Chapter 11

PLACE-NAME VARIATION IN MEDIEVAL LITERATURE IN THE DIGITAL AGE

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PLACE-NAME DATA CONSTITUTE one of the foundational stones of present-day digital gazetteers, since a standard gazetteer structure requires at least one place-name attribute in addition to at least one representation of geographic location and at least one feature type. The approach can result in an overly simplistic representation of name material, however, when the model is applied to geocoded humanities data, such as place-name attestations in a medieval literary corpus. Place-names are bearing spatial elements in a medieval narrative affected by manuscript variation in ways large and small. By excluding place-name variation, the mainstream approach forbids the study of place-name transmission. Moreover, it can compromise research into spatiality in medieval texts and manuscripts if such study is limited to idealized cases in which a single place-name form from the best textual witness of a text replaces all other variants.

The focus of this chapter is twofold. First, it re-evaluates the current approach to text and the spatial information in it in the fields of spatial humanities and digital spatial infrastructure studies through the investigation of place-name representation in several digital spatial resources with pre-modern focus: Pleiades Gazetteer of the Ancient World (Pleiades)[1] and the associated Pelagios project;[2] the World Historical Gazetteer (WHG);[3] the Icelandic Saga Map (ISM);[4] and Norse World.[5] Second, it provides theoretically and methodologically informed alternatives to place-name data modelling in a historical digital gazetteer. Additionally, the chapter demonstrates the importance of including place-name variation in gazetteers and other spatial resources based on medieval literary material through a survey of similarities and dissimilarities in place-name use regarding the number of attestations and orthographic variation between texts, copies of texts, and different text redactions across the East Norse medieval literary corpus.

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1 See https://pleiades.stoa.org (accessed January 14, 2021).

2 See https://pelagios.org (accessed January 14, 2021).

3 See http://whgazetteer.org (accessed January 14, 2021).

4 See http://sagamap.hi.is/is (accessed January 14, 2021).

5 Petrulevich et al., "Norse World."

Places, Place-Names, and Texts in the Digital Age

The total dominance of geographic information system technologies in digital approaches to humanities spatial data has brought about the major challenge of adjusting the data to the tabular format of a relational database system. In general terms, this means that ambiguities of meaning in verbal descriptions of places' whereabouts and place-names' referents have been replaced by precise GIS constants, feature coordinates, and feature types.[6] The current mainstream spatial data model represents geographical locations as a combination of places defined through coordinates and types—that is, points, lines, or polygons—and place-names stored as attribute tables.

In a recent publication, Stuart Dunn has elaborated on this "core methodological concern," stemming from the discrepancies between humanities approaches to place and place-making and the core premise of a digital gazetteer, postulating that places can be abstracted to standard geodetic systems such as WGS84.[7] Nevertheless, the standard structure of a gazetteer, developed through the work of the International Organization for Standardization, the Open Geospatial Consortium, and other actors, has become popularized through governmental, national, and international digital gazetteer infrastructures and privately owned products such as Unxos GmbH's widely used GeoNames geographical database,[8] as well as an ever-growing number of gazetteer-based services and crowdsourced contributions to digitally available geographical information.[9] Despite the concerns raised and general awareness of these issues in the field of humanities, the gazetteer model currently underlies manual geo-referencing of any type of material in almost any spatial humanities project, be it text annotation or extraction of spatial references, as well as implementation of automated geoparsing and georesolution tools in the rapidly growing named entity recognition (NER) field.[10]

There are obvious advantages of uniform, albeit somewhat inflexible, approaches to geocoded humanities data management, which evidently amplify projects' scientific values such as reliability, reproducibility, replicability, and reusability of the results. The possibility of data quantification and development of quantitative methods in otherwise qualitative fields is another direct benefit of the database approach. These positive effects cannot remedy the fact, however, that the mainstream database mindset and

6 For more details, see Gammeltoft, this volume, and Petrulevich, Backman, and Adams, "Medieval Macrospace through GIS."

7 The World Geodetic System eighty-four grid (WGS84) is a reference coordinate system developed and maintained by the United States' National Geospatial-Intelligence Agency; Dunn, *A History of Place*, 61–63. The issues have been discussed previously as well, such as in Petrulevich, Backman, and Adams, "Medieval Macrospace through GIS."

8 See www.geonames.org (accessed May 9, 2021).

9 Dunn, *A History of Place*, chap. 7; Goodchild and Hill, "Introduction to Digital Gazetteer Research"; Turner, *Introduction to Neogeography*.

10 See Dunn, *A History of Place*, 67; Won, Murrieta-Flores, and Martins, "Ensemble Named Entity Recognition (NER)."

practices oversimplify, refine, and in some cases redefine raw data in order to make it database- and thus GIS-compatible. These issues become apparent at every intersection of humanities spatial data and a gazetteer structure, most importantly regarding aspects of naming and aspects of representation of places as geographical locations. Nevertheless, humanities scholarship on the subject has been mostly preoccupied with the latter.[11]

Instead, in this chapter, I focus on place-naming—more precisely, naming as a part of a living language tradition, be it oral or written, characterized by extensive variation. The examples drawn upon come from pre-modern literary contexts, which further complicates the already complex situation outlined above: how to combine oversimplified notions of preferably one name and one place—that is, one feature type and one set of two-dimensional coordinates—with the ambiguities regarding identification of named places and their referents in medieval literary corpora? At the same time, it is important to consider that these issues pertaining to identification and geo-referencing of named places in texts form only a subset of more general methodological concerns regarding most suitable approaches to spatial analyses of pre-modern narratives. For instance, place-names are considered to be bearing spatial elements in medieval literature, but place-names are not the only verbal spatial element at play. Languages tend to provide comprehensive linguistic resources to express spatial information and spatial relations. Place-name materials should be complemented with other spatial references, such as inhabitant designations, when a manuscript's or a textual work's spatial profiles are brought forward and analyzed.[12]

Ultimately, place-names and other types of spatial references come from living languages that humans use to interact and communicate spatial and other types of information. In analogue environments preceding the age of place-name generators, language users have coined names. Cultural and social diversity in language users coining names naturally affects produced place-name stocks. One place can have multiple official and unofficial place-names; moreover, the place-names in question can in reality denote multiple slightly different locations eventually abstracted to a single set of coordinates. These aspects of name giving briefly outlined here lead to enormous amounts of variation on multiple levels regarding, for instance, orthography and the formation of place-names. Most non-urban place-names and place descriptions go back to traditions preceding current standardized language norms, since standardization of language is a relatively recent phenomenon. For this reason, historical sources showcase considerable diversity in place-name representation. The gazetteer approach to place-name variation almost exclusively considers variation with respect to officially authorized naming. For instance, the Swedish town of Junosuando in Pajala Municipality has three official names, *Junosuando* in Swedish, *Junosuanto* in Meänkieli, and

11 To mention just a few: Dunn, *A History of Place*; Murrieta-Flores and Howell, "Towards the Spatial Analysis"; Travis, *Abstract Machine*; Tally Jr., *Literary Cartographies*.

12 For examples, see, for instance, Barker et al., "Mapping an Ancient Historian"; and Petrulevich, "The Multi-Layered Spatiality."

Čunusavvon in North Sámi. The Text Encoding Initiative (TEI) Consortium implements a somewhat more liberal approach to place-name variation and accommodates various place-name forms assigned specific temporal frames. For instance, the historical name of London, *Londinium*, is encoded as used between AD 43 and AD 1066.[13] Variation in place-names is much more than official naming in multilingual regions or a collection of name variants corresponding to specific time periods, however. In other words, there is a need for a more nuanced examination of both empirical materials and available theories and methodologies in order to define the place-name variants there are in a material, the variants there is a need for in a particular research infrastructure project, and how the variation should be processed and made available to the infrastructure's users.

Text and its possible definitions constitute a core concept to consider when pursuing a nuanced rendering of place-name variation in pre-modern literature. In spatial humanities scholarship, considerable attention is paid to treating places in texts;[14] the text itself is almost never defined, however. In this respect, recent developments in the field of philology regarding disambiguation of text as a set of different textual levels can become an invaluable contribution to the ongoing "spatialization" of vastly diverse text-based materials in the rest of the humanities.[15] The mainstream point of departure of spatial text annotation or geo-referencing a piece of literature in the tradition of literary cartography is the authoritative edition of a pre-modern text or the authoritative text. In the tradition of textual criticism, mapping an authoritative critical edition would entail mapping an abstraction that has not existed before the edition in question saw the light of day. In spatial humanities and in digital spatial infrastructure studies, the materiality of a text as a multi-level entity has not been considered, let alone operationalized—that is, given precise definitions and material representations in a database structure. Luckily, there are alternative approaches that can take a spatial project with a pre-modern focus several steps closer to relevant traditions of text production, dissemination, and consumption.

This chapter re-evaluates the ways texts and place-name variation have been theorized in spatial humanities. My ambition is not to offer an alternative database structure[16] but to showcase that it is possible to do more regarding processing of textual layers and place-names in them within the existing mainstream gazetteer framework. The basic argument for including variation as an essential characteristic of a living language can be expanded on in many ways. For instance, variation is critical to take into account in studies of textual transmission and textual criticism, genre affiliations of texts, and language change. Additionally, I believe the arguments and examples drawn upon in

13 Dunn, *A History of Place*, 62.

14 For instance, Dunn, *A History of Place*, chap. 4; Murrieta-Flores and Howell, "Towards the Spatial Analysis"; Travis, *Abstract Machine*; Lethbridge, "Digital Mapping"; Tally Jr., *Literary Cartographies*.

15 See, for instance, Bäckvall, "Description and Reconstruction"; *Skriva fel och läsa rätt?*; Backman, *Handskriftens Materialitet*; Georgieva Eriksen, *Writing and Reading in Medieval Manuscript Culture*; Wendt, "En text är en text är en text?"; "Eddan och texttermerna."

16 Nevertheless, see Gammeltoft, this volume.

the chapter will be of use in the newly established fields such as NER, mentioned above. Non-standardized orthographies of older language varieties pose a major challenge for automated geoparsing methods.[17] Further studies on orthographic and other forms of name variation, as well as practical attempts to produce and implement adequate name data models, can facilitate development toward geoparsing without prior normalization of language varieties or place-names.

Place-Names and Place-Name Variation in Humanities Digital Spatial Infrastructures for Research

Geo-referencing medieval literary corpora for further spatial analyses requires a gazetteer or a gazetteer-like spatial research infrastructure, preferably of comparable geographical and temporal scope, such as a gazetteer of medieval Europe. Unfortunately, no such gazetteer exists today. Moreover, medieval spatial narrative is multi-layered and often alludes to sources or retells stories pertaining to other geographical areas and temporal frames; for instance, the biblical chronotope is incorporated into the medieval Old Swedish compilation *Själens tröst* (*Consolation of the Soul*). If the manuscript transmission of a textual work is considered, it becomes apparent that spatial profiles of different manuscripts or other versions of the same textual work can differ considerably from one another, both with respect to narrative structures and, thus, inclusion and omission of place-names and other spatial references, as well as place-name variation. The Old Danish version of *Consolation of the Soul*, *Sjælens Trøst*, is, for instance, a fragment that lacks references to the biblical chronotope and thus has a spatial profile different from that of its Old Swedish counterpart.[18] Accordingly, it is, by definition, almost impossible to find a perfect gazetteer match to accommodate all possible distinctive features of medieval literary works and their multiple versions.

A reasonable solution is of course to combine already available gazetteers or humanities spatial research infrastructures to cover relevant areas of a specific spatial literary project. At the same time, it is important to consider the ways in which the standard gazetteer structure discussed in the previous section has been adapted to fit in with characteristic features of pre-modern literary material. Ideally, these gazetteers would provide possibilities to account for differences in transmission of manuscript versions of a single text—in other words, a theoretically and methodologically informed way of handling place-name variation. In this section, I provide a brief overview of four infrastructure resources with a pre-modern focus that provide spatial information about named places. This overview is, of course, not comprehensive, but the resources chosen are established sources for spatial information in their respective fields of study. Moreover, at least two of them have been specifically designed and built for spatial analyses of medieval literature.

17 See, e.g., Kogkitsidou and Gambette, "Normalisation of the 16th and 17th Century Texts."

18 For detailed discussion and visualization, see Petrulevich, "The Multi-Layered Spatiality."

The most widely used and technically mature gazetteer initiative with a pre-modern focus is the community-sustained Pleiades Gazetteer of the Ancient World, as well as the associated Pelagios project for cross-searching and linking disparate gazetteer resources.[19] The primary aim of both projects is to make it possible to create, use, and reuse historical digital geographic information through contributions from scholarly and non-scholarly communities. Pleiades, launched in the 2010s, currently contains more than 37,000 places and 34,000 place-names. Although the project's approach to gazetteer structure has been labelled as "an un-GIS for ancient geography,"[20] it still is centred on the three basic components of a standard gazetteer model: coordinates, feature types, and place-names stored as attributes. Information about variation or any other characteristics of name material can be added as alternative forms in additional tables or as notes, for instance when texts and spatial references in them are annotated with the Recogito annotation tool.[21] At the moment, however, it is unclear how this variation data from different sources can be retrieved, let alone qualitatively and quantitatively analyzed across individual sub-datasets.

The World Historical Gazetteer (WHG), launched in 2020, is a relatively recent addition to the family of historical gazetteers available on the Web. WHG is a Pelagios partner project and, for instance, includes data about more than 20,000 settlements, archaeological sites, rivers, and mountains from the Pleiades Gazetteer.[22] Consequently, the WHG guide highlights the project's awareness and appreciation of place-name variation; for example, the WHG dataset contains 133 modern and historical name variants for the contemporary city of Beijing. In standard gazetteer fashion, the alternative forms are stored in additional attribute tables and displayed as a list of variants when the dataset is manually browsed. In other words, the information on name data structure, possible hierarchies of place-name forms, and possibilities of variant quantification is missing.

The Icelandic Saga Map (ISM) platform, launched in 2014, is an infrastructure built to facilitate linear and non-linear spatial readings of medieval sagas of Icelanders as well as other works of Old Norse literature.[23] Place-name attestations in the texts available online have been geo-referenced, quantified, and mapped onto, primarily, the map of Iceland.[24] According to the project's technical description, a gazetteer-inspired tabular approach to spatial and name attribute data has been used. Additionally, the multimodal ISM resource links edited saga texts to the map and other information, such as images of

19 Barker et al., "The Pleiades Gazetteer."

20 See Dunn, *A History of Place*, 119, with further references.

21 For a presentation of Recogito, see Simon et al., "Linking Early Geospatial Documents"; and Foka et al., this volume.

22 See http://whgazetteer.org/tutorials/guide (accessed January 14, 2021).

23 For a detailed description and some case studies, see Lethbridge, "Digital Mapping"; and Lethbridge, this volume.

24 See http://sagamap.hi.is/5-technical (accessed January 14, 2021).

places mentioned in the sagas. Any complementary information about places and place-names is included in the resource if it is available in source texts. Since philological aspects have not been a focal point of the project, however, the ISM does not provide any comprehensive overview of place-name variation on manuscript or other levels, or any discussion of theoretical or methodological tools to approach name variation in spatial research infrastructures in the digital age. In a recent publication,[25] the project leader, Emily Lethbridge, indicates an interest in incorporating place-name variation in the ISM data in the future.

Norse World is an interactive spatial-temporal resource for research on spatiality and worldviews in medieval literature from Sweden and Denmark. The resource provides access to a large corpus of geocoded spatial attestations, both place-names and other non-proprial location-based data from medieval East Norse texts. The data can be filtered by fifteen filters applied separately or in combination, such as by date, source, work, type of place-name, or language. The filtered dataset can then be downloaded in CSV format.[26] As expected, the platform also uses the standard relational database structure centred on spatial data and linguistic data stored in corresponding attribute tables. Norse World has been designed to handle place-name variation in medieval literary tradition within the frame of the mainstream gazetteer approach, however. The theory and methods behind the resource's original, variant, lemma, and standard forms are explained in the following section. The Norse World platform was launched 2018, but the project is still ongoing. More data are being constantly added; moreover, several minor improvements to the name data model are planned for the coming years.

The Norse World Approach to Place-Name Variation

The focus on place-name variation across textual witnesses of medieval Swedish and Danish texts has been one of the cornerstones of the general framework of the Norse Perception of the World project[27] since its inception in 2016. The main reason behind the choices of theory and methodologies in approaching place-name material in the Norse World platform presented in the previous section has to do with the significance of intra-, inter-, and cross-textual variation for the discussion of relationships between textual witnesses of one work or different works (see "Place-Name Variation and Textual Criticism" section below), genre (see "Place-Name Variation and Genre" section), and language variation and change (see "Place-Name Variation and Language Change" section). Moreover, Norse World was conceived as an interactive resource for a wide interdisciplinary audience with the aim of promoting the study of spatiality and

25 Lethbridge, "Digital Mapping."

26 For presentations of the resource and its approaches to data, data reuse, and interoperability, see Petrulevich and Skovgaard Boeck, this volume; Petrulevich, Backman, and Adams, "Medieval Macrospace through GIS"; and Backman and Smith, this volume.

27 IN16-0093:1; funded by the Swedish Foundation for Humanities and Social Sciences, Riksbankens Jubileumsfond, from 2017 to 2022; see Petrulevich and Skovgaard Boeck, this volume.

worldviews in the East Norse literary corpus in a broader sense. I am convinced that any interdisciplinary endeavour stemming from the analysis of pre-modern textual material has to take into account and interpret the empirical foundation of such a study deeply rooted in variation.

The Norse Perception of the World project has chosen a dynamic, contextual definition of place-names in accordance with its ambition to acknowledge the meaning-making function of each instantiation of spatial references in a text across a spectrum of contexts (textual, historical, social, etc.) and to ensure that the material can be used as the gateway to analyses of how spatiality and worldviews are constructed, perceived, and imagined in the East Norse literary corpus. Place-names, their referents, and their geographical whereabouts are thus identified contextually through close reading of textual witnesses in a text bearer or edition.[28] For instance, in the Old Swedish *Konung Alexander* (*The Romance of Alexander the Great*), two cities under the command of the inhabitants of the city of Tyre in Lebanon, "Cecilia" and "Rodis," are mentioned. The episode has a parallel in the Orosius recension of the *Incipit liber Alexandri Magni regis Macedoniae de preliis* by the Neapolitan Archpresbyter Leo;[29] the Latin text refers to the islands of Sicily and Rhodes in the corresponding passage, however. In accordance with the principle outlined above, the Norse World resource uses the information in the vernacular source as the point of departure for categorizing and visualizing the material. Consequently, the fictive cities "Cecilia" and "Rodis" are visualized as being located in Lebanon.[30]

At the planning stage of the project, three priority areas regarding the project's data and their presentation were identified. The Norse World platform is to provide textual context for spatial references (both place-names and non-names), an overview of orthographic variation in the material, and normative lemma forms to further epitomize place-name attestations. The first priority emphasizes the importance of textual context in many fields, such as philology, linguistics, and history, where direct access to primary sources is a prerequisite of almost any study. The second priority of the project builds upon an idea that an overview of orthographic variants of place-names and their frequencies in one or more texts, languages, genres, or particular time periods has the potential to elucidate scribal practices and genre conventions as well as to trace possible cases of language change. It is hard to gain an insight into orthographic variation in a large place-name dataset without an adequate tool. In addition, gaining quick access to variation in spelling is not simply a matter of representation or user interface design, since the ambition requires a set of normalization principles and an analysis and editorial processing of each attestation. Finally, the project's third priority aims to fill the gap in lemmatization and normalization of East Norse vocabulary, since East Norse

28 Petrulevich et al., "Editing Principles."

29 Leo, *Die Historia*, 63b.

30 Petrulevich, "Cecilia"; "Rodis." See Petrulevich and Skovgaard Boeck, this volume, for more information about visualization principles.

place-name material has never been lemmatized in its entirety. Although the influential dictionaries of Old Swedish and Old Danish, by Söderwall[31] and Gammeldansk Ordbog[32] respectively, contain some lemma forms of place-names, the Norse Perception of the World project has in most cases done pioneering work by coining normalized lemmata of foreign place-names attested in East Norse manuscripts.[33]

In accordance with the considerations above, the representation of vernacular place-names in the Norse World infrastructure builds upon a tripartite model of manifestation levels in ascending order in terms of abstraction that distinguishes between an original form, a variant form, and a lemma form of a name; see Figure 11.1 and the project's editing principles.[34] The three manifestation levels of place-names are ultimately linked to spatial data via the so-called standard form—that is, the most commonly used form of the place-name in the English language (in some cases Old Swedish and Old Danish forms are used as standard forms);[35] the standard form metadata thus include information about coordinates and type of locality.

Original forms of place-names constitute the project's "raw" data and represent name attestations in their immediate textual context transcribed diplomatically with abbreviations expanded in italics. In other words, this level of manifestation is the closest to actual iterations of spatial references in the project's sources. Unfortunately, the availability of electronic editions of East Norse manuscripts is still scant; in those few cases where such material is available, it is often offered in a form or format incompatible with the ambition to link spatial references in the edition to the Norse World dataset. Original forms are thus typed manually into the database. Accordingly, the amount and detail of the context provided vary, but they always include a prepositional phrase if a name is a part of such a phrase or the information on the type of locality if such information is provided in the textual witness; for instance, *Ridh til pariis* ("Ride to Paris"), where *pariis* is an attestation of Paris, and *beesæther slottin wyborgh och oloffs borgh* ("provides the castles Vyborg and Olofsborg with a garrison"), where *wyborgh* and *oloffs borgh* refer to the medieval Swedish castles of Vyborg and Olofsborg respectively.

Original forms lie at the core of the Norse World infrastructure, since they provide the basis for the metadata, including two-step normalization, represented by variant forms and lemma forms. Variants are abstractions grounded in one or more similar place-name attestations that appear in one or more textual witnesses of one or more texts. These are thus slightly normalized: they always appear in the nominative case, start with a capitalized letter, and are written as one word in the case of compounds. The primary function of this manifestation level is to provide an overview of spelling

31 Söderwall, *Ordbok öfver svenska medeltids-språket*.

32 See https://gammeldanskordbog.dk (accessed January 15, 2021).

33 As well as some non-names overlooked by the dictionaries, such as Old Swedish *beiare* ("Bavarian").

34 Petrulevich et al., "Editing Principles."

35 Petrulevich, Backman, and Adams, "Data and Metadata."

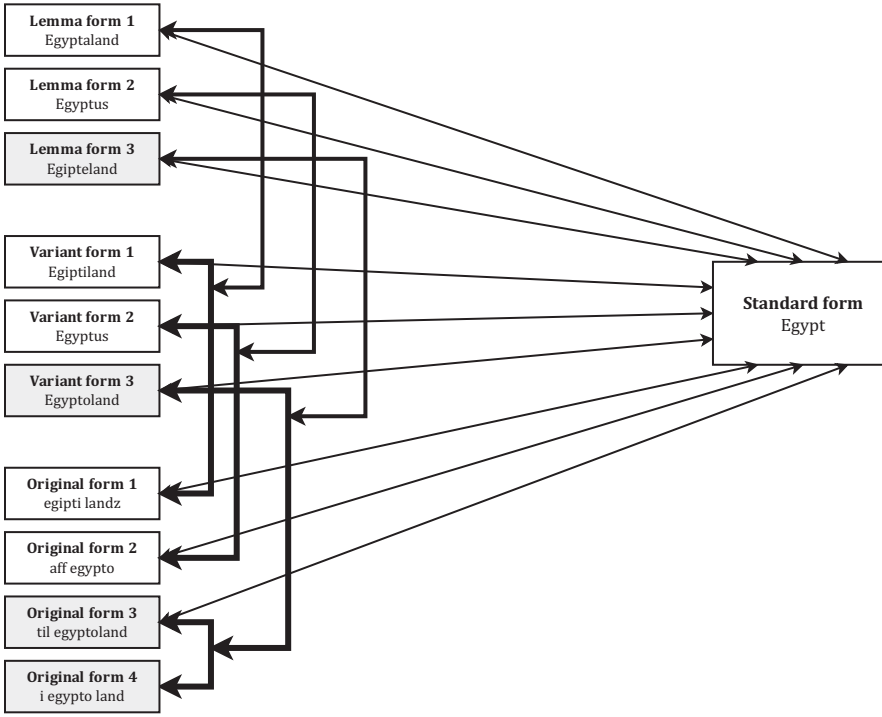

Figure 11.1. The place-name data structure employed by the Norse World infrastructure. Original, variant, and lemma forms in Old Swedish are marked by diagonal lines, while the corresponding material in Old Danish is marked by dots. Different line sizes are used to represent links between the different forms; thin lines link original and variant forms, medium-thickness lines link variant and lemma forms, and thick lines link original, variant, and lemma forms with the corresponding standard form. Image by Alexandra Petrulevich.

variation in the material in accordance with the assumed needs of target user groups outlined above; see, for instance, some of the twenty-six Old Danish variant forms associated with the standard form "France"; *Franckærigæ*, *Franckærighe*, *Franckærygæ*, *Franckærigi*, and *Franckerigæ*.

A place-name lemma is defined as a normalized form constructed on the basis of the collected variants and corresponding original forms, as well as place-name attestations found in sources not covered by the project. According to the project's main principle, a new place-name formation gives a new lemma form.[36] For instance, Old Danish *Egipteland* and *Egipterike* represent different name formations (see the two different generics: *-land* ["land"] and *-rike* ["kingdom"] respectively), and thus form separate

36 Petrulevich et al., "Editing Principles."

lemmata linked to the standard form "Egypt." Orthographic variation that results in possible reinterpretations of place-names is usually analyzed as a new name formation, and thus gives a new lemma form. For example, *drakensell*, lemmatized as *Drakanselder*,[37] refers to the castle Drachenfels in the Old Swedish version of *Didrik av Bern* (*Didrik of Bern*) in the manuscript Stockholm, National Archives, E 9013, folio 100v; this form can be seen as a possible scribal error that nevertheless results in reinterpretation of the form *Drekafils* attested in the same manuscript on folio 61v.[38] Isolated forms that we consider scribal errors without further consequences regarding re-interpretation are not provided with separate lemma forms. It is necessary to point out that no difference is made between assumed deliberate changes and unconscious spelling mistakes resulting in re-interpretation since such distinction is in the end impossible to uphold.[39]

The distinctions regarding the manifestation levels of place-names made in the Norse World infrastructure are a further development of the model used to describe variation in a West Norse name dataset, namely Wendish place-names attested in the manuscripts of *Knýtliga saga*.[40] The major difference between the two instantiations of the model based on similar principles concerns the definition of the highest level of abstraction. Under the original conditions, the most abstract level corresponds to that of a name defined etymologically. Consequently, this implies that variation regarding name formation is accounted for at the variant level, such as the West Norse variants *Kotskogaborg* and *Kotskogur* representing two different name formations that denote the same Slavic fortification in the vicinity of the town of Gützkow in Mecklenburg-Vorpommern, Germany. The model is thus robust enough to be adjusted to the needs of a variety of projects with an interest in place-name variation that nonetheless differ regarding priorities and set-ups.

In general, the model offers a useful theoretical and methodological approach to place-name variation in pre-modern written sources. The distinction made between different manifestation levels of a name helps researchers to explicate their reasoning about any underlying normative standpoints regarding their data as well as (scribal) errors in it. It is a sad fact that name datasets are almost never considered when philologists define and discuss textual errors of different kinds.[41] At the same time, the etymologically defined name level traditionally represents the only significant manifestation of a name in place-name studies. Variation in place-name material can become the subject of an etymological analysis provided that the "scribal error," or otherwise etymologically secondary form, increases in frequency—and in some cases

37 The appellative meaning of the name can be rendered as "dragon's fire."

38 Marklund, "han kom till et slot"; and "then vij^{e} dag kom han till en skog"; see Petrulevich, Backman, Skovgaard Boeck, Adams, and Marklund, "Editing Principles," for further details on the normalization of lemma forms.

39 See Wakelin, *Scribal Correction and Literary Craft*, 53–63.

40 For definitions and more information, see Petrulevich, *Ortnamnsanpassning som process*.

41 Petrulevich, *Ortnamnsanpassning som process*, 71; "Med ortnamnsvarianten i centrum," with references. There are much-appreciated exceptions, however; see, e.g., Hjorth, *Filologiske studier*; and McDonald Werronen, *Popular Romance in Iceland*.

even outcompetes—the original form in speech or writing. For studies specifically targeting name variation, the distinction between the three manifestation levels is a necessity that makes the whole research enterprise possible. What variants can be found in the material? Does the variation affect only orthography, or possibly even name formation? How can the variation be explained? For instance, in an earlier study I was able to differentiate between scribal errors and adaptations in writing in place-name material collated from multiple early modern Icelandic copies of the same work through an analysis of place-name attestations according to the model's principles.[42] The initial classification of attestations into variants and etymological names or name lemmata showcases the analytical potential of the model, since it requires that researchers pre-define these categories in accordance with the posed research questions and/or assumed user groups' needs.

Ultimately, the model has been inspired by Bo Wendt's work[43] on manifestations of a text, or a set of so-called textual levels, that has influenced much of the recent scholarship produced under the label of "new" philology—that is, descriptive or material philology—in Scandinavia, and especially Sweden.[44] The posed association with "new" philology is not a coincidence, since the approaches to medieval text, its production, consumption, and use that belong to this philological umbrella celebrate variance as the essence of medieval literature, an outlook that shines through in both the terminology employed and the editing practices used. In other words, the never-ending quest for the "ideal" lost copy of a text or the archetype gives way to analyses and appreciation of every iteration of the text in its own right.

Wendt argues for a differentiation between three principal textual levels—work, witness, bearer—arranged in descending order in terms of abstraction. In other words, the work as the highest level of abstraction is grounded in one or more textual witnesses, while a textual witness is in its turn grounded in the only empirically attested manifestation of a text—that is, the text bearer, a manuscript, or another physical artefact.[45] The tripartite model is an attempt to facilitate analytical thinking about the term "text" as researchers use it, to pinpoint the most significant differences in the term's meanings and offer robust terminology to account for those differences. Consequently, the model allows us to distinguish between and examine variation affecting different textual levels as well as to choose adequate descriptive tools and explanations to analyze observed variants.

The principal criterion underlying the hierarchical division between place-name attestation, variant, and a place-name lemma or an etymological place-name is the level

42 Petrulevich, *Ortnamnsanpassning som process*, 68–72.

43 Wendt, "En text är en text är en text?"; "Eddan och texttermerna."

44 Williams, "Förnyad filologi," 282–91; Haugen, "Tekstkritikk og tekstfilologi," 82–88; Bäckvall, *Skriva fel och läsa rätt?*, 44–52; "Description and Reconstruction"; Georgieva Eriksen, *Writing and Reading in Medieval Manuscript Culture*, 7–10; Backman, *Handskriftens Materialitet*, 18–22.

45 For a more in-depth discussion and examples, see Wendt, "En text är en text är en text?," 258–63; and Bäckvall, *Skriva fel och läsa rätt?*, 37–39; "Description and Reconstruction," 21–22.

of abstraction and normalization, which corresponds to the prerequisites of Wendt's model. The manifestation levels of the name are based on formal characteristics of the analyzed data items and their normalizations, however, and are not anchored in assumed needs or perceptions of name users. According to Maja Bäckvall,[46] text users and their hypothesized perceptions of a text at the different levels play a major role in the distinction between work, witness, and bearer outlined above, since, for instance, a textual witness cannot exist independently of its reader. Additionally, the manifestation levels of place-names are arranged in ascending order in terms of abstraction so as to underline the importance of the empirical foundation of the model—that is, place-name attestations.

Place-Name Variation and Textual Criticism

Handbooks of philology and textual criticism rarely include chapters that provide an in-depth discussion of the significance of names and name variation in editorial practice or other applications of textual criticism methods.[47] Scholarly literature provides many cases of philological arguments either making use of propria to strengthen their rationale or based on name variation alone, however.[48] Two basic aspects of name use are of importance here: inclusion or omission of a name or set of names in a particular context; and choices of name variants or name lemmata to identify specific locations. According to the principal assumption that underlies analyses of name variation in textual criticism, there is a direct connection between choices of names and/or name forms, on the one hand, and transmission histories of texts, on the other. As Sheryl McDonald Werronen[49] puts it, examination of name use across a corpus can serve as a diagnostic tool to gain an overview of manuscript transmission and potential groupings of witnesses of a text.

To take one example, heated debates concerning the relationship between three medieval texts—the West Norse *Knýtlinga saga* (1253–1259), Saxo Grammaticus' *Gesta Danorum* (1190–1208), and Helmold's *Chronica Slavorum* (1163–1172)—frequently draw on name evidence to build or deepen the argument.[50] The saga includes in many cases much more detailed information on where the events take place and who partakes, the evidence omitted in the closest related, older text, *Gesta Danorum*. *Knýtlinga saga*, for instance, explicitly names the fortification, Urk, where the Danes fought a battle against the Obodrites and killed their leader. Since the only other source that includes the name of the site is Helmold's chronicle, the occurrence of the place-name "Urk" becomes one

46 Bäckvall, *Skriva fel och läsa rätt?*, 39; Bäckvall, "Description and Reconstruction," 22.

47 See, e.g., West, *Textual Criticism*; and Kondrup, *Editionsfilologi*; although Haugen, *Handbok*, contains a chapter on names, etymological—rather than philological—aspects are considered there.

48 Hjorth, *Filologiske studier*, 153–54; Pálsson, "Reflections," 208, 212; McDonald Werronen, *Popular Romance in Iceland*, chap. 1, 48–51.

49 McDonald Werronen, *Popular Romance in Iceland*, 31, 48–51.

50 Weibull, *Saxo*; Albeck, *Knytlinga*; Weibull, "Knytlingasagan och Saxo"; Halldórsson, "Um Danakonunga Sögur"; Bjarni Guðnason, *Danakonunga Sǫgur*.

of the major pieces of evidence for *Knýtlinga saga* making use of *Chronica Slavorum*.[51] This example shows that an overview of name use in texts, copies of texts, and different text redactions in a comparative perspective is an important area of application of any humanities spatial research infrastructure.

The place-name variant *Frankaríki* ("France") used in the manuscript London, the British Library, Add. 4860 fol., is discussed at length in McDonald Werronen's monography on the Old Icelandic *Nítíða saga*. The form itself appears unusual, since the other witnesses of the saga make use of the more frequent lemma, *Frakkland*, to denote France. According to the author's hypothesis, *Frankaríki* is best analyzed as an unusual Icelandic reinterpretation of the Latin *Francia*. The place-name form *Frankaríki* thus becomes an important piece of evidence revealing either the "old medieval roots" of this version of the saga or "a conscious desire to present the text as archaic."[52]

In cases such as this, overviews of place-name variation in humanities spatial or other types of research infrastructures become invaluable resources. The Dictionary of Old Norse Prose lists eight attestations of *Frankaríki* excerpted from several Icelandic sources,[53] though the structure of the resource does not provide immediate access to all the lemmata denoting France and their frequencies in the West Norse corpus.[54] In the East Norse material, *Frankarike* in Old Swedish and *Frankerike* in Old Danish are the most common lemma forms associated with France.[55] Based on this evidence, I would instead suggest that *Frankaríki* is an original native construction containing the inhabitant designation "Frank" in genitive plural in the specific: *franker* and *frakki*[56] ("Frank") in East Norse and West Norse respectively. There are multiple examples of comparable name formations, such as *Egyptarike*, *Romararike*, *Iudhaland*, *Vilkinaland*, etc., in both East and West Norse. If this interpretation is accepted, the place-name lemma *Frankaríki* cannot be used as evidence for possible "old medieval roots" or archaization tendencies if the roots or tendencies in question indicate Latin textual tradition.

Place-Name Variation and Genre

In recent years the discussion of generic characteristics and generic affiliations of literary works—or, rather, their instantiations in surviving manuscript tradition—has become predominant in the field of medieval literature, especially its West Norse and East Norse subfields. Many of the now mainstream views regarding genre are inspired by the influential

51 Weibull, *Saxo*, 218–33; Albeck, *Knytlinga*, 256–58; Bjarni Guðnason, *Danakonunga Sǫgur*, 176.

52 McDonald Werronen, *Popular Romance in Iceland*, 49.

53 See https://onp.ku.dk/onp/onp.php?o23578 (accessed January 15, 2021); see also Metzenthin, *Die Länder- und Völkernamen*, 28.

54 ISM cannot be used for this type of query either; see discussion of the resource above.

55 Forty-seven and thirty-seven attestations respectively. The Old Swedish dataset comprises sixty attestations of France, while the Old Danish counterpart includes forty-two attestations; both were downloaded on February 1, 2021.

56 Without the assimilation of the nasal in the *-nk-* cluster when used as the specific.

work of the Romanist Hans Robert Jauss, who advocates a descriptive approach to genres best understood "as *groups* or *historical families*."[57] This descriptive stance has driven the scholarly community toward a more theorized work with actual empirical evidence that acknowledges and brings to the fore genre dynamics, be it cross-genre influences across a literary corpus or genre hybridities within the binders of a multi-text manuscript.

However fruitful the study of genre as a dynamic concept might be, the more traditional, static genre definitions have preserved their relevance—albeit contested—as classification tools for disclosing macrostructures in large literary corpora. Dynamic genre definitions easily become impracticable when, for instance, used to assign category to seventy East Norse works preserved in nearly two hundred manuscripts. This is the main rationale behind the Norse Perception of the World project's decision to employ a traditional genre taxonomy as the base for the genre filter of its interactive platform. This genre classification stems from major editions and commentaries of East Norse literary works, such as the principal edition series of Old Danish and Old Swedish texts published by Samfund til Udgivelse af Gammel Nordisk Litteratur, the Universitets-Jubilæets danske Samfund, and Svenska fornskriftsällskapet respectively.

Analysis of place-name variation can become a relevant complement in both traditional and more nuanced descriptive genre discussions. For instance, there seem to be a bias toward three-syllable name forms in versed works, especially romances, compared to the rest of the East Norse corpus or other relevant sources. The manuscript Stockholm, National Library of Sweden, K 4, contains four attestations associated with the standard form "England"; these correspond to two lemma forms, *Ængland* and *Ængeland*. The two-syllable variant is preserved in the prose work *Stenbog* (*Lapidary*), while the three-syllable form is attested in the verse romance *Ivan Løveridder* (*Yvain*, *the Knight of the Lion*). A quick look at the rest of the Old Danish sources at present available in the Norse World resource shows that the two- and three-syllable variant forms are evenly distributed.[58] The verse romances clearly favour the three-syllable variant. The distribution of variants in the different versions of *Rimkrøniken* (*The Rhymed Chronicle*) is more complex; the two-syllable form is preferred in two of three manuscript witnesses.

The suggested preference of three-syllable variants in versed works might partially explain the unexpected distribution of variants of the standard form "Norway" in the oldest rhymed chronicle in Old Swedish, *Erikskrönikan* (*The Chronicle of Duke Erik*). The empirical evidence of medieval Norwegian charters suggests that the etymologically original *Noregr* yielding three-syllable forms when declined in oblique cases such as *Noregi* and *Noregis* gave way to the contracted form *Norge* due to East Norse influence.[59] The contracted variants first appeared as early as the fourteenth century, increased in

57 Jauss, "Theory of Genres and Medieval Literature," 131.

58 Thirty-nine attestations each; the dataset, comprising seventy-eight attestations in total, was downloaded on February 1, 2021.

59 Sandnes and Stemshaug, *Norsk stadnamnleksikon.*

popularity in the fifteenth century, and finally outrivalled *Noreg*(*r*) in the century that followed. The Old Swedish manuscripts of the chronicles stemming from the fifteenth and the sixteenth centuries demonstrate a clear preference for the conservative lemma form *Noreg*, however, attested 105 times.[60] These examples show that name evidence opens a new dimension for descriptive, dynamic approaches to genre.

Place-Name Variation and Language Change

Historical linguistics can become another exciting area of application of general surveys of place-name variation provided by humanities digital spatial research infrastructures. Although etymological analyses of names have played a significant role in the field since its establishment, the empirical validity of name datasets in studies of language change has been downplayed or neglected.[61] Names are unpopular in linguistics, as they are infrequent elements of language to which some ascribe peculiarities in development, unlike the rest of the lexicon.[62] The focus on etymology of single names and a clear tendency to eliminate "insignificant" variants in traditional onomastics is another considerable obstacle on the way toward a more inclusive approach to language change based on all the available empirical data.

Variance in name datasets can become an important complement in discussion of ongoing language change.[63] To illustrate my point, I analyze one major observation made in the Norse World data: orthographic place-name variation in Old Danish expressed in raw numbers is greater than that in Old Swedish. Measuring variation in language can easily become controversial, because language data are not normally distributed;[64] for this reason, no inferential statistics is employed here.[65] An overview of the five most frequent place-names in both languages shows that the standard form "Norway" is associated with ten variants in Old Swedish and twelve variants in Old Danish; "Jerusalem" with seven and eight; "Egypt" with eleven and sixteen; "Rome" with five and seven; and, finally, "France" with twelve and twenty-six variants respectively. The differences are, admittedly, quite insignificant, but they are still worth investigation

60 Eighteen attestations of the lemma form *Norge*. The dataset, comprising 123 attestations, was downloaded on February 1, 2021.

61 Most handbooks in historical linguistics do not include chapters on onomastics; see, e.g., Ringe and Eska, *Historical Linguistics*. Most studies do not specifically include name data, with few exceptions: e.g., Wetås, *Kasusbortfallet i mellomnorsk*.

62 See discussion in Coates, "Names and Historical Linguistics."

63 See the examination of morphological change in Wetås based on both onomastic and non-onomastic material: Wetås, *Kasusbortfallet i mellomnorsk*.

64 Kelih and Mačutek, "Quantitative Methods in Linguistics"; Kretzschmar, *Language and Complex Systems*, chap. 7.

65 Note, however, Petrulevich, "Med ortnamnsvarianten i centrum."

Table 11.1 Overview of Old Swedish and Old Danish variant forms associated with the standard form "France" from the most frequent to the least in the Norse World resource. The datasets were downloaded on February 1, 2021.

Old Swedish variant form	Number of attestations	Old Danish variant form	Number of attestations
Frankarike	35	Franckerigy	6
Franz	10	Frankarige	6
Frankeriike	3	Frankærygæ	3
Frankerike	3	Frankerige	3
Frankarikæ	2	Frankærighe	2
Frankerik	1	Franckerigi	2
Frankariike	1	Frankærigæ	1
Frankarik	1	Frankeryghe	1
Frankariik	1	Galiæ	1
Frankærika	1	Franckerige	1
Walskalandh	1	Frankerighe	1
Frandz	1	Frankæriighæ	1
		Franckærygæ	1
		Franckerigæ	1
		Franckærigæ	1
		Frantzen	1
		Frantz	1
		Frans	1
		Frandsz	1
		Franckerigh	1
		Franckerig	1
		Frankerigy	1
		Franckærigi	1
		Frankerigi	1
		Franckerighy	1
		Fran	1

given the fact that the Old Swedish part of the corpus consists of 4,050 attestations of spatial references, almost twice as many as its Danish counterpart.[66]

The most striking example, that of France, deserves a closer look. Variant forms associated with this standard form in Old Swedish and Old Danish presented in Table 11.1 can be divided into three categories: a) probable scribal errors, such as *Fran*; b) spelling

66 There were 2,490 attestations of spatial references in Old Danish. The dataset was downloaded on February 1, 2021.

variants of less frequent lemma forms, such as *Walskalandh*; and c) spelling variants of lemma forms that the majority of the attestations belong to. In Old Swedish, there are nine spelling variants of the most frequent lemma, *Frankarike*, among which *Frankarike* is the most frequent.[67] The situation in Old Danish is rather different, because there does not seem to be any conventional, most popular spelling of the most frequent lemma, *Frankerike*. On the contrary, the two most frequent variants, *Franckerigy* and *Frankarige* respectively, are attested only six times each; the majority of other spellings appear in the corpus only once.[68]

The abundance of variants of the lemma form *Frankerike* in Old Danish manuscripts requires an explanation. Of course, pure orthographic conventions have affected the spelling situation, such as the doubling of letters to indicate long vowels (e.g. *Frankæriighæ*) or the interchangeable use of the letters ⟨i⟩ and ⟨y⟩ to indicate the high front vowel (e.g. *Frankeryghe*).[69] The orthographic heterogeneity in this case has its roots in the ongoing phonological language changes in the Danish language of the period, however, namely a reduction in unstressed syllables and the introduction of the schwa sound, as well as the so-called weakening of stops and its subsequent developments.

Weakening of unstressed vowels in Danish is attested early, from about 1100.[70] Attestations of *Frankerike* reflect the uncertainties regarding the spelling of the new vowel, written both as ⟨æ⟩ and ⟨e⟩ in the centuries that followed. Interestingly, this material complements the description of the development in reference literature; the vowel /i/ is stated to be preserved when it follows a velar consonant as in the word *riki* ("kingdom"), at least in the early medieval period.[71] The final vowel of the compound name is most often spelled with a schwa,[72] however, if it is not omitted altogether, as in *Franckerigh*.[73] The interchangeable use of ⟨g⟩ and ⟨gh⟩ in the material reflects the spirantization of the voiced stop to [ɣ], a subsequent change that followed the voicing of the original /k/.[74]

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67 Thirty-five out of sixty attestations. The variant form *Franz*, with ten attestations, is the second most frequent variant form. The dataset was downloaded on February 1, 2021.

68 Twenty out of twenty-six variant forms in a dataset of forty-two attestations appear only once. The dataset was downloaded on February 1, 2021.

69 It has been suggested in literature that this variation could reflect the rounding of /i/; the spelling conventions provide a more likely explanation, however; see Karker, "123. Phonological Developments," 1098.

70 Riad, "102. The Phonological Systems," 896, 899.

71 Riad, "102. The Phonological Systems," 899; see also Karker, "123. Phonological Developments," 1098.

72 The final vowel in the lemma form *Frankerike*, attested eighteen times, is spelled six times as ⟨æ⟩ and six times as ⟨e⟩, as well as three times as ⟨i⟩ and three times as ⟨y⟩.

73 See Karker, "123. Phonological Developments," 1098.

74 Riad, "102. The Phonological Systems," 904–5.

Final Remarks

In this chapter I have argued that the standard structure of a digital gazetteer has informed much of the recent digital spatial infrastructural work in the humanities; the approach in question ultimately collapses the complex aspects of place-name data and its transmission into, preferably, one place-name attribute per location scheme. Although humanities scholars have been well aware of the methodological concerns associated with the introduction of GIS technologies and tabular relational database systems into humanities data management and analyses, place and space have been—and still are—the main area of interest for critical discussion in spatial humanities. This chapter has instead dealt with aspects of place-name data modelling, a facet of humanities digital spatial research infrastructures that has been overlooked previously. As the survey of place-name representation in digital spatial resources with pre-modern focus, such as the Pleiades Gazetteer of the Ancient World and others, has shown, place-name variation is often not a focal point of the projects; even if alternative or variant forms are included, these are seldom categorized in a methodologically meaningful way in order to enable further qualitative and quantitative analyses.

I see variation as an essential feature of a living language that has to be accounted for irrespective of the area of application of language data. The chapter's survey of the relevance of place-name variation relies heavily on philological and linguistic arguments and applications of variation data and analysis tools available at the Norse World platform. I am convinced, however, that a comprehensive survey of variation at different textual levels will benefit any humanities study based on pre-modern texts as empirical data. The Norse World platform has operationalized and consequently implemented variant and lemma forms to process the raw attestation data in order to meet the needs of its users. As I have shown, the suggested model is robust enough to be adjusted to the requirements of projects with both similar and different focuses by fine-tuning the definitions and operationalizations in accordance with the project's needs and set-up. The most important after-effect of employing the place-name data model is that the project team is forced to approach their textually coded spatial data and research questions critically to establish the textual levels, and thus types of variation, that are of importance.

It is impossible to approach variation in textual material without theorizing and operationalizing the concept text. Spatial humanities has not paid that much attention to the materiality of text as a complex entity; there are always choices to be made with respect to textual level and amount of detail that inevitably influence the achieved results. This chapter re-evaluates the current approach and offers a theoretically and methodologically informed alternative. I have shown that it is clearly possible to do more regarding variation in language data within the frame of the traditional gazetteer approach. There is, in other words, no need to rely on the authoritative text alone. I do not mean that the place-name data model presented in the chapter is the only possible way to solve this task, though. On the contrary, I think that there are other possible ways of approaching place-name data yet to be explored.[75] I hope, however, that I have placed

75 See Gammeltoft, this volume.

the materiality of text and the spatial data in it, place-names included, higher up on the spatial humanities agenda.

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