schemas do not permit such a paragraph to follow the `<handDesc>` tree, it precedes the descriptions of specific hands in the document tree.

## Dating, Origin, and Provenance

Manuscript dating as recorded under fileDesc/sourceDesc/msDesc/history/origin/origDate follows Ker, unless a more accurate assessment has come to the editors' attention. To allow sorting by date of manuscript composition, attributes `@notBefore` and `@notAfter` have been populated on the basis of Francis Leneghan's analysis of Ker's dating system.<sup>8</sup> We recommend using the mean between the two values as the basis for sorting by date.

Fields `origPlace` and `provenance` have likewise been provided as descendants of fileDesc/sourceDesc/msDesc/history, with our degree of confidence recorded as either `@cert="high"` or `@cert="low"`. A map of manuscript production may be generated by accessing the coordinates encoded in corresponding entries within the `<standOff>` tree (which see [below](#)).

## Sigla

Where available, ECHOE records Scragg's sigla as used in his *Vercelli Homilies*.<sup>9</sup> The siglum of each version's containing manuscript is encoded at fileDesc/sourceDesc/msDesc/msIdentifier/idno[@type='siglum']. For manuscripts not in Scragg we have opted to leave this node empty.

## Bibliographical References

We use fileDesc/sourceDesc/bibl to encode four kinds of reference:

- The Ker identifier (`<idno type="ker">`);

<sup>7</sup>This practice diverges slightly from TEI recommendations, which have `@scribeRef` point "typically" to a document-internal description.

<sup>8</sup>Francis Leneghan, "Making Sense of Ker's Dates," *Proceedings of the Manchester Centre for Anglo-Saxon Studies Postgraduate Conference 1* (2005): 2–13.

<sup>9</sup>Donald Scragg, ed., *The Vercelli Homilies*, EETS 300 (Oxford: Oxford University Press, 1992), xvii.



- The identifier from Gneuss and Lapidge’s *Anglo-Saxon Manuscripts*<sup>10</sup> where applicable (`<idno type="gneuss">`);
- The *Dictionary of Old English*<sup>11</sup> “long” short title (`<idno type="doe">`);
- The Cameron number, as likewise documented in *DOE* (`<idno type="cameron">`).


As the Cameron/*DOE* taxonomy indexes texts rather than versions, these last two identifiers should be understood as “nearest text” approximations rather than exact matches to the ECHOE version. In addition to the choice of base text, textual boundaries may also differ. For texts edited by Napier and Bethurum in particular, we generally refer to Napier over Bethurum in cases where Bethurum departs from the textual boundaries established by Napier and followed by Ker.

## Motifs and Liturgical Occasion

Each version’s participation in a set of common motifs is recorded in a series of `<term>` nodes under `profileDesc/textClass/keywords`. A master list of motifs may be obtained from the [project repository](#), while [ECHOE Online](#) provides the same as a discovery filter.

Insofar as may confidently be inferred from each version and/or its sources and peers, a text’s intended (preaching) occasion is recorded under `profileDesc/settingDesc/setting`, and wherever such an occasion is noted, a broad categorization is supplied for `@ana` into one of the values `temporale`, `sanctorale`, and `other`, that last value covering such more broadly understood contexts as baptism, confession, the teaching of Creed and Paternoster, and church dedication sermons as well less clearly understood settings. In hagiographical prose not clearly centred on a specific feast day (e.g. a text on the Virgin Mary that is not primarily associated with one of Nativity, Purification, Annunciation, or Assumption), this field records just the name of the saint, and no header identifies Michaelmas or Martinmas specifically even though Blickling rubrics do. Of the Marian feast days, the Annunciation is grouped with the `temporale`, the remainder with the `sanctorale`.

## Representing the Source

 This section describes key transcription and encoding strategies.

### Character Encoding

For its entity declarations, ECHOE relies on [MUFI](#) recommendations. Insofar as these extend beyond the standard unicode character set into the Private Use Area, particularly in the realm of punctuation, nonnormalized transformations of the corpus should only be undertaken with MUFI-compliant typefaces such as [Junicod](#)e. In addition, we encode one letter-shape not currently in MUFI: *f*-shaped *y* `<ŷ>` as it occurs in the Vercelli Book, and more rarely in CCC 41, Hatton 115, and Blickling. This letter-form has been available in the emerging Junicod revision since June 2023, but only as an OpenType character variant (cv50:3 if counting from 1). Accordingly, we have encoded it inline using `<g>` from TEI’s `gaiji` module and defined it in the TEI header of affected files using `<charDecl>`. For

<sup>10</sup>Helmut Gneuss and Michael Lapidge, *Anglo-Saxon Manuscripts: A Bibliographical Handlist of Manuscripts and Manuscript Fragments Written or Owned in England up to 1100*, Toronto Anglo-Saxon Series 15 (Toronto: University of Toronto Press, 2014).

<sup>11</sup>Angus Cameron et al., eds., “Dictionary of Old English: A to Le Online” (Toronto: Dictionary of Old English Project, 2024), <https://doe.utoronto.ca/>.

it to be rendered mimicking its manuscript form, a stylesheet has to refer it back to the appropriate stylistic variant (`font-feature-settings: 'cv50' 3`). For most purposes, it may be rendered simply `<y>` (i.e. `<g>` may be rendered or transformed without further instructions).

## Abbreviation

Abbreviations have been encoded using two pairs of parallel nodes as children of `<choice>`: `<abbr>` and `<expan>` where the entire word is encoded as an abbreviation, or `<am>` and `<ex>` where a subword contraction or suspension is so encoded. An `<abbr>` environment will often contain `<am>` as well, and `<expan>` always contains `<ex>`. An effort has been made to restrict the use of `<abbr>/<expan>` to the encoding of full words as per TEI recommendations, though there may be some inconsistency in this regard. None of the elements involved carry any attributes.

## Scribal Intervention

Straightforward deletions and additions have been encoded as isolated `<del>` and `<add>` nodes respectively, but with considerable metadata. Both identify the intervening hand as a value of `@hand`; `<del>` furthermore has `@rend` to encode the manner of deletion with a value `erasure`, `expunction`, `lettermod`, `overwriting`, `strikethrough`, `underlining`, `unfinished`, or `unmarked`, whereas `<add>` has `@type` with a value `augm`, `subst`, `altern`, or `gloss`, as well as `@place`, encoded as `above`, `below`, `inline`, `onerasure`, `lettermod`, `overwriting`, `tmargin`, `lmargin`, `rmargin`, `bmarg`, or `unfinished`. The element `<subst>` is used without attributes to encode parallel pairs of `<add>` and `<del>` with attribute values to match. Where one or more letters have been deleted alongside a word, we have judged from context whether the deletion is to be considered part of the word or a separate element, as reflected in its `<w>` assignment; thus even an illegible erasure at the end of a now uninflected adjective may be understood as a one-time inflectional ending if the syntax encourages such a reading.

Where a scribe has added a word or phrase as a gloss or alternative to the antecedent reading, this has been encoded following TEI recommendations by giving each reading an identifier and populating a `<standOff>` tree at the end of the document with an `<altGrp>` list of `<alt/>` mappings identifying which readings belong together and by what weighting one is to be preferred over the other. We have defaulted to equal weighting for same-language alternatives but assigned the full weight to the original reading in case of (Latin) glosses. Where the original reading is a single word, the `@xml:id` attribute has been attached to `<w>`, or else to an enclosing `<seg>`; the new reading attaches the attribute to `<add>`. In rare cases ([331.ioc](#)), more than one alternative reading has been supplied. To facilitate processing these variants without necessarily accessing the `<alt>` mappings registered in the `<standOff>` tree, we have used identifiers containing a numeral for the series, followed by an alphabetical for each member of the series, so `alt2a alt2b alt2c` offer the textual lexeme and two variant readings for the same word, while `alt3a alt3b alt3c` compete for the reading of the next word so marked up. We have used identifiers like `gloss1a gloss1b` for (Latin) glosses that could not be substituted in for the glossed word. Since the original reading is always encoded as part of the main text and additionally given an identifier `alt` (or `gloss`) + [numeral] + a, while later readings are identified as `<add type="altern">` (or `<add type="gloss">`) and given successive identifiers that start with the same sequence, both CSS and XSLT stylesheets may flexibly be employed to style or filter out these glosses

without referring to the `<standOff>` documentation (see [Notes for Further Processing](#) below).

TEI P5 accounts for the documentation and display of interventions aimed at the transposition of words, but not for reordering the affected content at the transformation stage following the annotations of the intervening scribe. Hence while we have followed the TEI practice of documenting the revised order in a `<standOff>` tree populated with references back to the affected nodes by way of their identifiers, we have additionally facilitated the re-ordering of content by (1) isolating the affected content in `<seg type="transpose">` (with a `@hand` value attributing agency) and (2) giving each node an attribute `@ana` with a value like `pos1` for the intended position after transposition. This facilitates reordering in XSLT transformation (see [Notes for Further Processing](#) below).

## Emendation and Conjecture

In our text-critical approach, we have tended to favor the manuscript reading insofar as we have attempted to let broadly plausible readings stand even where variants offer superior readings. If, for instance, a single later witness in a larger tradition omits several of the pains of hell, it may seem natural to declare the copy in question faulty due to eyeskip; but if the resulting text is not ungrammatical or nonsensical, we have often retained it, with no more than an XML comment to draw attention to the discrepancy. The extent to which we have adhered to this approach may be illustrated with the following sequence from the Vercelli *Saint Martin*:<sup>12</sup>

Pā hē ðā sanctus Martinus þæt geseah, þā arn hē sōna up on þæt hūs and  
gestōd hē ongēn þām winde. (394.20.67)

In the source as in the variants, Martin confronts the fire, not the wind; this is a clear-cut case of eyeskip from “ongēan þām lige” to “ongēan þām winde” in the following sentence (cf. 382.17.92–93). Since the resulting text remains broadly plausible, however, we have opted not to emend. With the help of [ECHOE Online](#)’s multiversion view and source analysis pane, users can study the differences for themselves, so we have no need to encode variation into our individual transcriptions where the text is not indefensibly corrupt.

Conversely, following the principle expressed by Michael Lapidge that (to paraphrase rather freely) an uncertain conjecture is better than a corrupt manuscript reading inasmuch as it stimulates thought,<sup>13</sup> we have not been shy to use `<supplied>` to offer conjectural reconstructions of lost or damaged text, the more so since users are free to display or suppress such nodes at will. Thus in the case of the badly cut up Westminster Muniment fragment ([ECHOE 284x](#)) we have seen fit to follow Ray Page<sup>14</sup> in supplying more than half of the text with the help of other witnesses, as without this material the Westminster text would have lacked any sentence structure. In other cases, we have supplied missing words based on badly faded text (186.19f), a Latin source (182.4), or context (ibid.). However, as one of the largest projects revisiting Old English manuscript readings since the advent of high-resolution imaging, we also offer many damaged readings with confidence and with no such markup where we believed we could make out enough of the letters in question to identify them, while we have enclosed in `<unclear>` any readings where strokes and traces were less firmly attributable. Both `<unclear>` and `<supplied>` encode the cause of uncertainty

<sup>12</sup>For further examples see 310.29.67–68; 310.64.113–114; 394.4.51.

<sup>13</sup>Michael Lapidge, “Textual Criticism and the Literature of Anglo-Saxon England,” *Bulletin of the John Rylands University Library of Manchester* 73, no. 1 (1991): 17–45.

<sup>14</sup>R. I. Page, “An Old English Fragment from Westminster Abbey,” *Anglo-Saxon England* 25 (1996): 201–7.

as a value of @reason (erasure, trimming, damage, reagent, fading, initial, binding, omitted, loss), while for <supplied> we have furthermore added a value for @evidence that is some combination of the values internal, external, and conjecture; these values may be found proposed in the TEI P5 guidelines but have not proved of especial value in our project. The value external here suggests other witnesses and/or a Latin source contributes to the reading, whereas internal suggests internal logic speaks for it; conjecture expresses a greater degree of speculation. We have provided up to two space-separated values where appropriate. For examples of recovered and/or conjectural readings, see 130.b, 130.d, 182.4, and 186.19f, as well as isolated passages in e.g. 38.4, 38.37, 182.2a, 186.19l, and 331.43.

## Named Entities

Proper nouns and demonyms have been encoded in three categories:

1. **Personal names** have been tagged in the format <persName key="Paul">. A list of keys may be found in the [project repository](#), while [ECHOE Online](#) provides the same as a discovery filter. Please note that the titles *crist*, *antecrist*, and *farao* have been included among personal names (the first of these identified as @key="Jesus"), but such lexemes as *god* and *hælend* have not. Names of individuals recorded in [PASE](#)<sup>15</sup> carry a @ref attribute with a PASE personKey identifier, but since PASE disabled deeplinking in their 2024 update, a seamless integration between the two resources is no longer possible.
2. **Place names** have been tagged in the format <placeName key="#Jerusalem">, with references to fuller descriptions (where necessary) and an approximate geolocation (where available) situated in the <standOff> tree at the end of the document. The place name category has been broadly interpreted, including rivers, cities, countries, and continents. A list of keys may be found in the [project repository](#), while [ECHOE Online](#) provides a discovery filter allowing the identification of versions mentioning any one particular place name.
3. **Demonyms** have been tagged in the format <name type="demonym" key="Egyptian">. The category has been broadly interpreted, including associations with cities, countries, and sometimes families such as Pontius. A list of keys may be found in the [project repository](#), while [ECHOE Online](#) provides the same as a discovery filter.

Please note the following complications:

- In view of the fact that Old English often formulates country-scale place names with reference to peoples, we have striven to encode such phrases as *egypta land* as including both a place name and a demonym:

```
<placeName key="#Egypt">
  <name type="demonym" key="Egyptian"><w>egypta</w></name>
<w>land</w></placeName>
```

- *isra(h)el* has been taken as a demonym where possible, even in the phrase *filiis israhel* where we could alternatively have applied the same nesting logic as above, or even interpreted it as a reference to Jacob. In rare cases it is undeniably a place name ("on israhel lande") and has been marked up accordingly. We have followed the terminology of our sources in the distinction between Hebrew, Israelite, and Jewish.

<sup>15</sup>"Prosopography of Anglo-Saxon England," accessed August 7, 2024, <https://pase.ac.uk/>.

## Numerals

Numerals have been marked up in the format `<num n="1">`. The number *one* has been excluded where it has been deemed to serve as an adverb (most frequently in the form *āna* “only, alone”), but we have treated it as a numeral in the sequence *nā þæt ān* “not only,” where it is properly adjectival. The form *ōþer* (potentially an ordinal “second; other”; sometimes “first” and occasionally “third” in a sequence) has been excluded from numeral markup, and thus treated as a regular adjective “other,” where it is not found alongside an indication of sequence, such as *ān* “one” or *forma/ōþer* “first,” or in a phrase like *on þone ōþerne dæg*; but where it is part of such a sequence it has generally been marked up even if its natural translation is “other” or “next” rather than a numeral (as in the last example given). Numerals include fractions (*tēopa*: 0.1; *se þridða dæl*: 0.33), cardinals, ordinals (we have not distinguished between the two in the markup), and a range of words rooted in numerals, such as *þrynnes* “Trinity” and *septuagesima*, but excluded from markup are zero (*nān* “none” and the like), *ānrād* and derivatives, dual pronouns, *betwēonum* “between” even where the object splits the phrase (*be ūs twēonum*), or such month names as *september*.

Some occurrences of numerals may have been overlooked, as this type of markup was initiated during an advanced stage of the proofreading process.

## Script

In the text body only (but not in rubrics), we distinguish between the scripts vernacular minuscule (vernacMinusc), Carolingian minuscule (carolMinusc), and hybrid (hybrid). The manuscripts also regularly contain Romanized Greek for (parts of) *āmen* and of *nomina sacra* that transliterate into “cr” (OE) or “chr” (Latin).<sup>16</sup> In the *nomina sacra* these are always abbreviations and could thus be accommodated in parallel abbreviation nodes by transcribing the abbreviation xpc and the expanded form christus (while additionally encoding abbreviation markers and expanded content). Only *āmen* is not an abbreviation, and so we have dealt with this exceptional case by using a `<choice>` tree with Romanized Greek encoded as `<orig>` and Latin transliteration in `<reg>`. In addition, in both abbreviated content and for *āmen* we have encoded the specific letter sequences that may be called Romanized Greek using `<seg type="romanizedGreek">`:

```
<w><choice>
  <orig><seg type="romanizedGreek">AMHN</seg></orig>
  <reg>AMEN</reg>
</choice></w>
```

In this way, it is possible to configure whether the output should be transliterated or not, irrespective of whether abbreviations are resolved. To transliterate the abbreviated *nomina sacra*, one would only have to replace x, p, c, and h (and their uppercase counterparts) in Romanized text nodes with ch (or c, depending on language and informed opinion),<sup>17</sup> as well as determining how to handle the combination of letter and abbreviation marker h in ihs.

<sup>16</sup>We are aware of Pierre Chaplais, “The Spelling of Christ’s Name in Medieval Anglo-Latin: ‘Christus’ or ‘Cristus?’” *Journal of the Society of Archivists* 8, no. 4 (1987): 261–80 but have, for the moment, decided that a corpus like ours is not the place to canonize bold inferences.

<sup>17</sup>See again Chaplais.

## Tokenization

Determinations of what constitutes a word have been made on the basis of the (draft, non-public) *DOE* headword list in conjunction with reasoning inferred from published *DOE* entries. The most straightforward consequences of this policy include our printing e.g. *opþæt* not *op þæt*, *forþām þe* not *for þām þe*, and our treating *belle*-compounds as one word except where *DOE* favors their separation. It also means that where *DOE* recognizes both phrasal and integrated forms of a collocation or phrasal verb (the integrated variant typically associated more with glosses than with continuous prose), we have attempted to apply the same logic, so that we have read *intō* with a place but *in tō* with a person, and *in gān* not *ingān* where possible but not in the instance in 344.5 cited under *in-gān* in *DOE*. We have attempted to force doxologies into the tokenization *on worulda woruld ā būtan ende* where possible, including where scribes have used word spacing that might suggest a different reading, but a few occurrences have necessitated that we follow *DOE* in adopting readings with *āworuld* or *abūtan*.

## Accents

Accents appearing over letters or words have been encoded by marking the containing `<w>` nodes with `@notation="accentuated"`. Although this means we have neither been able to specify the nearest letter over which an accent occurs, nor to identify the hand, it is precisely because of the difficulty of ascertaining these particulars that we have opted to encode them in this way. We have attempted to hold to a cutoff date of c. 1200, but in practice these metadata are more likely to reflect the whole period of the texts' active use.

## Hyphenation

Hyphenation has been excluded from transcription.

## Verse and Rhythmical Prose

Any content deemed to evince metrical qualities has been marked up as `<seg ana="verseLike">` without metrical markup or division into verses or lines.

## Rhetorical Markup

Within the ECHOE subset of Blickling, Vercelli, and their variant witnesses, we have striven to record the rhetorical structures of binomial pair and enumeration, while instances of audience address have been marked up throughout the corpus. These features have been recorded as `<seg>` nodes with the attribute `@ana` carrying a value `binomial`, `enumeration`, or `audAddress`. (As noted under *Verse and Rhythmical Prose* above, the same element and attribute have been used with the value `verseLike` to set off metrical content. Where transposition elements extend beyond the word level, this too involves `<seg>` nodes with `@ana` attributes; these can be distinguished from rhetorical and metrical markup by their value `pos1/pos2`. Contrast uses of the same element with `@xml:id`, used to mark up sequences for which scribes have offered alternative readings or glosses, and `@type`, used to mark transposition sequences and Romanized Greek script.)

## Audience Address

Various forms of generic audience address, such as *men þā lēofestan*, *brōþor mīne*, and *mann* have been marked up throughout the corpus. Address has also been encoded where it appears within a narrative related by the main voice, because addresses by cited authorities and some biblical characters may functionally blend with the preacher’s address of his audience:

- “Ac uton wē, *men ðā lēofestan*, cwæð se hālga Ysodorus, ēaðmōdlice biddan. . .” (394.27.139).

## Binomials

Binomial markup follows formal as well as semantic criteria and may therefore not be consistent by any single measure. Formally, markup has been provided for any sequence comprising two words of the same part of speech and fulfilling the same syntactic function, especially where they rhyme or alliterate (e.g. *tō āsecgenne and tō āreccenne*, *strang and stapolfest*). One member may occur in postposition (*ge gōde dāde ge yfele*; *nihtes fyrst oþþe dæges*). Phrases with modifiers have largely been excluded, with the following exceptions:

- Demonstrative pronouns and possessive adjectives if they have the same referent, e.g.:
  - *se ārlēasa and se synfulla*; *þā ēadignesse and þā fægernesse*
  - *þeos mengu and þis folc*
  - *ēowre tēaras and ēowre brēowsunga*; “Uncra synna hē sworrete and uncra scylda” (32.9.84)
- Adverbs modifying verbs or adjectives if they contribute to the shared meaning, e.g.:
  - “Hē bið *ā wesende and āghwær andweard*” (382.2.61)
- Adverbs modifying adjectives or adverbs if they are identical:
  - *swiþe ārfæstlice and swiþe wundorlice*
- Attributive adjectives if they are identical and the two elements of the binomial pair are particularly closely related (formally or semantically), e.g.:
  - *eallum mōde and eallum mægne*
  - *ēce lif and ēce reste*

Prepositional phrases have only been included when using the same preposition and governed by the same verb, e.g.:

- *ge mid wordum ge mid dædum*
- “Hio ālyseð þone mannan *fram dēape and fram wītum*” (394.3.109).

Semantically, binomials usually feature a close semantic connection, i.e. they may be tautologies (*gescēop and geworhte*), antonyms (*ge cyles ge hāto*) or more generally part of the same semantic field (*widewan and stēopcildru*; *lilian and rōsan*). Semantics cannot be judged entirely objectively, however, and sometimes the elements’ syntactic closeness has been considered sufficient to mark them as binomials:

- “Se ēadiga wer swā gesigefæstod wearð þæt hē þā bysmornysse forhogode *beora lāra and beora costunga*” (344.5.139).
- “And ðās twā ceaftra monna cynne from fruman middangeardes oð worulde ende *timbreð and fyllað*” (32.12.4).



## Enumerations

Enumerations have been identified for sequences consisting of at least three elements of the same word class which are connected by at least one conjunction and fulfill the same syntactic function. Most enumerations so marked up consist of noun phrases, which may include modifiers. Simple sequences of three or more verbs, adjectives, or adverbs have also been included. Examples:

- “Hie nāfre *hungor and þurst and cyle* ne ālātað” (32.9.26).
- “þæt wē *magon and mōton and cunnen*” (394.19.49)
- “se ēadiga Simeon wæs *sōðfæst and clāne and godfyrht* on his life” (394.19.42)
- “ge gōde dāde ge yfele ge worda gesprecenra ge worca gedōnra ge geþōhtra geþanca and ēarena gebyrnesse” (394.4.124)
- “on godfæder ælmihtigne and on his sunu and on þone hālgan gāst and on þā untōdāledan þrynnysse and on ðā þurhwuniendan ānnysse” (394.3.3)

Numbered sequences of any length and sequences of verb phrases with a form of *bēon/wesan* as head have likewise been counted as enumerations. In these cases, the segment may span one or more sentences:

- “Ðonne syndon þrȳ dēaðas liornode on bōcum. Ðæt is þonne se æresta dēað hēr on worulde þæt se man mid mænegum synnum oferhealden bið; þonne is se æftera dēap þære sāwle gescēad and lichoman; þonne is se þrida dēað þæt þā sāwla sculon eardigan on helle.” (394.11.20)
- “Ðær is ēce mēd, and þær is lif būtan dēaðe and gēoguð būtan ylde and leoht būtan þȳstrum and gefēa būton unrōtnysse and sibb būton unþwærnyse and orsornysse būton dēaðes ēge tō libbanne, and þær is ēce gesælignes mid fæder and mid þām suna and mid þām hālgan gāste ā būton ende, AMEN” (38.35.95).

Binomials within enumerations have only been marked up if they rhyme, alliterate or feature a particularly close semantic connection (e.g. *lichama and sāwle*):

- “on mægenþrymme and on mihte and on godcundnyse” (394.24.3)
- “ægðer ge on golde ge on seolfre ge on fela oðra dēorwurðra þinga” (38.36.105)

## The <standOff> Tree

✂ Where metadata were available that we could not accommodate in either header or text body, we have anchored a <standOff> tree at the end of the XML document. This section describes the information there encoded.

## Glosses and Alternate Readings

We have followed TEI recommendations in linking up textual lemmata with their glosses and scribal alternates in an <altGrp> tree here, though for our own purposes we have found it easier to rely on additional text body markup as described under **Scribal Intervention** above. For alternative readings we have entered equal @weights between the available readings, while for (Latin) glosses we have registered the full weight with the original readings against their glosses.



## Transpositions

We have followed TEI recommendations in indicating the intended order of transposition segments in a `<listTranspose>` tree here, though for our own purposes we have found it easier to rely on additional text body markup as described under [Scribal Intervention](#) above.

## Named Entities and Geolocations

An ECHOE `<standOff>` node may have up to two `<listPlace>` children, differentiated by `@type="diegetic"` for places referenced in the text or `@type="origin"` for settlements discussed as places of origin and/or provenance in the TEI header. The latter type, and the former where possible, are accompanied by approximate latitude and longitude coordinates.

## Consistency

✍ Several transcription policies have necessarily been aspirational rather than objectively consistent. The most important such aspects are here discussed as a courtesy to the user.

## Scribal Intervention

A particularly challenging part of revision has been to find a consistent line on perceived scribal interventions where it is uncertain whether the visible text hides a prior erasure or whether the (main) scribe has altered a letter after first writing (a portion of) it, including the reconstruction of what the original reading may have been or when to count a false onset as a letter. Our transcribers have typically encoded a great deal of detail in these regards, so that the senior reviser's task has often been to find a more conservative line by cutting back on perceived interventions. The [below](#) recommendation to ignore minor revisions in the main hand when transforming reflects an awareness that some surplus and/or inconsistent detail may remain.

## Large Initials and Majuscule Letters

While we have attempted to encode capitals where so prompted by letter size and/or majuscule form, the former criterion in particular lacks a clear cutoff. In rubrics, running titles, and *āmen*, majuscule and minuscule forms often appear side by side; in these cases we have transcribed uppercase or lowercase by majority principle. We have transcribed all Roman numerals in lowercase where they appear in the text body, while in rubrics we have determined their case from context or, where no preceding context is available, by their form. Due to repeated course changes, the treatment of slightly large or majuscule letters in places other than sentence- or name-initially is less than consistent. There are thus several distinct reasons for the [below](#) recommendation to case fold the corpus in processing.

## Punctuation

Punctuation has been reproduced to the point the [MUFI 4.0 character recommendation](#) allows; in some cases one character or sequence of characters stands in for another that was unavailable. We have attempted to discern what hand is responsible for what punctuation, but such attempts are necessarily tentative. That caveat is all the more emphatic for the specific business of describing when and how a main hand's punctuation was altered in a second hand, e.g. turning *punctus* into *punctus elevati*.

Manuscript punctuation may serve a number of purposes and follow systems that cannot always be defined or predicted exactly. For the purposes of ECHOE, we may distinguish between the sort of punctuation that is typically found at the ends of clauses or phrases (generally thought of as serving a function on a spectrum between rhetorical and syntactic, or sometimes metrical) and the sort of punctuation that serves to set off individual (part-)numerals and words, especially one-letter words and abbreviations such as *ā* “always,” *ē* “law,” and *ē* for *est*, but occasionally employed to indicate word boundaries where words have been written together. In the transcription and encoding of punctuation, ECHOE adheres to the following policy:

1. All punctuation characters except intraword instances and abbreviation markers are encoded as `<pc>`.
2. All *punctus* have been encoded as middle dots regardless of their distance from the baseline, as it would have been impracticable to distinguish between baseline dots and middle dots, let alone intermediate levels.
3. All rhetorical/syntactic punctuation has been transcribed and encoded with a space on either side of the `<pc>` node (but not at the end of a line of code).
4. Punctuation intended to set off numerals or one-letter words or abbreviations has been transcribed and encoded immediately adjacent to the node it was intended to isolate, without intervening space. (For most purposes other than CSS styling, spacing between XML nodes is irrelevant.)
5. It is not ECHOE policy to record punctuation intended to indicate word separation between words written together, but a degree of inconsistency should be expected in this regard, as this function cannot always easily be distinguished from rhetorical/syntactic markup.

## Sentences

Though the sentence may seem like a natural syntactic unit to readers who have grown up with predictable punctuation, edge cases may be produced in any language. The paratactic structure of much of the surviving corpus of Old English makes this problem substantially more complex. Moreover, if sentences could objectively be defined but turned out to be unwieldy for our purposes, then the resulting unit would be of limited value to ECHOE, which seeks to make shorter shorter segments available for comparison. Accordingly, the `<s>`-unit employed by ECHOE is best understood as occupying a place between the levels of the clause and the sentence, and informed by the following kinds of information:

- Syntax
- Content
- Length
- The extent of a corresponding Bible verse
- The syntax of a Latin source
- Direct speech
- Manuscript punctuation
- Manuscript majusculization

A typical unit seeks to cover one syntactic clause or a short sentence. *Inquit*-clauses are set off from direct speech unless this results in very short units or syntactically incomplete sequences: thus “*hē cwæð*” is not normally left stranded, but “*þā spræc hē and cwæð*” has typically been assigned its own segment. The thinking here is that there are use cases for which it may be desirable to isolate direct speech. However, Bible verses as defined

today typically include *inquit*-clauses and direct speech in the same verse, and such Bible formatting is typically mimicked in ECHOE so as to make it easier to compare multiple renderings and echoes of a given Bible verse. Conversely, the division of biblical books into verses sometimes violates conventional syntactic and content constraints either by including multiple speakers in a single verse or by separating subject and verb in the Latin in a way that would be undesirable in Old English, e.g. by starting a verse with “dicens” with the subject left stranded in the preceding verse. Wherever the biblical division is undesirable for these sorts of reasons, ECHOE reverts to its syntax-first approach and cites the appropriate verses in multiple units, or multiple verses in the appropriate units, where necessary, even if that means multiple verses have to be cross-referenced in the biblical source reference.

A degree of inconsistency should be expected to result from these complex considerations, as well as from shifting insights over the seven years it took to define `<s>`-units across the corpus and the difficulty of modifying segmentation after the fact once the source reports had begun referring explicitly to sentence identifiers already assigned. Hence the [below](#) recommendation to rely on rolling context windows for analyses in which consistency of context window matters. In one case ([331.53](#)), it has been necessary to define “Leofan men” as its own unit because manuscript markup marks the transition between [331.52](#) and [331.53](#) as optional, and setting it off as such in the XML required that the `<s>`-tree should terminate at that point.

## Tokenization

Where a scribe has substituted one reading for another, we have tried to give each reading its own `<w>`-tag where possible. Generally this means that if a full word was replaced with another full word, we will have tagged it twice so it could be lemmatized twice if we spotted it during manual review of the semiautomated tokenization process. However, where a modification of a substring of a word resulted in a new reading, it has been technically impractical to mark it up twice without encoding the entire word as having been deleted. The latter approach was nevertheless eventually adopted in the interest of future lemmatization in such cases where material is actually replaced, but not until a late stage in the project. Accordingly, such cases may be found to have been encoded in three distinct ways: (1) the whole word is marked as deleted even if only a substring was in fact altered, so that both words could be tokenized in full; (2) the deletion and substitution represent parallel word substrings (using `<w part="I">` and `<w part="F">`), so they could be separately processed while still accurately representing what letters were modified; (3) the original and new reading are enclosed in a single `<w>` node, on the assumption that lexical processes will consider either the original or the revised form, not both. Words that have material added to turn them into different words, e.g. the addition of the prefix *un-*, are most frequently contained in a single `<w>` node only and can accordingly not be twice processed on the basis of the XML corpus without relying on concatenated values such as a space-delimited lemmatization string *snotorlic unsnotorlic*.

## Named Entities and Numerals

Please take note of the issues with category boundaries outlined [above](#). Although these types of markup were conducted systematically, they were carried out comparatively late and have accordingly gone through less proofreading.

## Incomplete Features

✂ A modest number of features could not be completed by the time of this release. These are described in this section.

### British Library Manuscripts

Digitizations of the damaged manuscripts London, British Library, Cotton Otho A. viii, B. x, and Vitellius D. xvii (Ker/ECHOE MSS 168, 177A, and 222) were not available to us during the initial drafting of ECHOE, while the Library’s restricted access policies during the succession of pandemic and ransomware attack (2020–2024) further hindered our access to these materials. Given the state of these manuscripts, we determined that it was not worth transcribing them on the basis of microfilm copies; they will be added once high-resolution images become available.

When the ransomware attack brought down BL services, we had recently completed final general proofreading of transcriptions from nearly all London manuscripts. However, some specific work remained outstanding, notably hand attribution. Consequently, Cleopatra B. xiii, Tiberius A. iii, Vespasian D. xiv, and Vespasian D. xxi (Ker/ECHOE MSS 144, 186, 209, and 344) are the main offenders still attributing scribal interventions to DP0000, our code for hands yet to be identified. Conjectural readings in the particularly damaged portions of Otho C. i (notably *Evil Tongues*: ECHOE 182.4, but also *Malchus*: ECHOE 182.2c) as well as the fragment BL Additional 38651 (a Wulfstan autograph: ECHOE 130) were left for reassessment too long and have been left with editorial XML comments until such time as access is restored.

### Biblical Source References

In ECHOE’s main drafting stage, the sources of biblical quotations and paraphrases were encoded on a running basis during drafting and/or proofreading. When the drafting of separate source reports (not included in this release) was begun, this earlier practice was put on hold in order to avoid the duplication of work, and it was decided that biblical sources could later be copied in from the source reports. Since source reports were completed for only a third of ECHOE versions by the time of this release, a small proportion of biblically sourced corpus segments continue to go unreferenced. We expected to address this shortcoming in the near future.

### Rhetorical Markup

The markup of binomial pairs and enumerations was completed only for Blickling, Vercelli, and their manuscript variants. There are no plans to extend the range in future. The markup of audience address and metrical content has been completed for the full corpus, but rhetorical markup has not been subjected to a proofreading stage.

### Paragraphing

An unsystematic start has been made dividing the XML corpus into paragraph-like <ab> (“anonymous block”)-segments. These are intended to facilitate reading e.g. in ebook format or in some other user-friendly transformation. Since we have hitherto been unable to allocate time for this task, however, the work remains far from complete, and witnesses to the same text should not at this stage be expected to exhibit the same division.

## Lemmatization

While lemmatization was never part of ECHOE’s initial objective, we have long intended to undertake a follow-up project of this nature. In its anticipation, a very few `<w>` nodes containing unusual forms have been manually marked up with lemmatization data merely to prevent their being incorrectly assigned in future. The present documentation accordingly does not describe lemmatization markup.

## Notes for Further Processing

✍ When transforming (parts of) the corpus or otherwise using it as a basis for further processing, you may want to keep the following in mind.

### General Principles

In our encoding strategy, we have anticipated a range of desired outputs not by encoding normalized, semidiplomatic, and diplomatic transcriptions in parallel nodes, but by enabling a range of renderings through a finer grain of processing instructions, some of which are demonstrated by the display sliders in [ECHOE Online](#). The most notable of the underlying variables are set out in Table 3.

Table 3: Notable variables available for output formatting

Variable	Effect
<code>&lt;sic&gt;</code>	When enabled, this element prints scribal errors as encountered. Exclusively used in a <code>&lt;choice&gt;</code> tree with a sibling <code>&lt;corr&gt;</code> .
<code>&lt;corr&gt;</code>	When enabled, this element prints editorial emendations. Exclusively used in a <code>&lt;choice&gt;</code> tree with a sibling <code>&lt;sic&gt;</code> .
<code>&lt;surplus&gt;</code>	When enabled, this element prints scribal errors whose simple omission improves the reading.
<code>&lt;supplied&gt;</code>	When enabled, this element prints editorial emendations whose simple insertion improves the reading.
<code>&lt;abbr&gt;</code>	When enabled, this element prints abbreviated forms as encountered. Exclusively used in a <code>&lt;choice&gt;</code> tree with a sibling <code>&lt;expan&gt;</code> . Toggle its inclusion in tandem with <code>&lt;am&gt;</code> , and to the exclusion of <code>&lt;expan&gt;</code> and <code>&lt;ex&gt;</code> .
<code>&lt;expan&gt;</code>	When enabled, this element prints the editorially reconstructed expansion of a scribal abbreviation. Exclusively used in a <code>&lt;choice&gt;</code> tree with a sibling <code>&lt;abbr&gt;</code> , and a child <code>&lt;ex&gt;</code> that may be styled to display which part of the word has been supplied by the editor.
<code>&lt;am&gt;</code>	This element occurs not only as a child of <code>&lt;abbr&gt;</code> , where it requires no special treatment, but also as a direct child of <code>&lt;choice&gt;</code> with a sibling <code>&lt;ex&gt;</code> , normally where the editor saw fit to single out only part of a word as abbreviated. Enabling it thus prints abbreviated forms as encountered.

Variable	Effect
<code>&lt;ex&gt;</code>	This element occurs not only as a child of <code>&lt;expan&gt;</code> , as described above, but also as a direct child of <code>&lt;choice&gt;</code> with a sibling <code>&lt;am&gt;</code> , normally where the editor saw fit to single out only part of a word as abbreviated. Enabling it thus prints the editorially reconstructed expansion of a scribal abbreviation.
<code>&lt;pc&gt;</code>	When enabled, this element prints medieval punctuation. (Note that in some 250 cases, a punctus <code>&lt;·&gt;</code> has been interpreted as an abbreviation marker instead and thus encoded within <code>&lt;am&gt;</code> , which prohibits a child <code>&lt;pc&gt;</code> .)
<code>&lt;seg type="transpose"&gt;</code>	When left as is, transposed material is printed in its original order. To adopt the reviser's intended order, the node's children must be sorted by value of <code>@ana</code> as described under <b>Scribal Interventions</b> below.
Special characters	Special characters may be normalized using substitution functions (e.g. <code>functx:replace-multi</code> in XSLT). This concerns glyphs, such as <code>&lt;p&gt;</code> , <code>&lt;ŷ&gt;</code> , <code>&lt;f&gt;</code> , and <code>&lt;·&gt;</code> , as well as such entities as <code>&amp;slongdes;</code> and <code>&amp;punctelev;</code> . To filter out <code>ȝ</code> (f-shaped y), simply rendering <code>&lt;g&gt;</code> nodes suffices.
Case	Inconsistencies in the distribution of uppercase characters are best avoided by substituting lowercase counterparts for all capitals.

As should become clear from Table 3, a normalized rendering of an ECHOE version is simply one produced using transformation or styling instructions that render elements like `<corr>`, `<expan>`, `<ex>`, and `<supplied>` while disabling elements like `<sic>`, `<abbr>`, and `<surplus>`, as well as carrying out a substring substitution function to filter out special characters. ECHOE contains no information on suggested modern punctuation or capitalization, so users looking to normalize face two choices here: fold to lowercase or keep the slightly inconsistent capitalization of the transcriptions, and strip away all punctuation or substitute modern or simplified marks in all those places where the transcriptions encode more pluriform marks. A diplomatic rendering is produced with the opposite settings. A stylesheet for a static output should normally render only one of `<abbr>` and `<expan>`, and only one of `<am>` and `<ex>`, but it is reasonable for (semi)diplomatic renderings to offer information about both original and emended readings using some scheme to visualize which is which (e.g. `deleted \added/`). It is possible to provide for a range of outputs in a single XSLT stylesheet using parameters and `<choose>` environments with `<when>`-tests for different parameter values.

## Scribal Interventions

Individual letter modifications, including instant modifications in the main hand, have been recorded where we felt we could do so with some confidence.

Nodes marked for transposition may be rendered in whichever way is desired: they are encoded in their original order and thus will by default be so rendered, but the following XSLT template will reorder the nodes as intended by the intervening scribe:

```
<xsl:template match="tei:seg">
  <xsl:choose>
```

```

        <xsl:when test="@type = 'transpose'">
            <xsl:apply-templates>
                <xsl:sort select="@ana"/>
            </xsl:apply-templates>
        </xsl:when>
        <xsl:otherwise>
            <xsl:apply-templates/>
        </xsl:otherwise>
    </xsl:choose>
</xsl:template>

```

## Punctuation

Punctuation has been encoded with hand attribution, but this is an uncertain business. We caution our users against statistically associating punctuation tendencies with specific scribes on the basis of our data; indeed, for many purposes punctuation (<pc>, but also look out for <am>·</am>) may as well be suppressed in transformation.

## Numerals

Where possible, the markup of numerals as <num> excludes such adverbial uses as *āna* “only, alone.” Because this practice involves a gray zone, and many instances of *ān* may functionally be understood as indefinite articles, you may choose to exclude @n="1" from analysis depending on your aims.

## Named Entities

In view of issues with category boundaries outlined [above](#), for some purposes it may be worth defining selection criteria that cover a concept across multiple categories, e.g. `match="tei:placeName[@key='#Egypt']` or `tei:name[@key='Egyptian']`. Users interested in New Testament characters named Mary or James will know to study our character conflation policy closely by inspecting the results associated with each key.

## Capitalization

Since our scribes may use majuscules or large minuscules in unexpected places, and we have attempted, insofar this may be consistently done, to mimic this practice using capitalization, many applications will benefit from lowercasing all letters as part of the normalization routine.

## Style

We have elected to refer our XML documents to a [sample CSS stylesheet](#) as a way of accommodating users desiring to use ECHOE as a reading corpus locally in a web browser. This stylesheet declaration should not be seen as a canonical part of the corpus, and may be disregarded in processing.

## Transcription and Metadata

ECHOE adheres to a comparatively diplomatic standard of transcription. Included are the following paleographical and interpretive data and metadata:

Table 4: ECHOE in-text metadata

Aspect	Specification
Letter-forms	æ, ç, ð, é, œ, 2, f, j, þ, þ, p, y, s, &; other characters normalized (but not j or punctuation, which see below).
Manuscript leaves	<pb/> (page beginning), including IIF manifest reference and canvas index.
Manuscript columns	<cb/> (column beginning).
Manuscript lines	<lb/> (line beginning).
Punctuation	Emulated to the extent MUFI allows.
Scribal interventions	Included up to c. 1200.
Additional scribal performances	Included up to c. 1200.
Scribal hands	Identified using <handNote> and <handShift/>.
Scribal identity	Identified within <handNote> where available.
Script	Identified using <handShift/>.
Language	Identified using @xml:lang.
Biblical echoes	Identified using <quote> with @source.
Textual units	<ab> (anonymous block) as suggested by content and/or scribal annotation; <s> (sentence-like segment) trees informed by factors of syntax, length, content, direct speech, and Bible verse; see further above.
Linguistic data	<w> (word), as yet without further specification but primed for lemmatization (and potentially part of speech) in future.
Named entities	Identified using <name>, <persName>, <placeName>, and @ref for PASE personKey IDs where available.
Numerals	Identified using <num>.
Metrical content	Encoded as <seg ana="verseLike">.
Rhetorics	Encoded as <seg> with a categorization as a value of @ana (audAddress, binomial, or enumeration).
Rubrics	Encoded using <head> and, more rarely, <trailer>.
Running titles	Encoded using <fw> (forme work).
Marginal content	Encoded using <note> or <add> as appropriate.

Notably absent from ECHOE's transcription standard are the following paleographical and codicological data:

- Manuscript damage not interfering with readings (e.g. holes predating the text)
- Scribal word spacing (e.g. the separation of prefixes; the affixation of <ɣ>)
- Letter-forms beyond the ones specified in Table 4
- Scribal performances postdating c. 1200 (notably absent is the tremulous hand of Worcester)



## Annotated Indices of Body Elements and Universal Attributes

The alphabetical list of TEI elements in Table 5 offers notes on transcription and encoding policy within the `<body>` tree on a per-element basis. Excluded are the TEI header and the `<standOff>` tree, for which see [here](#) and [here](#) above.

Table 5: TEI body elements used in ECHOE

Element	Usage in ECHOE
<code>&lt;ab&gt;</code>	Paragraph-like chunk determined by content and/or manuscript highlighting. Not at present consistently implemented.
<code>&lt;abbr&gt;</code>	Abbreviated words and phrases.
<code>&lt;add&gt;</code>	Scribal addition; see <a href="#">Scribal Intervention</a> above.
<code>&lt;am&gt;</code>	Abbreviation marker (typically a macron in Old English contexts, even where the manuscript form is more diverse; in Latin contexts we have retained a wider spectrum of markers).
<code>&lt;cb/&gt;</code>	Marks the start of a column (limited to <a href="#">310.82</a> ).
<code>&lt;choice&gt;</code>	Accommodates parallel nodes; see under <a href="#">Abbreviation</a> above, and <code>&lt;corr&gt;</code> in this index.
<code>&lt;corr&gt;</code>	Where we have seen fit to emend, we have used parallel <code>&lt;sic&gt;</code> and <code>&lt;corr&gt;</code> nodes within <code>&lt;choice&gt;</code> , except where it has been more economical to use <code>&lt;surplus&gt;</code> or <code>&lt;supplied&gt;</code> , which see.
<code>&lt;del&gt;</code>	Scribal cancellation; see <a href="#">Scribal Intervention</a> above.
<code>&lt;div&gt;</code>	Used only in versions with interim and/or closing rubrics, dividing the document into sections to permit multiple instances of TEI's <code>&lt;head&gt;</code> and <code>&lt;trailer&gt;</code> elements.
<code>&lt;ex&gt;</code>	Material supplied by the editor to resolve an abbreviation.
<code>&lt;expan&gt;</code>	The resolved abbreviation in full, comprising both visible and supplied material.
<code>&lt;foreign&gt;</code>	Foreign text (Latin, Greek, or Hebrew), encoded as a value <code>la</code> , <code>grc</code> , or <code>hbo</code> of <code>@xml:lang</code> . Where possible, the <code>@xml:lang</code> attribute has instead been attached directly to another element, such as <code>&lt;quote&gt;</code> or <code>&lt;s&gt;</code> .
<code>&lt;fw&gt;</code>	Running manuscript header (“forme work”).
<code>&lt;g&gt;</code>	Encodes a glyph for which there is no <a href="#">MUFI</a> unicode point. The only character so encoded in ECHOE is <i>f</i> -shaped <i>y</i> (see <a href="#">Character Encoding</a> above).
<code>&lt;gap&gt;</code>	Lacuna due to damage, erasure, or modification. We have confined ourselves to the <code>@unit</code> values <code>chars</code> , <code>lines</code> , and <code>leaves</code> , while <code>@reason</code> may read <code>binding</code> , <code>damage</code> , <code>erasure</code> , <code>fading</code> , <code>lettermod</code> , <code>loss</code> , <code>omitted</code> , <code>overwriting</code> , <code>reagent</code> , <code>trimming</code> , <code>unfinished</code> .

Element	Usage in ECHOE
<handShift/>	Registers either the start of a new scribal hand (as a value of @new) or a (temporary) shift to a different style of script (@script). All transcriptions are encoded after the rubric as starting in vernacMinusc, but most Latin quotations are in either carolMinusc or hybrid. Please note that we have excluded rubrics from our analysis of hand or script. For Romanized Greek see under <b>Script</b> above.
<head>	Rubric, with optional attributes @rend and @xml:lang.
<hi>	Encodes manuscript highlighting in terms of script size and color. Uses the TEI-recommended syntax @rend="size(2.5) color(red)", the size being measured in line height counting the space between two rulings. Script size has only been recorded for letters two full lines tall and up. Color identifiers used are limited to black, blue, gold, green, purple, and red, as well as the combinations black-red, black-gold, black-green, red-black, red-blue, red-green, and green-red to indicate letters with ornamental coloring. In the compound coloring scheme, the first color is the letter's main color, while the second is ornamental. It should be noted that the colors blue and purple may sometimes be the result of the degrading of another ink, though we have attempted to record the intended color.
<lb/>	Manuscript line beginnings, counting written lines only; line breaks in marginal content are not counted except in such items in which (as in CCCC 41) the complete version is recorded in the margin. Where a line break falls within a parallel tree, we have proceeded as follows: with mutually exclusive content (notably <abbr> and <expan>), <lb> is recorded twice with the same value of @n; within <subst>, whose parallel contained nodes may both be printed, it is recorded only once (in <add>, not <del>). Runover content (whether of rubrics or folio- or text-finally) has not been marked as occupying an additional line.
<name>	Used only to encode demonyms (<name type="demonym">), broadly defined to include nouns ( <i>israhela</i> in <i>israhela bearn</i> ) as well as adjectives ( <i>israhelisc</i> ), but also groups like <i>Jewish</i> (but not <i>Christian</i> or <i>Pharisee</i> ), family names and geographic cognomens ( <i>Pilate</i> , <i>Magdalene</i> , <i>Iscaiot</i> , <i>Nazarene</i> ). Because Old English will sooner refer to <i>the land of the English</i> than to a strictly geographical <i>England</i> , phrases like <i>engla land</i> are doubly tagged with the first word a demonym and the full phrase a place name (cf. <placeName> below).
<note>	Marginal content with a @type value of commentary, marker, or unrelated. Most are cross-shaped markers. Contrast marginal additions, for which see <add>.

Element	Usage in ECHOE
<num>	Numerals, identified as a value of @n. Excluded are forms of <i>ān</i> with adverbial force (“only, alone”) as well as anything amounting to zero (such as <i>nān</i> ). Included are fractions (a tithe being 0.1, a third share 0.33) and integers, with complex numerals such as <i>þūsend þūsend</i> resolved to 1000000 and the like. Where complex numerals are interrupted by non-numerals ( <i>nigon hund wintra and þritig wintra</i> ), the span goes up to and including the last numeral but cuts off before the remainder of the phrase, so that the cited example would include “wintra and” in the numeral span but exclude the second instance of “wintra.” Also included are words transparently based on and semantically referring to numbers, such as <i>twifeald</i> “twofold” and <i>þrynnes</i> “Trinity,” but a case like <i>ānfeald</i> has been excluded where it means “simple” without relevance to the number one, while words like <i>betwēonum</i> “between” have been excluded even in constructions like <i>be ūs twēonum</i> (“between us”), and the same is true for month names like <i>September</i> .
<orig>	Encodes the Romanized Greek manuscript form “AMHN”, in parallel with <reg> in a <choice> tree.
<pb/>	Marks the start of a folio side, which it identifies as a value of @n, and gives the relevant IIF manifest and canvas index as a value of @ref.
<pc>	Marks punctuation except where <i>punctus</i> have been encoded as abbreviation markers, as TEI does not permit <pc> within <am>.
<persName>	Personal names, as well as a select few titles used in much the same way: <i>crist/christus</i> (keyed to Jesus), <i>antecrist</i> , and <i>farao</i> (but not e.g. <i>hælend</i> ).
<placeName>	Geographical names broadly conceived, including the names of settlements, countries, rivers, seas, continents, and Paradise (the earthly and the heavenly grouped under a single key). Because Old English will sooner refer to <i>the land of the English</i> than to a strictly geographical <i>England</i> , phrases like <i>engla land</i> are doubly tagged with the first word a demonym and the full phrase a place name (cf. <name> above). The @key value points to further detail in a <standOff> tree, with approximate geographical coordinates where applicable.

Element	Usage in ECHOE
<b>&lt;quote&gt;</b>	Used to set off a Latin or Old English quotation, paraphrase, or echo of a biblical passage (registered under @source). Nonbiblical sources, as well as a discussion of biblical sources, may be found in the separate source reports available at <a href="#">ECHOE Online</a> . By encoding biblical renderings directly in the XML, the corpus allows for guided searches and comparisons of such renderings for specific verses. Please note that TEI describes the element as setting off material “attributed by the narrator or author to some agency external to the text,” but we have opted to mark up reused material irrespective of authorial attribution. Where multiple sources are recorded, they are space-delimited, and this may mean either that all were used or that it is difficult to determine which (e.g. which gospel) was used.
<b>&lt;redo&gt;</b>	Expresses that the same intervention was carried out twice, e.g. an interlinear correction followed by an identical inline correction or vice versa. Since functionally this verges on retracing, which we have chosen not to encode, not all scribal reaffirmations are so represented in the transcriptions, and the element only occurs just over a dozen times.
<b>&lt;reg&gt;</b>	Encodes the normalized form of Romanized Greek “AMHN”, in parallel with <b>&lt;orig&gt;</b> in a <b>&lt;choice&gt;</b> tree.
<b>&lt;restore&gt;</b>	Encodes deletions that have been undone. Since such cases are in our corpus typically caught up in a substitution operation, we have more commonly had to resort to <b>&lt;undo/&gt;</b> instead. Like all interventions, it carries @hand and @rend, the latter with a value erasure (of the cancellation) or addition (of the textual restoration).
<b>&lt;s&gt;</b>	Sentence-like segments, as defined using a weighted consideration of the factors syntax, length, content, direct speech, and Bible verse. Ideally, each unit comprises a longer clause or a short sentence to facilitate the manual comparison of multiple witnesses, biblical renderings, or similar passages. Each unit receives a unique identifier (@xml:id) with a value consisting of s, the ECHOE version identifier, and the sentence number (e.g. s394.11.1), and known connections with other witnesses have been manually encoded by referencing all known witnesses but one to the remaining witness as a value of @n with a value starting x; thus e.g. <s xml:id="s190A.b.1" n="x49B.1.1">. The prefix s or x in this context serves to comply with XML validity constraints only and should be excluded from human sentence referencing.

Element	Usage in ECHOE
<seg>	Used for three purposes: (1) to add identifiers to sequences marked up for scribal revision (see <alt>, and the discussion of transpositions under <b>Scribal Intervention</b> above); (2) to set off Romanized Greek script (see <b>Script</b> above); (3) for rhetorical and metrical markup, using the attribute @ana to identify the motif or style (see <b>Rhetorical Markup</b> above).
<sic>	Records an erroneous scribal reading; see <corr>.
<subst>	Records a substitution of scribal readings; see <b>Scribal Intervention</b> above.
<supplied>	Editorial addition.
<surplus>	Dittography and other material deemed to harm the reading.
<text>	Each file contains a single <text> tree accommodating the transcription of a single version.
<trailer>	Concluding rubric (rare), a counterpart to <head>.
<unclear>	Letters and passages of which we thought we could see traces, which we have accordingly transcribed, but which we have been unable to identify with confidence. Expect to see it alongside <gap> and/or <supplied> with the semantic differentiation that the three element types imply. Where we had greater confidence in our readings, we have simply transcribed them as text nodes without marking them <unclear>.
<undo/>	Registers that a scribe has canceled an earlier intervention, typically a substitution or an addition. For straightforward undeletions see <restore>. The element carries @hand and @rend in addition to a @target pointer to the affected node.
<w>	Marks a word token following <i>DOE</i> 's headword list. We have attempted to enclose parallel content (MS readings and emendations; original readings and scribal revisions) in separate <w> nodes to facilitate their separate processing for lemmatization or POS-tagging, but we have not so enclosed any lacunae unless we were able at least conjecturally to make out a minimum of one letter (in which case we have sometimes had to guess at the length of the word). Partial word substitutions may have been encoded in one of three ways, as described under <b>Tokenization</b> above.

A selection of universal or widely used attributes are noted in Table 6.

Table 6: Selected TEI attributes used in ECHOE

Attribute	Application in ECHOE
@ana	Thematic markup (e.g. rhetorical categories); transposition order.
@notation	Associated with <w> where a scribe before c. 1200 has placed an accent over part of the word (given the value accentuated).

Attribute	Application in ECHOE
@rend	Manuscript highlighting; cf. <hi> in Table 5.
@xml:id	Used for the following purposes: (1) sentence identification, on <s>; (2) hand identification, on <handNote> in the TEI header; (3) place name identification in the <standOff> tree; (4) identification of nodes marked for transposition or in connection with <undo> or <redo>, or to identify the members of a group of alternative readings or lemma/gloss pairs.
@xml:lang	Language; cf. <foreign> in Table 5.

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