Regular Article

Vincent van Altena*, Jan Krans, Henk Bakker, Jantien Stoter

’Ιουδαίαν in Acts 2:9: Reverse Engineering Textual Emendations

https://doi.org/10.1515/opth-2020-0113
received February 29, 2020; accepted April 21, 2020

Abstract: Building on a plethora of conjectured emendations for ΙΟΥΔΑΙΑΝ, this article approaches the issue once again to test the viability of a quantitative tool and to establish the possibility of palaeographical confusion of ΙΟΥΔΑΙΑΝ with an alternative topo- or demonym. The article starts with an experiment using Greek topo- and demonyms derived from contemporary Christian, Jewish, and Classical sources to establish a palaeographical confusion score. Next the likeliness of the “closest” alternatives in the geographical arrangement of Acts 2:9–11 is explored. The article ends with an evaluation of the possible implications for the text in Acts 2:9 as well as a critical appraisal of the method for conjectural criticism.

Keywords: table of nations, palaeographic confusion, conjectural criticism, spatial analysis

1 Introduction

In the first part of this study, “’Ιουδαίαν in Acts 2:9: a diachronic overview of its conjectured emendations”, we demonstrated that several textual emendations have been conjectured to solve the alleged interpretive problems with ΙΟΥΔΑΙΑΝ in Acts 2:9. In the history of interpretation, solutions have been explored in three directions: (1) ΙΟΥΔΑΙΑΝ has been interpreted as an adjective instead of a noun, (2) ΙΟΥΔΑΙΑΝ has been regarded as a corruption or later interpolation in the text, and (3) several toponyms have been proposed as a solution to emend the text. None of these suggestions have been generally accepted.

The first aim of this article is to contribute to the discussion by testing the hypothesis that the text might have been corrupted during transmission due to palaeographical confusion of Greek characters, i.e. the text might originally have contained a different Greek word.[1] To test this hypothesis, we need to identify a Greek toponym that is palaeographically, historically, and geographically suitable to replace ΙΟΥΔΑΙΑΝ in Acts 2:9. Therefore, we use a reverse engineering approach: instead of starting from the text itself, trying to find a fitting explanation of the interpretive problem concerning ΙΟΥΔΑΙΑΝ, we start with a list of toponyms and research which toponyms are likely alternatives based on the criterion of

1 We are of course fully aware that palaeographical confusion is not the only mechanism of scribal change within textual transmission.

* **Corresponding author: Vincent van Altena,** Faculty of the Built Environment and Architecture, Delft University of Technology, Delft, The Netherlands; Faculty of Religion and Theology, Vrije Universiteit Amsterdam, Amsterdam, The Netherlands, e-mail: v.p.vanaltena-1@tudelft.nl, v.p.van.altena@vu.nl
Jan Krans: Protestantse Theologische Universiteit, Amsterdam, The Netherlands
Henk Bakker: Faculty of Religion and Theology, Vrije Universiteit Amsterdam, Amsterdam, The Netherlands
Jantien Stoter: Faculty of the Built Environment and Architecture, Delft University of Technology, Delft, The Netherlands

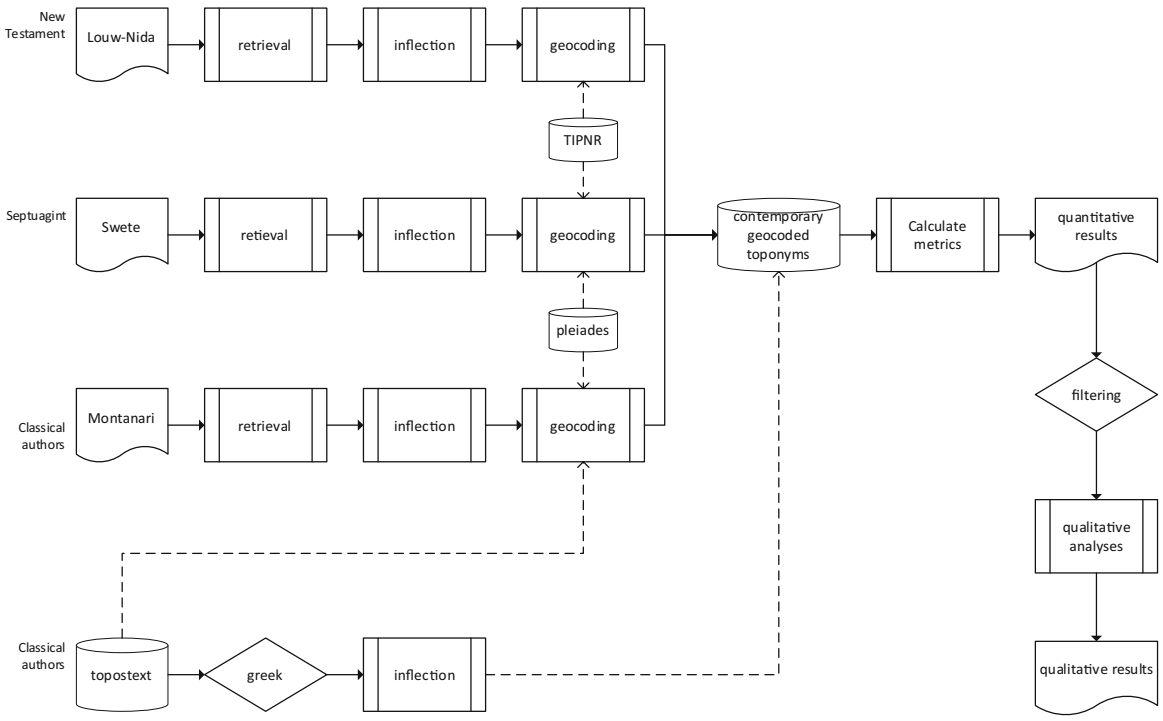

Figure 1: Method and data.

palaeographical confusion.[2] The results of this test will be further analysed to see whether we can solve the interpretive problem in Acts 2:9 or whether we can exclude palaeographical confusion as a possible explanation for the alleged corruption of the text.

The second aim of this article is to evaluate whether our method is helpful for identifying possible cases of palaeographical confusion in problematic texts.

The article has been organised as follows: Section 2 is concerned with the method and data used for this study. Section 3 presents the findings after the application of the method for Acts 2. Section 4 evaluates these results by considering the implications of the experiment for Acts 2 and provides a critical appraisal of whether our experiment recommends a wider application of the method for other cases. Section 5 finalises the article with a conclusion and outlook for further research.

2 Method, algorithm, and data

To gauge the probability of confusion between a toponym and the supposedly corrupted ΙΟΥΔΑΙΑΝ, we research how easy it might have been that during textual transmission a scribe misreads one character for another character and that this resulted in the current reading.

We propose the following method (illustrated in Figure 1): we use a computer algorithm and three data sets comprising toponyms occurring in early Christian literature, Greek Jewish Scriptures, and Classic texts to identify possible palaeographic alternatives. Furthermore, we test the appropriateness of the most likely results in their wider historical and geographical contexts.

2 Reverse engineering is the terminology employed in technology-related disciplines. The Cambridge Dictionary defines it as "the process of studying another company's product to see how it is made, sometimes in order to be able to copy it". In this article, we use this concept in a more loose way: we start with the hypothesis about the textual transmission process and a data set of semantical candidates, and subsequently prune the number of likely toponyms by adding additional criteria.

2.1 Confusion distances

The *confusion distance* has been proposed by Van Altena et al. as a metric to calculate the probability of palaeographical confusion between two words.[3] The underlying assumption is that the text could have been corrupted at a very early stage in the transmission process. When this corruption was unintentional, it might have been caused by a misreading of the V*orlage*, possibly due to the confusion of Greek majuscule characters.

In their study, Van Altena et al. propose that the probability of confusion of Greek majuscule characters is not equally likely and that combinations of characters might be confused for a single character and vice versa. They therefore propose a confusion table that contains character pairs and a digit representing the assumed ease of confusion. Our study uses this algorithm and the accompanying confusion table to establish confusion distances of toponyms.

2.2 Data

The second ingredient for our study is a collection of place names (i.e. toponyms) with geographic locations, also known as an *onomasticon* or *gazetteer*.[4] For the purpose of our study, this data set should contain Greek toponyms that correspond in grammatical function with ΙΟΥΔΑΙΑΝ, are supposed to be familiar to the original author of Acts, and fit the geographical arrangement in Acts 2:9–11.[5] To the best of our knowledge, a gazetteer that fits these requirements does not exist. We therefore retrieved toponyms from textual resources, inflected them to the proper grammatical case (i.e. accusative or nominative in case of uninflected nouns), and assigned geographical coordinates to each toponym.

2.2.1 Retrieval of toponyms

We used three types of literary resources. For the New Testament, we created a data set from a semantic dictionary.[6] This data set contains 259 location-related pronouns, including toponyms, demonyms, and derivatives such as adjectives, which occur in the 27 books of the New Testament. Furthermore, we argue that it is reasonable to construct a list of toponyms, which appear in the Septuagint (LXX), and take them to reflect contemporary toponyms that might have been known to an author contributing to the tradition of early Christian literature in the time of writing the book of Acts.[7] For this purpose, we retrieved

3 van Altena et al., "Spatial Analysis of New Testament Textual Emendations Utilizing Confusion Distances."

4 In a modern sense, a gazetteer consists of "three core elements: toponyms (and their history), spatial location (in various representations, such as points, lines, and polygons), and classification (e.g., types and categories of places)", cf. Yuan, "Mapping Text," 109–23.

5 van Altena et al., "Spatial Analysis of New Testament Textual Emendations Utilizing Confusion Distances," 48–9.

6 Louw and Nida, *Greek-English Lexicon of the New Testament*. We selected all entries in the range 93.389–93.615 (Places) and exported them to a spreadsheet.

7 Van der Meer identifies five problems to temper expectations in a reconstruction of LXX topography: "[1] most of the geography and topography of the world in which the Septuagint was made[…] is not reflected in the Greek translations of Hebrew Scripture, [2] that the corpus for the study is a heterogeneous collection, [3] that several Greek renderings of Hebrew toponyms rest on misinterpretations or [4] deliberate actualizations, and finally [5] that several Greek toponyms were misunderstood in the course of textual transmission", cf. van der Meer, "The Natural and Geographical Context of the Septuagint: Some Preliminary Observations," 393. However, since the aim of this article is not to reconstruct an actual topography of the Lxx but to construct a list of toponyms that the author of Acts might have been familiar with, these caveats will not affect our main conclusion.

Table 1: Statistics about the toponym data sets

	Indeclinable	Localised	Total
Louw-Nida	35	322	322
LXX	917	1,780	1,783
Montanari	61	1,548	3,389
ToposText	123	4,454	4,454
	1,136	8,104	9,948

toponyms from the Septuagint.[8] The third group pertains to toponyms occurring in classical authors. We used the website Topostext[9] and the Greek-English dictionary by Montanari et al.[10] as the two major sources to compile this list of toponyms. Especially the retrieval of topo- and demonyms from a dictionary appeared to be a tedious endeavour.[11] Eventually, we made the resulting lists of toponyms in singular nominative form available online.[12]

2.2.2 Inflection of toponyms

Subsequently, we had to inflect these lists of toponyms, since the data retrieved from dictionaries and the online databases are in nominative singular form. Instead of looking up almost 10,000 individual toponyms (Table 1), we created a computer script[13] that inflected the toponyms to the different cases in singular and plural forms.[14] The results of these processes will be evaluated using qualitative criteria (see Section 4).

2.2.3 Geographical parsing

The position of each toponym on the skin of the earth has to be expressed in *x*,*y*-coordinates to enable geographical analysis. This is achieved by geographical parsing, which could be defined as "the task of identifying and resolving toponyms to their geographical coordinates".[15] Due to their nature, it is not equally straightforward to acquire coordinates by geoparsing for the three data sets that we introduced in the previous section.

---

8 The search of the Septuagint was performed with the aid of the computer program Logos Bible Software version 8.6.0.0052. See https://www.logos.com/. We used a two-step approach. First, we created a concordance for the whole Septuagint that we filtered on Biblical Entities and subsequently on Places. Next, we used the retrieved place names to query the Septuagint and retrieve the Greek words and the biblical references. The Septuagint text is based on: Swete, *The Old Testament in Greek*. We also used the tagged text that is provided by Tan et al., *The Lexham Greek-English Interlinear Septuagint*.

9 Kiesling and Aikaterini Laskaridis Foundation, "ToposText," Gazetteer, *ToposText Web Version 3.0*.

10 Montanari, *The Brill Dictionary of Ancient Greek*.

11 Montanari's dictionary is lacking an arrangement according to semantic field. Neither is there any explicit indication (e.g. the abbreviation *n. pr. loc.–nomen proprium loci*) that the particular lemma is dealing with a toponym. As such, the dictionary conforms to the general practice to which Louw-Nida and Swanson appear to be an exception. To tackle this obstacle, we retrieved toponyms from Montanari doing multiple searches for the terms cape, city, country, district, ethnic, island, mountain, pass, people, place, port, province, region, settlement, tribe, urban, and village.

12 van Altena, "New Testament Toponyms;" van Altena, "Greek Old Testament Toponyms;" van Altena, "Greek Toponyms Collected from Classical Literature."

13 van Altena, *Greek Noun Inflection Script*.

14 Our inflection script worked well for regular nouns, but we needed a solution for exceptions and nouns, which theoretically can be inflected in multiple ways if its gender is unknown (e.g. nouns ending on -ος could either be inflected to the accusative singular ending -ος or -ον be dependent on the gender of the noun). Instead of figuring out the correct inflection for each individual case, we implemented a solution that produces all possible variant inflections. This means that the script inflects these nouns in multiple ways. Though we expect only one of these inflections will be correct for most of the cases, we can use this inflected list of toponyms as an intermediate input for subsequent processing.

15 Gritta et al., "What's Missing in Geographical Parsing?"

New Testament toponyms are easily tied to the Tyndale Individualised Proper Names with all References (TIPNR).[16] Toponyms from the Septuagint can be linked to a toponym in TIPNR using their Hebrew equivalents but need to be checked since some Greek toponyms seem to have been actualised during translation.[17] Therefore, the LXX toponyms have also been linked to their equivalents in the Pleiades project[18] as far as possible. Toponyms from classical resources had already been given a location in Topostext.[19] For the geoparsing of the additional toponyms we retrieved from the Montanari dictionary, we used the Pleiades project.

3 Results

The confusion distance algorithm was used to estimate the probability of palaeographical confusion with ΙΟΥΔΑΙΑΝ for each toponym in our list. From the results shown in Figures 2 and 3 and Table 2, it is apparent that very few toponyms are palaeographically close to ΙΟΥΔΑΙΑΝ.

Only 6% of the toponyms has a confusion distance smaller than 4 and even 0.9% a confusion distance smaller than 3. Table 3 presents the toponyms that are palaeographically closest to ΙΟΥΔΑΙΑΝ, which means they are the most likely to be confused.

Taken on its own, the confusion distance might however give a distorted picture since a low confusion distance does not automatically imply a small number of operations to change one word into another. For example, ΙΕΡΑ ΠΥΛΗ has a small confusion distance with ΙΟΥΔΑΙΑΝ, but this metric conceals that the transformation needed to change ΙΕΡΑ ΠΥΛΗ into ΙΟΥΔΑΙΑΝ requires seven operations (neglecting the space). To account for this bias, we here introduce a second metric, the probability index, *ProbIdx*, which accounts for bias in the confusion distance, *confdist*, by multiplying it with the required number of operations, *ops*:

$$ProbIdx = confdist \times ops$$

The results show a small shift to the right in the frequency diagram of the operations compared to the distribution in the histogram of the confusion distance. This can be easily explained, since the confusion distance is the result of a weighted score of the individual operations.

For the remainder of this study, we have selected the first 49 toponyms that have the closest probability index with ΙΟΥΔΑΙΑΝ.[20] This is of course an arbitrary selection based on the assumption that a maximum of four unintentional confusions might still be conceivable.

---

16 The TIPNR is a collection of every proper or geographical name in the Bible, which are linked to the original languages. That is, Hebrew for names occurring in the Old Testament, and Greek for those found in the New Testament. The data set does not contain alternative readings, neither references to Greek names found in the Septuagint nor toponyms occurring in the Aramaic parts of the Old Testament. Geographical names have been enriched with a geolocation, which was derived from the OpenBible data set, Smith, "Bible Geocoding – Bible Maps in Google Earth and Google Maps." and Instone-Brewer, "Tyndale Individualised Proper Names with All References."

17 See also note 7.

18 The Pleiades data set is a community-built gazetteer of ancient places, covering the Greek and Roman worlds extensively, and currently broadening its scope to Ancient Near Eastern, Byzantine, Celtic, and Early Medieval geography. The data set is maintained by the Ancient World Mapping Center and the Institute for the Study of the Ancient World and is available through services to individual human researches as well as for consummation by computational humanities research, cf. Bagnall et al., "Pleiades: A Gazetteer of Past Places."

19 ToposText is an online database that contains location references relevant to Greek history and mythology. More than 5,000 references to Greek toponyms were collected from ancient texts covering a time span starting in the Neolithic period up through the second century CE, cf. Kiesling and Aikaterini Laskaridis Foundation, "ToposText."

The 56 entries in Table 3 can be divided into 32 places (settlements, towns, or cities) 16 regions, 8 miscellaneous features (hydrography, building structures, or landmarks), and one false positive. In the remainder of this article, these entries have been reduced to 48 unique toponyms by eliminating the false positive ΙΕΡΕΙΑΝ and redundant toponyms. Redundancy occurs in the cases of ΘΟΡΔΑΙΑ, ΘΟΡΔΑΙΑΝ, and ΘΟΡΔΙΑΝ; ΙΟΥΔΑΙΑ, ΙΟΥΔΑΙΟΝ, ΙΟΥΔΑΙΟϹ, and ΙΟΥΔΑΝ; ΙϹΤΙΑΙΑ and ΙϹΤΙΑΙΑΝ; ΡΟΥΔΙΑ and ΡΟΥΔΙΑΝ.

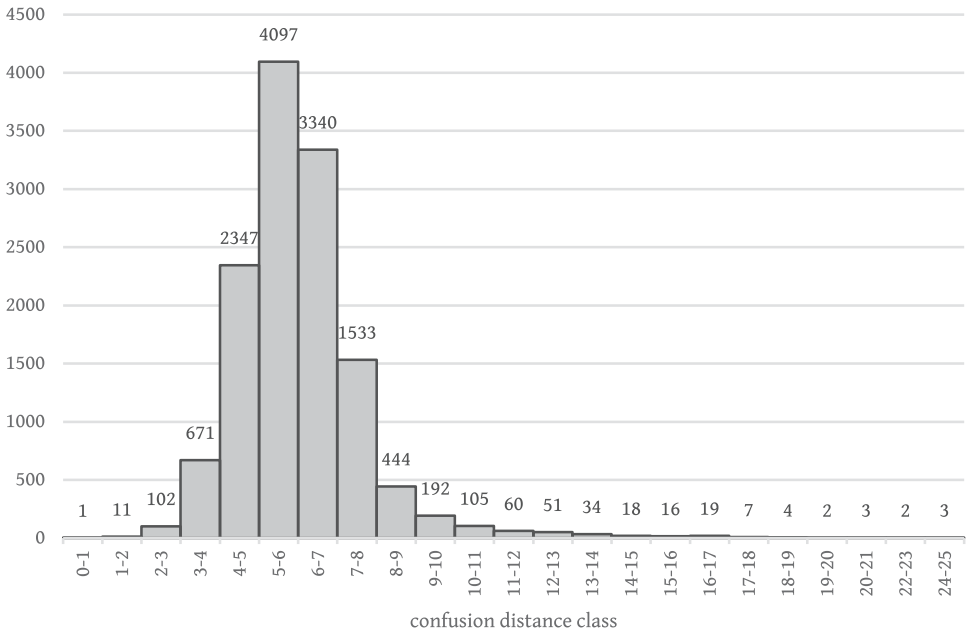

Figure 2: Frequency diagram of palaeographical confusion distances with ΙΟΥΔΑΙΑΝ. The horizontal axis shows the number of toponyms in a class.

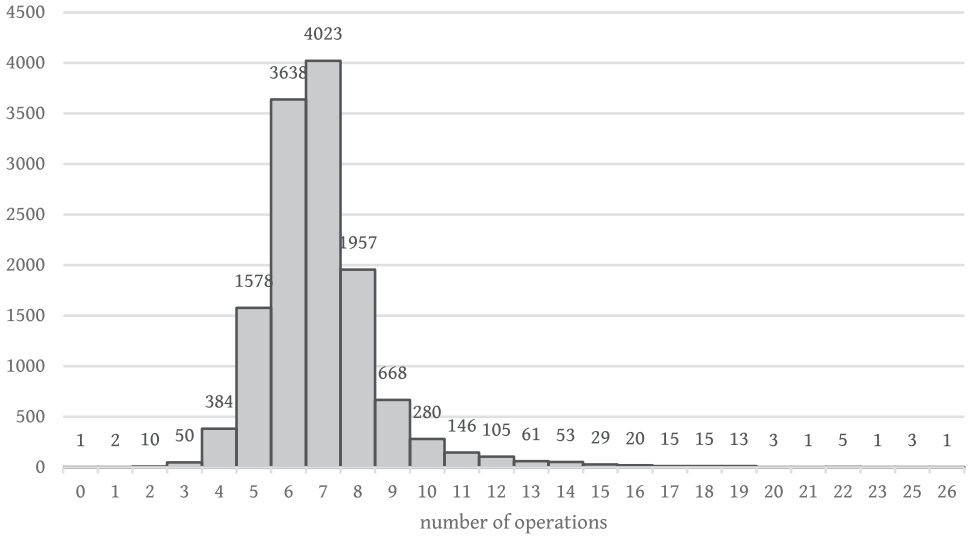

Figure 3: Histogram representing the number of toponyms with a particular number of operations to change the toponym in ΙΟΥΔΑΙΑΝ.

4 Discussion

This section discusses the semantical, geographical, and historical likeliness of the palaeographically fitting toponyms and evaluates the applicability of the method.

4.1 Candidature for emendation

The results in the previous section show that only for a few instances it is reasonable to argue for palaeographical confusion. To advance the establishment of criteria for the evaluation whether any of the

Table 2: The 20 closest alternatives to ΙΟΥΔΑΙΑΝ based on palaeographical confusion of characters

Toponym	Confdist	Toponym	Confdist
ΙΟΥΔΑΙΑ	1	ΠΕΤΑΛΙΑ	2.063
ΙΕΡΑ ΠΥΛΗ	1.15	CΤΑΔΙΑ	2.063
ΙΔΟΥΜΑΙΑΝ	2	CΤΑΔΙΟΝ	2.063
ΙΟΥΔΑΙΟC	2	ΙΕΒΛΑΑΜ	2.07
ΙCΤΙΑΙΑΝ	2.043	ΙΕΡΑΚΙΑ	2.07
ΕΟΡΔΑΙΑΝ	2.05	ΓΟΡΔΙΟΝ	2.083
ΙΟΡΔΑΝΗΝ	2.05	ΓΑΛΓΑΛ	2.119
ΡΟΥΔΙΑ	2.05	CΙΛΛΥΟΝ	2.13
ΓΥΛΛΙΟΝ	2.053	ΓΕΡΑΡΑ	2.143
ΙΤΑΛΙΑ	2.053	ΓΕΡΑΡΩΝ	2.143

Table 3: Palaeographical close toponyms to ΙΟΥΔΑΙΑΝ

Toponym	Confdist	Ops	Probidx	Toponym	Confdist	Ops	Probidx	Toponym	Confdist	Ops	Probidx
ΙΟΥΔΑΙΑ	1.000	1	1.000	ΟΥΑΡΙΑΝ	2.010	3	6.030	ΛΕΥΚΑΤΑΝ	2.043	4	8.172
ΙΟΥΔΑΙΟΝ	1.000	1	1.000	ΟΥΕΛΙΑΝ	2.010	3	6.030	ΙCΤΡΙΑΝ	2.043	4	8.172
ΡΟΥΔΙΑΝ	1.050	2	2.100	ΟΥΛΙΑΝ	2.010	3	6.030	ΑCΤΡΑΙΑΝ	2.043	4	8.172
ΕΟΡΔΑΙΑΝ	1.050	2	2.100	ΝΟΜΑΔΙΑΝ	2.020	3	6.060	ΧΕΤΤΑΙΑΝ	2.043	4	8.172
ΙCΤΙΑΙΑΝ	1.043	3	3.129	ΟΥΑΓΑΝ	2.033	3	6.099	ΙΕΡΕΙΑΝ	2.060	4	8.240
ΙΔΟΥΜΑΙΑΝ	2.000	2	4.000	ΤΟΥΙΑΝ	2.033	3	6.099	ΠΙCΙΔΙΑΝ	2.060	4	8.240
ΙΟΥΔΑΙΟC	2.000	2	4.000	ΙΟΡΔΑΝΗΝ	2.050	3	6.150	ΛΙΛΑΙΑΝ	2.060	4	8.240
ΙΟΥΔΑΝ	2.000	2	4.000	ΡΟΥΔΙΑ	2.050	3	6.150	ΙCΑΡΑΝ	2.060	4	8.240
ΒΟΥΔΕΙΑΝ	2.000	2	4.000	ΕΟΡΔΑΙΑ	2.050	3	6.150	CΟΥΑΤΡΑΝ	2.060	4	8.240
ΛΟΥΔΙΑΝ	2.000	2	4.000	ΟΥΓΑΥΑΝ	2.050	3	6.150	ΠΡΟΠΥΛΑΙΑΝ	2.060	4	8.240
ΜΟΝΔΑΙΑΝ	2.000	2	4.000	ΕΟΡΔΙΑΝ	2.050	3	6.150	ΓΟΡΔΙΟΝ	2.083	4	8.332
ΙΤΑΛΙΑΝ	1.053	4	4.212	ΡΟΔΙΑΝ	2.050	3	6.150	ΓΑΔΑΡΑΝ	2.083	4	8.332
CΤΑΔΙΑΝ	1.063	4	4.252	ΙΕΡΑ ΠΥΛΗ	1.150	7	8.050	ΓΡΑΙΑΝ	2.083	4	8.332
ΙΕΡΑΚΙΑΝ	1.070	4	4.280	ΟΙΧΑΛΙΑΝ	2.020	4	8.080	ΤΡΙΤΑΙΑΝ	2.083	4	8.332
ΠΕΤΑΛΙΑΝ	1.063	5	5.315	ΕΛΑΙΑΝ	2.020	4	8.080	ΠΟΤΕΙΔΑΙΑΝ	2.093	4	8.372
ΓΕΡΑΡΑΝ	1.143	5	5.715	ΘΥΑΜΙΑΝ	2.020	4	8.080	ΙΜΙΧΑΡΑΝ	2.100	4	8.400
ΕΥΤΑΙΑΝ	2.010	3	6.030	ΕΥΠΑΛΙΑΝ	2.030	4	8.120	ΡΙΠΑΙΑΝ	2.100	4	8.400
ΙΟΥΛΙΝ	2.010	3	6.030	ΙCΤΙΑΙΑ	2.043	4	8.172	ΥΔΡΑΜΙΑΝ	2.110	4	8.440
ΝΟΥΑΡΙΑΝ	2.010	3	6.030	ΕCΤΙΑΙΑΝ	2.043	4	8.172				

toponyms listed in Table 3 might be a plausible substitute for ΙΟΥΔΑΙΑΝ in Acts 2:9, we first discuss considerations about the variety of attestation, the validity of temporal attestation, and the probability of Jewish communities in a region.

Widespread attestation in Classical, Jewish, and/or Christian literary sources does not help: evidence for the familiarity of a toponym can be used to advocate the likeliness as well as the improbability of a specific toponym simultaneously. The ambiguity is that while a wider attestation in literary sources might increase the probability that the author of Acts might have used the toponym, simultaneously such an attestation might reduce the chance that a scribe would have replaced a toponym for a better known candidate.

Likewise, the time span for which a toponym is attested does not contribute much to resolve the issue. Though it is tempting to advocate that a particular toponym might have been anachronistic to the author of Acts since we only have attestation from later sources, this *argumentum ex silentio* can never be conclusive since we cannot prove that the author was unfamiliar with the toponym. We simply do not know.

On a similar vein, the observation that the catalogue in Acts 2 designates *Jews* from several nations and regions (Acts 2:5, 11) does not help to further exclude toponyms as possible candidates, since the

presence or absence of Jewish settlements in a specific region cannot be demonstrated beyond doubt from the partial historical evidence, nor do rhetorical statements like Philo's "not only are the main lands full of Jewish colonies but also the most highly esteemed of the islands" (Leg. Ad Gaium 282) contribute to settle the issue.[21] The statement is too generic to establish evidence for the Jewish population in a specific location.

More is to be expected from exclusion according to semantic subtype, fitting in the geographic progression, and contextual appropriateness within Acts 2:9. The results from Table 3 will be discussed using these three criteria.[22]

4.1.1 Exclusion according to semantic subtype

The majority of palaeographically probable toponyms can be discarded as likely replacements for ΙΟΥΔΑΙΑΝ when their semantical subtype is considered in relation to the structure of the catalogue. The function of the catalogue is to clarify the identity of the audience in Acts 2:8. The catalogue consists of four units ordered in a chiastic structure.[23] The first and last units consist of groups of demonyms, while the second and third groups start with an active participle, respectively, οἱ κατοικοῦντες (residents) and οἱ ἐπιδημοῦντες (sojourners). ΙΟΥΔΑΙΑΝ appears in the second group as an object of κατοικοῦντες. This constrains the possibility of toponyms by excluding the hydrography-related toponyms Λουδιας, Ιορδάνης, and Ἰσάρας, and names pertaining to building structures, i.e. Ἱερά πύλη, Προπύλαια, Εὐπαλία, Θυαμία, or a landmark like Λευκάτας.

Besides pairing κατοικοῦντες with regions (Acts 2:9, 13), Luke combines it with city names (Jerusalem in Acts 2:14; 13:27, and Lydda in Acts 9:35). The author of Revelation uses the nomen in a construction to refer to "those who dwell on the earth" (Rev 11:10; 13:8; 17:2, 8). However, although a city name would technically fit the second unit of the catalogue, this would be a surprising deviation of its pattern: in parallel to the other regional toponyms one would also expect a region name at the spot of ΙΟΥΔΑΙΑΝ. Heuristic support for this observation is found in the historical discussion of proposed emendations, which all describe regions.[24]

Therefore, the palaeographical-related settlements …Ἄστραια, Γραῖα, Ἐλαία, Οἰχαλία, and Ὑδραμία; the towns Χετταία, Σουάτρα, Τριταία, Γεραρα, and Ἰμίχαρα; and the cities Βούδεια, Γάδαρα, Γόρδιον, Ἑστίαια, Εὔταια, Ἰουλίς, Ἰστίαια, Ἰστρία, Λῖλαια, Μονδαία, Νουαρία, Οὐγαυά, Οὐάγα, Οὐαρία, Οὐελία, Οὐλία, Ποτείδαια, Ῥουδία, Στάδια, and Τουία are not found to be fitting alternatives to emend ΙΟΥΔΑΙΑΝ in Acts 2:9. This means that 38 of the palaeographically likely unique toponyms can be safely discarded as potential emendations of ΙΟΥΔΑΙΑΝ on the basis of their semantic subtype.

4.1.2 Fitting in the geographic progression

The remaining 11 toponyms pertain to regions that all are palaeographically close to ΙΟΥΔΑΙΑΝ. For these regions, the question needs to be addressed whether they do fit in the geographical progression of Acts 2:9–11, somewhere between Mesopotamia and Cappadocia.

To visualise the potential search area, we used ArcGIS Pro software to create a multiple ring buffer from the centre point of the straight line between the centre points of Mesopotamia and Cappadocia

21 Philo, *The embassy to Gaius*.

22 Toponyms, which are referred to in the discussion that follows, are taken from Kiesling and Aikaterini Laskaridis Foundation, "ToposText;" Bagnall et al., "Pleiades;" Montanari, *The Brill Dictionary of Ancient Greek*, and Cancik and Schneider, *New Pauly Online*. A full bibliography of the referenced toponyms is available online, cf. van Altena, "List of Toponyms Which Are Paleographically Close to Ioudaian."

23 Brinkman, "The Literary Background of the 'Catalogue of the Nations'."

24 See part 1 of this study: "Ἰουδαίαν in Acts 2:9: a diachronic overview of its conjectured emendations."

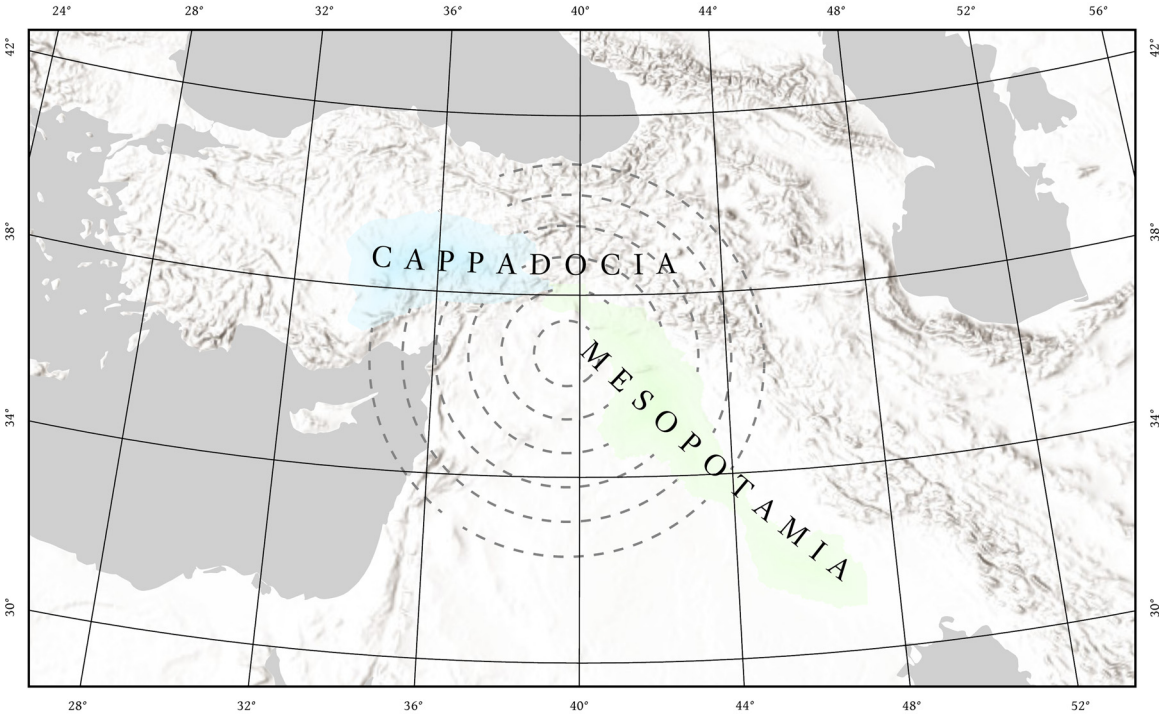

Figure 4: Search area for a region between Macedonia and Cappadocia.

(Figure 4). These artificial zones can be used as a visual aid in the evaluation of the geographically fitting of the individual regions.

Unfortunately, none of the palaeographically related regions form geographically fitting alternatives for ΙΟΥΔΑΙΑΝ. Ῥιπαῖα refers to a mythical range of mountains that were thought to form the northern edge of the world. The region was thought to be uninhabited, and already in classical times authors doubted its existence.

The other alternatives (Figure 5) break the geographical progression and have additional issues: Ἰστρία could be either a region or people on the north-eastern Adriatic coast as well as a city at the Black Sea. The region Πισιδία in Asia Minor is attested both in the book of Acts and in classical works. Ἰταλία roughly corresponds to modern Italy and is very well attested in Classical, Jewish, and Christian texts. It is also hard to conceive in which way this toponym could fit the geographical progression and how the overlap with Rome (Acts 2:10) should be explained.

Additionally, the African region Νομαδία, the Macedonian landscape Ἐορδαία or Ἐορδία, the Aegean islands Ἱεράκια and Ῥοδία, and the island group Πεταλία do not fit the geographical arrangement better than ΙΟΥΔΑΙΑΝ.

4.1.3 Contextual appropriateness of Ἰδουμαία

The remaining toponym ΙΔΟΥΜΑΙΑ has already been proposed as an alternative to ΙΟΥΔΑΙΑΝ by several authors.[25] The designation was first applied to the country of Edom and later also to the southern part of Judah. This region had an important strategic position for controlling trade routes.

25 Barthius, *Adversariorum commentariorum libri LX quibus ex universa antiquitatis serie, omnis generis, ad vicies octies centum, auctorum, plus centum quinquaginta millibus, loci, tam gentilium quam christianorum, theologorum, iureconsultorum, medicorum, philosophorum, philologorum, oratorum, rhetorum etc. obscuri, dubii, maculati, illustrantur, constituuntur, emendantur, cum rituum, morum, legum, sanctionum, sacrorum, ceremoniarum, pacis bellique artium, formularum, locutionum denique,*

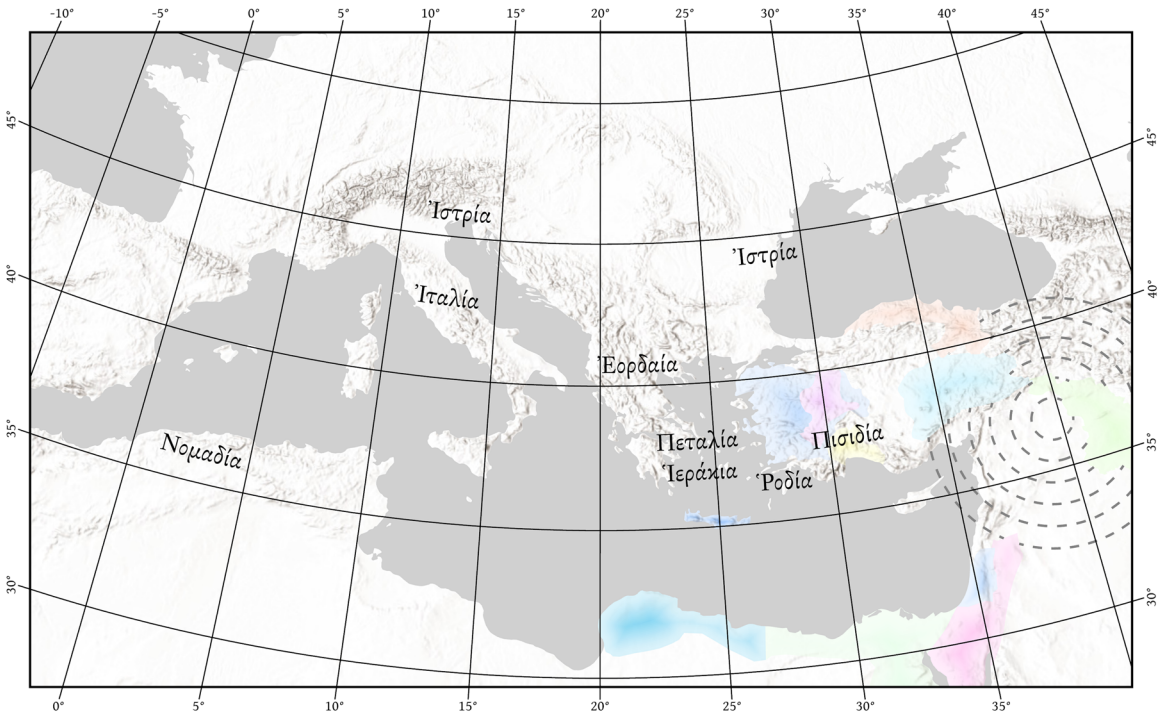

Figure 5: Map of regional toponyms that are paleographically close to Ioudaian.

In favour of ΙΔΟΥΜΑΙΑΝ is that it is palaeographically close to ΙΟΥΔΑΙΑΝ.[26] Only two operations are required to transform it to ΙΟΥΔΑΙΑΝ and a variant reading on Mark 3:7 transposes the two words.[27] Furthermore, the toponym was valid and common during the time of writing, and the region had Jews among its population from various ethnic backgrounds (Mark 3:8; JW 2.43).

If ΙΔΟΥΜΑΙΑΝ is assumed as the original reading, additional support is still needed to show how the current reading ΙΟΥΔΑΙΑΝ could have come into existence. One might speculate that a copyist wanted to remove a reference to ΙΔΟΥΜΑΙΑ especially because of the turbulent relationship between ΙΔΟΥΜΑΙΑ and ΙΟΥΔΑΙΑ: during Nebuchadnezzar's besiege of Jerusalem the Edomites scorned and mocked the endangered Jews. After Jerusalem was defeated in 587 BCE, its Jewish population was deported into Babylonian captivity and their homes and possessions were confiscated by Edomites (Am. 10–14, cf. Ps. 137:7). Decades later when the Jews returned from being exiled, they found the homes of their families occupied by Edomites. A few centuries later, after the Arabs had invaded the territory, the Jewish high priest John Hyrcanus forced the Idumeans to follow the Jewish law and thus had them circumcised (Jos. *Ant* 13.9.1). Later on, the tyrant king Herod the Great was a born Idumean.[28] A mutual hostility between these two peoples is not difficult to perceive.

---

observatione et eludicatione tam locuplete et varia, ut simile ab uno homine nihil umquam in litteras missum videri possit. Eduntur praeterea ex vetustatis monumentis praeclara hoc opere non pauca, nec visa hactenus, nec videri sperata. Cum undecim indicibus, VII auctorum, IV rerum et verborum; Bentley, *Bentleii Critica Sacra: Notes on the Greek and Latin Text of the New Testament, Extracted from the Bentley Mss*; Bloomfield, Ἡ *Καινη Διαθηκη. The Greek Testament, with English Notes, Critical, Philological, and Exegetical. Second Edition, Corrected, Greatly Enlarged, and Considerably Improved*; Penn, *Annotations to the Book of the New Covenant: With an Expository Preface.*

26 Bloomfield, *Greek Testament 1.*

27 According to the critical apparatus of UBS5, minuscule 579 reads 'Ιουδαίας in stead of 'Ιδουμαίας in Mark 3:8, but what is actually happening is the transposition of the two toponyms, cf. Aland et al., *The Greek New Testament*, 126.

28 Herion, *Herod Philip*.

This is however pure conjecture and it does not explain why such a well-known topographic name like ΙΔΟΥΜΑΙΑ could have been confused with ΙΟΥΔΑΙΑ, which introduces even more difficulties. Furthermore, ΙΔΟΥΜΑΙΑ does not provide a better solution to the odd geographic progression[29] (which however could also be argued in favour of its originality).

4.1.4 Summary of findings on alternatives

Though it is tempting to draw firm conclusions about the likely candidates for ΙΟΥΔΑΙΑΝ in Acts 2:9, there is no significant evidence to warrant any of them.

What can be concluded is that an unintentional scribal error based on palaeographical confusion of ΙΟΥΔΑΙΑΝ with one of the toponyms we retrieved from the New Testament, Greek Old Testament, and Classical literature seems very unlikely. We simply did not find a fitting candidate that was palaeographically close enough to ΙΟΥΔΑΙΑΝ and might have been altered unintentionally in only a few operations and that–on top of this–is also meeting the historical, geographical, and contextual requirements to fit the catalogue in Acts 2:9–11.

For the moment, this leaves the problem unsolved. However, the possibility remains that a new artefact might be discovered that contains a different spelling of an existing or even a completely unknown toponym that fits the geographical progression, corresponds to the expected semantic subtype (i.e. being a region), and also suits the wider historical and literary context. Such a discovery would provide an ideal toponym to emend ΙΟΥΔΑΙΑΝ in Acts 2:9.

Until such a discovery is done, it might be better to refrain from speculation about unintentional palaeographical confusion and to accept that the catalogue of nations in Acts 2 is a peculiar list in multiple facets. The mention of ΙΟΥΔΑΙΑΝ is just one of these peculiarities.

4.2 Critical appraisal of method

Our assessment of the method elaborated in this research is however much more positive. Given the right conditions (see below), this method provides new insights that otherwise are difficult to obtain or would be cumbersome since they require an enormous amount of manual work. Using a computer algorithm to gauge whether palaeographical confusion of words might be a solution to an interpretive problem seems promising for several cases.

A first case can be found in the gospel narratives (see Matt 3:4 and its parallel text Mark 1:6), where the character of John the Baptist is introduced. His portrayal as someone who is wearing a camel-skin garment and eating locusts has been interpreted as a reference to Old Testament prophets. However, some have doubted that a man could have actually been eating locusts and therefore conjectured what John could have been eating instead. At this point, the method presented in this research might be helpful to identify a Greek noun belonging to the semantic field of food to test whether alternatives could be detected that might be explained by palaeographical confusion. Similar to this study, these results should be analysed along qualitative conditions to decide between possible and plausible alternatives.

A second case where the method might be helpful is the quest for a fitting verb in Hebr. 11:37. While most of the manuscripts here have ἐπειράσθησαν (“they were tempted”), this is strange within the enumeration of rather specific violent deaths. To solve this puzzle 17 divergent emendations have been proposed. It might be helpful to test which verbs are likely to be confused palaeographically with

29 So Michelsen, in Submission to *Prijsvraag G 94: een verhandeling over de toepassing van de conjecturaal-kritiek op den tekst van de schriften des Nieuwen Testaments*, II-13–II-14.

ἐπειράσθησαν. This requires an inflection of the verbs to the identical grammatical–morphological form and a semantic discussion of the found alternatives.

A third case where our method can add value is in the interpretation of 2 Pet. 3:10. Here the verb εὑρεθήσεται ("shall be found") is unintelligible and several other verbs with a diversity of meanings have been conjectured.[30] Our algorithm might contribute to identify verbs that are palaeographically close to εὑρεθήσεται and would make sense in the sentence.

Each of these cases could greatly benefit from a grammatical–morphological data set as well as from a semantic dictionary that should be both available in digital format.

The scope of the method could also be extended to different types of confusion, for instance, phonetical. This would require a second confusion table expressing the ease of mispronunciation, mishearing (or mis-vocalisation) of a text. Furthermore, scenarios assuming Hebrew, Aramaic, or Syriac sources to Greek texts can be scrutinised using our algorithm and a tailored confusion table. The same exercise could for instance be performed, supposing a Hebrew origin for the list of nations.

5 Conclusion

In this study, we dealt with the alleged corruption of ΙΟΥΔΑΙΑΝ in Acts 2:9. As we summarised in part 1 of this article series, a plethora of suggestions have been proposed to solve the problem in the text and these suggestions were argued from differing perspectives: a background in contemporary textual sources, the intrinsic logic of the narrative, the fittingness in the geographical arrangement, and the probability of palaeographical confusion.

To offer a contribution to this discussion, this study set out to investigate the fittingness of alternative toponyms in the text assuming palaeographical confusion. It therefore used a confusion table, which enabled the researcher to quantify the likeliness by which a scribe would confuse particular letter combinations, and an algorithm designed to simulate operations during confusion. The results of this experiment showed there are only a few candidates that could be regarded as real alternatives. Due to the ambiguity of additional qualitative historical, geographical, linguistic, and contextual arguments, we did not produce conclusive arguments in favour of a particular conjecture. Since the possibilities for palaeographical confusion appear to be very limited, the solution to the textual problem concerning ΙΟΥΔΑΙΑΝ in Acts 2: 9 needs to be sought in a different direction. On the one hand, our research did not exclude the possibility of a very early intentional scribal alteration of an unknown toponym into the transmitted reading. But due to the lack of any manuscript evidence, an attempt to resolve the issue in this direction easily becomes mere speculation. On the other hand, our research did neither provide conclusive reasoning that demonstrated the originality of the transmitted reading ΙΟΥΔΑΙΑΝ. Several theories have been proposed by respected scholars to advocate the authenticity of ΙΟΥΔΑΙΑΝ,[31] but neither of these has yet been convincing. Therefore, either direction needs further investigation to see whether it could solve the issue.

The second aim of this study was to scrutinise whether reverse engineering palaeographical confusion has potential as a method. The experiment confirmed the suitability of the algorithm to test the probability of palaeographical confusion and proposed three cases for further experimentation. To be successful in establishing probable conjectures for these cases, there is a need for a dictionary data set arranged by semantic fields.

30 For a discussion of the issues with the variant readings and the conjectured emendations cf. Metzger, *A Textual Commentary on the Greek New Testament, a Companion Volume to the United Bible Societies*, 636–37; Krans and Peerbolte, The Amsterdam Database of New Testament Conjectural Emendation.

31 See for instance, Keener, *Acts: An Exegetical Commentary – Introduction and 1:1–2:47*, 1: 844–51.

Future research should concentrate on the retrieval and subdivision of semantic dictionaries as well as ways to implement perceived scribal habits as operations in the algorithm to refine its outcomes. Additionally, the outcomes would greatly benefit from a way to "ground-truth" the scores in the confusion distance table; i.e. these scores are now based upon expert knowledge, but it would be beneficial to improve the scores utilising statistical data assembled from manuscript evidence.

References

Aland, Barbara, Aland, Kurt, Karavidopoulos, Johannes, Martini, Carlo Maria, Metzger, Bruce Manning, & American Bible Society, eds. *The Greek New Testament*. Fifth revised edition, 4th corrected printing. Stuttgart: Deutsche Bibelgesellschaft, 2018.

Bagnall, Roger, Talbert, Richard J. A., Bond, Sarah, Becker, Jeffrey, Elliott, Tom, Gillies, Sean, Horne, Ryan, McCormick, Michael, Rabinowitz, Adam, et al. "Pleiades: A Gazetteer of Past Places." *Collection*, 2016. http://pleiades.stoa.org

Barthius, Caspar. *Adversariorum commentariorum libri LX quibus ex universa antiquitatis serie, omnis generis, ad vicies octies centum, auctorum, plus centum quinquaginta millibus, loci, tam gentilium quam christianorum, theologorum, iureconsultorum, medicorum, philosophorum, philologorum, oratorum, rhetorum etc. obscuri, dubii, maculati, illustrantur, constituuntur, emendantur, cum rituum, morum, legum, sanctionum, sacrorum, ceremoniarum, pacis bellique artium, formularum, locutionum denique, observatione et eludicatione tam locuplete et varia, ut simile ab uno homine nihil umquam in litteras missum videri possit. Eduntur praeterea ex vetustatis monumentis praeclara hoc opere non pauca, nec visa hactenus, nec videri sperata. Cum undecim indicibus, VII auctorum, IV rerum et verborum*. Frankfurt, Main: Aubrius, n.d.

Bentley, Richard. *Bentleii Critica Sacra: Notes on the Greek and Latin Text of the New Testament, Extracted from the Bentley Mss. in Trinity College Library*, edited by Arthur Ayres Ellis. Cambridge: Deighton, Bell, 1862.

Bloomfield, Samuel Thomas. Ἡ *Καινη Διαθηκη. The Greek Testament, with English Notes, Critical, Philological, and Exegetical. Second Edition, Corrected, Greatly Enlarged, and Considerably Improved*. vol. 1. London: Longman, Rees & Co., 1836.

Brinkman, J. A. "The Literary Background of the 'Catalogue of the Nations' (Acts 2,9–11)." *The Catholic Biblical Quarterly* 25:4 (1963), 418–27.

Cancik, Hubert, Schneider, Helmuth. *New Pauly Online*. Leiden, The Netherlands: Brill, n.d. https://brill.com/view/package/bnpo

Gritta, Milan, Pilehvar, Mohammad Taher, Limsopatham, Nut, Collier, Nigel. "What's Missing in Geographical Parsing?" *Language Resources and Evaluation*, 2017. doi: 10.1007/s10579-017-9385-8

Herion, Gary A. E. "Herod Philip." In *The Anchor Yale Bible Dictionary 3*, edited by Freedman, David Noel, Gary A. Herion, David F. Graf, John David Pleins, and Astrid B. Beck, 161–69. New York: Doubleday, 1992.

Instone-Brewer, David. "Tyndale Individualised Proper Names with All References." Digital. Tyndale House Cambridge, 11 February 2019. https://github.com/tyndale/STEPBible-Data

Keener, Craig S. *Acts: An Exegetical Commentary–Introduction and 1:1–2:47*. vol. 1. Grand Rapids: Baker Academic, 2012.

Kiesling, John Brady, Aikaterini Laskaridis Foundation. "ToposText." Gazetteer. *ToposText Web Version 3.0*, 2019. https://topostext.org/

Krans, Jan, Lietaert Peerbolte, Bert Jan. "The Amsterdam Database of New Testament Conjectural Emendation," 2016–present. http://ntvmr.uni-muenster.de/nt-conjectures

Louw, Johannes P., Nida, Eugene Albert. *Greek-English Lexicon of the New Testament: Based on Semantic Domains*. Electronic ed. of the 2nd edition. New York: United Bible Societies, 1996.

Metzger, Bruce M. *A Textual Commentary on the Greek New Testament, a Companion Volume to the United Bible Societies' Greek New Testament (4th Rev. Ed.)*. 2nd ed. London, New York: United Bible Societies, 1994.

Michelsen, Jan Hendrik Adolf. In *Submission to "Prijsvraag G 94: een verhandeling over de toepassing van de conjecturaal-kritiek op den tekst van de schriften des Nieuwen Testaments (1877)*, II–14. ATS 1258. Haarlem: Archief Teylers Stichting, 1879.

Montanari, Franco. *The Brill Dictionary of Ancient Greek*. Boston, MA: Brill, 2015.

Penn, Granville. *Annotations to the Book of the New Covenant: With an Expository Preface*. London: Duncan, 1837.

Philo. *The embassy to Gaius*. Translated by Francis Henry Colson, G. H. Whitaker, and J. W. Earp. Vol. 10 of *The Loeb Classical Library*. London, England; Cambridge, MA: William Heinemann Ltd, Harvard University Press, 1929.

Smith, Stephen. "Bible Geocoding–Bible Maps in Google Earth and Google Maps." *Bible Geocoding* n.d. http://www.openbible.info/geo/

Swete, Henry Barclay. *The Old Testament in Greek: According to the Septuagint*. Cambridge: Cambridge University Press, 1909.

Tan, Randall K., deSilva, David A., Hoogendyk, Isaiah. *The Lexham Greek-English Interlinear Septuagint: H.B. Swete Edition*. Bellingham, WA: Lexham Press, 2012.

van Altena, Vincent. "Greek Old Testament Toponyms." Zenodo, 7 October 2019. doi: 10.5281/zenodo.3244386.

van Altena, Vincent. "New Testament Toponyms." Zenodo, 7 October 2019. doi: 10.5281/zenodo.3463567.

van Altena, Vincent. "Greek Toponyms Collected from Classical Literature." Zenodo, 19 February 2020. doi: 10.5281/zenodo.3675315.

van Altena, Vincent. *Greek Noun Inflection Script*. Python. Zenodo, 2020. doi: 10.5281/zenodo.3604255.

van Altena, Vincent. "List of Toponyms Which Are Paleographically Close to Ioudaian." Zenodo, 19 February 2020. doi: 10.5281/zenodo.3675151.

van Altena, Vincent, Krans, Jan, Bakker, Henk, Dukai, Balász, Stoter, Jantien. "Spatial Analysis of New Testament Textual Emendations Utilizing Confusion Distances." *Open Theology* 5:1 (2019), 44–65.

van der Meer, Michaël N. "The Natural and Geographical Context of the Septuagint: Some Preliminary Observations." In *Die Septuaginta. Entstehung, Sprache, Geschichte. 3. Internationale Fachtagung Veranstaltet von Septuaginta Deutsch (LXX.D), Wuppertal 22–25 Juli 2010*, edited by W. Kraus, M. Karrer, M. Sigismund, 387–421. Vol. 286 of *WUNT I*. Tübingen: Mohr-Siebeck, 2012.

Yuan, May. "Mapping Text." In *The Spatial Humanities: GIS and the Future of Humanities Scholarship*, edited by David J. Bodenhamer, John Corrigan, Trevor M. Harris, 109–23. Spatial Humanities. Bloomington: Indiana University Press, 2010.