The Journal of
HISTORICAL
NETWORK
RESEARCH

9 | 2023
special issue

Networks of Manuscripts, Networks of Texts

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C²DH
LUXEMBOURG CENTRE FOR
CONTEMPORARY AND DIGITAL HISTORY

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LUXEMBOURG

Imprint

Université du Luxembourg 2023

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Université du Luxembourg
Belval Campus
Maison des Sciences Humaines
11, Porte des Sciences
L-4366 Esch-sur-Alzette

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ISSN 2535-8863

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Published online at
https://doi.org/10.25517/jhnr.v9i1

The Journal of HISTORICAL NETWORK RESEARCH

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Books of hours as codified compilations of compilations

Textual networks and hybrid liturgical uses

Journal of Historical Network Research 9 (2023) 130–183

Keywords Books of hours, Middle Ages, Manuscript studies, Liturgy, Philology, Low Countries, Hours of the Virgin, Office of the Dead

Abstract The present contribution aims to change how we study the textual content of books of hours by tackling the most common texts at a large scale. Intended for lay people and imitating the model of liturgical books, books of hours contain a core of votive offices and appear to have a very standardized content. The choice and the order of the chants, readings and prayers may vary within the offices according to not only the liturgical destination, but also the place of production, the target export market, and the choices of the client. Variations are therefore difficult to characterize and analyze. Here, we focus on an analysis of the Hours of the Virgin and the Office of the Dead as both compilations and networks of compilations. At the level of texts and liturgical uses, we highlight and study textual commonalities based on geography or other historical links (e.g., Germany, the Dominican order and southern France for the Hours of the Virgin, Flanders and Scandinavia, Poitiers and Bordeaux, Auxerre and Bayeux for the Office of the Dead). Since patrons or copyists could also modify the expected contents, our last part analyses the uses of Utrecht and Bruges, and how uses specific to one institution may either be faithfully reproduced or give way to hybridization. This phenomenon is characterized, for example, by inserting pieces from another use into a well-identified set.

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1. Introduction

A map to navigate the haystack? We are not there yet, but textual network analysis can help us to understand the composition of a very large rick, the numerous books of hours, and how the very many tiny bits and pieces of text are assembled within them. The aim of this paper is to introduce some tools of network analysis in the study of books of hours to help drawing general maps of textual and liturgical proximities.

Although they are known to all Medievalists, especially to art historians, books of hours are often overlooked or disdained as a standard mass production, and their texts are more often than not left to one side. Yet, as the bestseller of the Middle Ages, they played an important role in the cultural life of their time period and transmitted different sets of texts, so that they now constitute precious sources on medieval devotion, liturgy, social representation, and textual circulation in Western medieval society. Finding textual commonalities and connections in such a large body of sources is a challenge. Through an in-depth analysis, scholars have been able to reveal the correlations between illuminators and copyists, resulting in some more or less coherent groups of manuscripts. Textual commonalities may be linked to local habits or originate from workshop practices, whether in the choice of suffrages or prayers, or the compilation and configuration of variant pieces.[1] The most flexible section is the calendar, and the variations in "strictly regional feasts",[2] as well as the arbitrary parts of "full" calendars, may be both daunting and highly revealing, as shown by J. Plummer, G. Clark, S. van Bergen, M. Hülsmann and T. Kren.[3] Thanks to the work of J. Plummer and

Acknowledgements: This research was funded by the French National Research Agency under the grant agreement ANR-17-CE38-0008. The datasets and code to produce the tables and figures are available at https://doi.org/10.5281/zenodo.6671462. The authors wish to very warmly thank Saskia van Bergen, Martin Morard and the anonymous reviewers for their comments, suggestions and contributions.

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1 For the region of particular focus in this paper, see Bergen, 'De Meesters van Otto van Moerdrecht. Een onderzoek naar de stijl en iconografie van een groep miniaturisten, in relatie tot de productie van getijdenboeken in Brugge rond 1430'. In section I.4 on the collaboration of 'librarians', copyists and illuminators, she studies the material features (dimensions), hands and their changes for different texts, in relation to texts and liturgical uses. In section I.5, she highlights networks of illuminators, but also based on textual similarities in calendars, which are supported by appendix 12 on clustering the calendrical information.

2 Clark, 'Table of Strictly Regional Feasts in Calendars Printed or Written for Southern Netherlandish and Contiguous Dioceses, Abbeys, and Colleges before 1559'; Clark, 'Appendix III. Qu'est-ce qu'un calendrier parisien?'

3 Plummer, '"Use" and "beyond Use"'; Hülsmann, 'Text Variants in the Utrecht Calendar. A Help in Localizing Dutch Books of Hours'; Hülsmann, 'De wisselende samenstelling van de Utrechtse heiligenkalender: een onderzoek naar de taakverdeling bij het afschrij-

G. Clark, we also know that other sections bear traces of their textual connections, with a philological basis for the prayers *Obsecro Te* and *O intemerata,*[4] or with regard to the choice of versicles in the litanies.[5]

Scholarly interest in the text of the books of hours has sharply increased in recent decades. In a recent book, K. Rudy has scrutinized the textual features of Netherlandish books of hours and analysed how the Vernacular/Latin bilingualism played a role in the perceived efficiency of prayers, not only from the perspective of the copyist's literacy, but also in terms of the ability of the readers to articulate the texts with devotion, or to understand and act according to the prescriptions.[6] She addressed several specific texts (e.g., Mass of Saint Gregory or prayers to the Virgin), as well as how images would underline the expected outcome and indulgences of reading the Hours of the Virgin or the Office of the Dead, including examples from manuscripts containing the offices in Latin.

Still, more often than not, the textual contents of the main offices remain beyond the scope of investigation. The present article introduces the concepts and tools of network analysis in order to address the corpus at a larger scale and aims at revising how we identify textual circulations. We also discuss the notion and process of hybridization to explain the state of certain manuscripts and/or texts. Inspired by works on the most variable parts of books of hours, such as calendars and litanies,[7] our main contribution is to investigate the parts of books of hours which are the most common and deemed the most stable, namely the Hours of the Virgin and the Office of the Dead.

We also define and embrace books of hours as codified compilations of compilations. Not only do books of hours as a genre gather offices in a complex fashion, but offices and suffrages have, by their very nature, the quality of compilations of individual pieces, composed according to specific liturgical rules. Here we address the question of textual networks at the level of offices and hours, but this enquiry could also be extended to the level of manuscripts. Our study of networks and hybridisation will have a specific focus on the Low Countries to better

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ven en het decoreren van handschriften'; Kren, 'Seven Illuminated Books of Hours Written by the Parisian Scribe Jean Dubreuil, c. 1475–1485'.

4 Plummer, '"Use" and "beyond Use"'; Clark, 'Beyond Jacquemart Pilavaine, Simon Marmion, and the Master of Antoine Rolin: Book Painting in the Hainaut in the Penultimate Decade of the Fifteenth Century', 396–97.

5 Clark, 'Beyond Saints: Variant Litany Readings and the Localization of Late Medieval Manuscript Books of Hours. The D'Orge Hours'.

6 Rudy, *Rubrics, Images and Indulgences in Late Medieval Netherlandish Manuscripts.*

7 For a database of calendars in books of hours, for now without exploitation, see also Macks, 'CoKL: Corpus Kalendarium'. For the network of liturgical calendars, but not connected to books of hours, see Heikkilä and Roos, 'Quantitative Methods for the Analysis of Medieval Calendars'.

understand how the interdependence of devotion, commercial imperatives, and mass production gave birth to hybrid texts.

Section 2 provides some definitions and characterizes books of hours as multi-layered compilations, combining different sections in different orders, and associating offices for different liturgical uses, which are themselves compilations of texts and pieces. Section 3 investigates anew the available data on the Office of the Dead and the Hours of the Virgin. First, we will reassess the results from a relatively recent study on the Office of the Dead using techniques from network analysis, and then expand to the Hours of the Virgin. We will demonstrate how network analysis can reveal unexpected proximities between uses. In section 4, we will then address some specifics of book production in the Low Countries and discuss the process of hybridisation. Specifically, we will re-evaluate the links between the uses of the Dominican order and of Utrecht, and analyze a liturgical use previously thought to be for Bruges in order to demonstrate that it can be understood as a hybrid.

2. Definitions

2.1 Offices and liturgical uses

Books of hours assemble pieces of different text genres and contain several texts. "Offices" or "hours" are at their core. They are the sets of prayers that monks and secular clerks are supposed to duly recite (hence the Latin name *"officium",* duty) in order to sanctify the day with prayers, marking the passing time of each day and night, generally distributed in eight hours (Matins, Lauds, Prime, Terce, Sext, None, Vespers, Compline – hence the Latin name *"horae",* hours). The description of the content of each office is called *"cursus"* (i.e., succession of texts).

Each of the liturgical offices that compose a book of hours is in itself a compilation, built from hundreds of different pieces, and these pieces pertain to specific categories. In the following pages, we will use the liturgical vocabulary to denominate these categories (e.g., antiphons, benediction or blessing, canticle, chapters, hymns, lessons or reading, psalms, responsories, versicles), but their definition is not necessary to comprehend the present article. Suffice to say that the structure of the overall cursus is very hierarchical and granular, with fixed arrangements for the sections, subsections and pieces, so that the position of each text category is almost always identical and texts are not distributed randomly.[8]

8 Daille et al., 'Transcription automatique et segmentation thématique de livres d'heures manuscrits', 18.

Before the Council of Trent in the sixteenth century, the liturgy of the Church was very diverse and each diocese, congregation, and major church used a different cursus for the same office. The structure of the office is the same across different uses, while the set of prayers and chants differs. An office is said to be "for the (liturgical) use of" an institution if its text concords with the textual specificities of the cursus of the institution. Almost all dioceses and major abbeys chose their texts from a rather limited corpus, but did not use them at the same moment during the day. The selection and order are typical for specific liturgical uses, as was first recognized at the start of the twentieth century by G. Beyssac, then by F. Madan and V. Leroquais.[9] The aforementioned scholars used the combinatory diversity and relative stability of known sets to identify their multiple liturgical uses.

Crucial to the present study is that a manuscript containing an office for the use of some church may have been produced in another context, and both the place of origin and the first place of use may differ from the liturgical use. For example, books of hours were produced in Flanders, for the use of Rome and a commissioner in Paris.

In this context, many scholars and cataloguers overuse the word use for calendars and other texts, or for the entire volume. Calendars in books of hours may indeed integrate some liturgical components, such as the hierarchy of feasts rendered in gold, blue, red or other colors. However, they are not liturgical calendars *stricto sensu* and we cannot label them in such a precise way as for liturgical pieces, as is demonstrated by the CoKL database.[10] Likewise, some descriptions infer a theoretical use for the complete volume corresponding to the place of origin or the place of first destination. For example, MS. Paris, BnF, Bibl. Arsenal, Ms-569 was called "Heures à l'usage de Gand" by H. Martin at the end of the nineteenth century and this title is still in the online catalogue, despite some revisions.[11] In reality, both the Hours of the Virgin and the Office of the Dead in this manuscript are for the use of Rome.

Books of hours contain mainly so-called votive offices, whose contents are fixed and do not change along with the calendar, as the collective celebration within the church does. They are therefore adequate for lay people with less knowledge about liturgy. The Hours of the Virgin and Office of the Dead are the main votive

9 Madan, 'Hours of the Virgin Mary (Tests for Localization)'; Madan, 'The Localization of Manuscripts'; Leroquais, *Les sacramentaires et les missels manuscrits des bibliothèques publiques de France;* Leroquais, *Les Livres d'heures manuscrits de la Bibliothèque nationale;* Beyssac, 'Moyen Court'.

10 Macks, 'CoKL: Corpus Kalendarium'.

11 Bibliothèque nationale de France and Torres, 'Ms-569. Livres d'heures, en latin, à l'usage de Gand'.

offices at the core of book of hours. The practice of adding the private recitation of these offices to the participation in the main collective liturgy emerged and developed in the high Middle Ages.[12] In the eleventh century, Peter Damian was an important advocate for the daily recitation of the Hours of the Virgin, and while the Carthusian order included it from the start, some orders resisted (e.g., the Cistercian order until 1194).[13] The evolution of both offices was not always parallel: Cluny adopted the liturgy for the Dead from an early date, but due to its already high burden, resisted the introduction of the Marian office.[14] Thankfully for our analysis, even if they are fixed and shorter, votive offices retain the diversity of the collective liturgy, so that their liturgical use can be distinguished and ascertained. Section 3 will show how seriality can be introduced to explore textual networks.

2.2 Books of hours as a compilatory genre

Books of hours constitute a distinct category in literary history. Each of the manuscripts falling in this category contains several parts and diverse offices. These constitute a genre rather than a work *per se,* and each of them is a compilation, produced with similar choices, but creating a different result. Indeed, there is no consensus on which combination of components defines a book of hours. For instance, V. Leroquais distinguished between "essential", "secondary", and "accessory texts".[15] The essential elements are, according to Leroquais, those that were drawn from the breviary, i.e., the calendar, the Hours of the Virgin, the penitential psalms and litanies, the suffrages, and the Office of the Dead. Secondary are the four Gospel lessons, two prayers named *Obsecro Te* and *O intemerata,* the Hours of the Cross, and the Hours of the Holy Spirit. Until this point, the list coincides with the eight essential components listed by R. Wieck (the Hours of the Cross and of the Holy Spirit are listed as one item, as are *Obsecro Te* and *O intemerata*),[16] but V. Leroquais also records the Passion according to John, the *Joys of the Virgin* (*Quinze joies de la Vierge*), and the *Seven requests to our Lord* (*Sept requêtes à notre Seigneur*) among the secondary texts, while they are considered accessories by R. Wieck. Other texts may then be added *ad libitum.* More recently, while underlining that there are "numerous hybrid forms", J. Hamburger lists only "Calendar, Little Office of the Virgin Mary, Shorter Hours [Cross and Holy Spirit], Office of the Dead" among the "standard sections", thus omitting even the penitential psalms and litanies.[17]

12 Batiffol, *Histoire du bréviaire romain,* 184–87.
13 Laporte, *Aux sources de la vie cartusienne. Dl. 4/2,* 529–33.
14 Ibid., 529–33.
15 Leroquais, *Les Livres d'heures manuscrits de la Bibliothèque nationale,* vol. 1, p. xiv.
16 Wieck, *Time sanctified,* 27–28.
17 Hamburger, 'Another perspective: the book of hours in Germany', 97.

At the level of essential texts, a peculiar consequence of the compiling and customizing process is that one manuscript book of hours may contain offices for different liturgical uses. For instance, MS. Amsterdam, Universiteitsbibliotheek, XXV C 26 was produced in Ghent and contains the Hours of the Virgin for the use of Rome and an Office of the Dead for the use of Tournai.[18] This phenomenon is not rare, but will not be further analyzed in this article.

The discrepancies in the expected contents highlight the compilatory nature of books of hours. As they contain offices, which are themselves already codified compilations of many texts of different natures, they form a second-grade compilation that is also subject to rules and local variations. Two manuscripts may have exactly the same texts, but in a different order: e.g., MS. Auxerre, Trésor de la cathédrale, 14, for the use of Troyes, and MS. Paris, BnF, Bibl. Arsenal, Ms-637, copied in Normandy for the use of Rome. Both contain a calendar, Gospel lessons, the Hours of the Cross, of the Holy Spirit, and of the Virgin, the penitential psalms and litanies, the Office of the Dead, and the prayers *Obsecro Te* and *O intemerata;* however, while this is the order in the former, the latter places both prayers before the Hours of the Virgin, and the Hours of the Cross and of the Holy Spirit after the Hours of the Virgin.[19]

D. Porter has highlighted how much the order of sections may correlate with the region of production,[20] corresponding to some remarks by G. Baroffio[21] or, on a smaller geographical scale and for vernacular Dutch manuscripts, by M. Hülsmann.[22] For instance, observing only books of hours for the use of Rome, D. Porter could evidence that the Hours of the Cross and the Holy Spirit come before the Hours of the Virgin in Flemish books, as the Gospel lessons also do at times, contrary to the rest of European book production.[23] The "modular method", used to build books of hours and studied by K. Rudy,[24] allows for "changing the structural order of the quires",[25] but such changes would require a new binding and only a detailed analysis could help to trace the re-ordering in some manuscripts.

In recent literature, networks of manuscripts containing the same texts have been used to support genre analysis and text classification, and to understand

18 Clark, 'AmsterdamUBxxvC26 (228)'.
19 Hazem et al., 'Hierarchical Text Segmentation for Medieval Manuscripts', 6243.
20 Porter, 'Books of Hours as Transformative Works'.
21 Baroffio, 'Testo e musica nei libri d'ore', 21 n. 16.
22 Hülsmann, 'Variation in Page Layout'.
23 Email from 2 to 6 June 2021.
24 Rudy, *Piety in Pieces,* 15–57.
25 Ibid., 12.

the reshuffling of short texts and poems.[26] Authors produced bi-modal networks containing two sorts of entities, namely manuscripts and texts, but suppress the notions of seriality and of granularity. For books of hours, such an approach without seriality could help to highlight when and where certain texts were more popular, but it is not adequate to analyze macro-structures such as those uncovered by D. Porter.

In the following pages, section 3 will introduce the techniques of social network analysis for the textual contents of the offices. We will address the notion of seriality in the textual network analysis, starting with the dataset published by Knud Ottosen to re-assess the validity of his interpretation, and then continuing with a study of the Hours of the Virgin.

3. Offices as compilations and seriality in textual networks

3.1 Office of the Dead

In the early 1990s, K. Ottosen published an extensive study on the Office of the Dead.[27] K. Ottosen's study is fundamental, both because of the breadth of his corpus and the quality of his liturgical analysis, as he was able to investigate the liturgical corpus in a philological manner as well as proving relations and dependencies between liturgies. First, we will summarize K. Ottosen's contribution to the knowledge on how the Office of the Dead developed, and how responsories are apt sources for a liturgical analysis. We will then use his dataset to introduce the methodology of network analysis on liturgical offices and propose a more fluid approach.

3.1.1 *K. Ottosen's contribution*

Based on the previous discovery that the liturgical diversity could be captured through the "responsories", he focused on these pieces, which are chanted in the three nocturns of Matins as a response to the lessons (or readings), and which function as an interpretation and exegesis of the biblical readings, whose meaning they may even contradict.[28]

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26 Julien, 'Délier, lire et relier'; van der Heijden, 'Or Ai Ge Trop Dormi'; Fernández Riva, 'Network Analysis of Medieval Manuscript Transmission'.

27 Ottosen, *The Responsories and Versicles of the Latin Office of the Dead*.

28 Ibid., 249. K. Ottosen also distinguishes two main families of readings, and twelve additional sets of readings known through a small number of witnesses. His data sheets also contain the versicles, and he suggests that studying them, especially the versicles to the *"Libera me"*, would be fruitful. In the following, we focus on his dataset of responsories.

Accompanying his study and including the results of G. Beyssac and M. Huglo, he published a comprehensive census of responsories attested in 2047 sources, and later published the full dataset online.[29] A masterpiece of open data scholarship, this highly valuable database can be subjected to new enquiries; this subsection is thus entirely based on his data, only providing new observations in section 3.1.2. Following his example, we will name the positions of the responsories in the liturgy "R1" to "R12", and record the texts that are chanted with the code given by K. Ottosen as ranging from "1" to "99". Both in secular and monastic institutions, the Matins during which the responsories are chanted are divided into three nocturns, but in secular institutions each nocturn has only three lessons and their three responsories, while monastic institutions usually have four lessons and four responsories in each nocturn.[30] To compare both kinds of cursus, K. Ottosen named the three-by-three responsories of secular houses R1–R3, R5–R7, R9–R11 (and sometimes used the positions R4, R8, R12 to record additional responsories at the end of the third lesson of each nocturn). As we focus on secular institutions, we will generally record only nine responsories, and in our tables we will generally omit the columns "R4", "R8" and "R12", which have no information.

K. Ottosen demonstrated how minimal differences may distinguish two liturgical uses either in different institutions, or before and after a liturgical reform, as in Subiaco, Jerusalem, Bayeux, and Zwiefalten. Table 1 shows how an ensemble of eleven responsories (12, 14, 24, 28, 32, 38, 40, 57, 68, 72, 82) suffice to build five similar, yet distinct series.

Location	Time	R1	R2	R3	R5	R6	R7	R9	R10	R11
Subiaco	970–1000	14	72	24	32	28	57	68	40	38
Jerusalem	1131	”	”	”	”	57	28	”	”	”
Zwiefalten	1100–1200	”	”	”	”	”	”	”	”	82
Bayeux	1200–1300	”	”	”	”	”	12	”	”	38
Zwiefalten	1380–1420	”	”	”	”	”	68	82	28	”

Tab. 1 Similar responsories in the Office of the Dead in several institutions (Subiaco, Bayeux, Jerusalem) or successive states of a liturgy for one institution (Zwiefalten).

29 Ottosen, 'Responsories of the Latin Office of the Dead'. The dataset we used was that published at: https://www-app.uni-regensburg.de/Fakultaeten/PKGG/Musikwissenschaft/Cantus/Ottosen/search.html. In the meantime, the site has moved to https://www.cantusplanus.de/databases/Ottosen/Ottosenseries.php.

30 Cluny, Moissac, Mont-Saint-Michel are among the exceptions and will be mentioned again later.

Location	Time	R1	R2	R3	R5	R6	R7	R9	R10	R11
Rome	1350–1500	14	72	24	46	32	57	68	28	38
Paris	1100–1200	72	14	32	57	24	68	28	46	38

Tab. 2 Similar responsories in the Office of the Dead ordered in different sequences (Rome, Paris).

It is not only Subiaco and Jerusalem that have the same ensemble of responsories, and the order is key to distinguishing between them. A prominent example in the medieval world are the uses of Paris and Rome, which have all nine responsories in common. Only the order is different, and, except for the last, none is chanted at the same place in the cursus (cf. Table 2).

In his study, K. Ottosen identified several sets of responsories which are characteristic of specific regions or liturgical families. His repertory was arranged by increasing the number of responsories and the series from R1 to R12. Therefore he could easily spot and study groups that were identical or shared a common beginning. The hierarchy and series of responsories are presented in their numerical order, thus largely according to the arbitrary alphabetical order. Table 3 provides an overview of what K. Ottosen called "types" and "sections", as well as their historical, geographic, or liturgical nature.

Some institutions shared the same liturgical use. Often, local churches use the same sets as the neighboring cathedral or a nearby monastery (Saint-Arnulf in Metz, Saint-Lo in Rouen and Saint-Lo in Coutances, and probably Saint-Thierry and Saint-Remi in Reims, with a different set than the cathedral and Saint-Denis). Most groups of locations attached to a common set make sense from a historical or geographical perspective and correspond to evident connections. To name a few, already discussed by K. Ottosen: the series 14, 72, 24, 32, 57, 40, 68, 82, 38 shows a link between Avranches and Rouen, and probably corresponds to the actions of bishop John of Avranches in the eleventh century;[31] while the series 44, 47, 58, 76, 83, 79, 1, 18, 38, is attached to a geographically coherent region including Magdeburg, Hildesheim, Brandenburg, Werden, Odense, Havelberg, Hamburg, Halle, and Halberstadt. Some connections may not be self-evident at first sight. For example, the series 14, 72, 24, 32, 57, 28, 68, 46, 38 was used by the Dominican order, Sainte-Croix (Paris), Teutonic order, Uppsala, Skara, Västeras, Abo, Mercedarians, and Dominican Vienna. The institutions in this list appear geographically scattered. However, the convent of Sainte-Croix in Paris is an establishment of the Canons Regular of the Holy Cross (or Crosiers), which followed the same liturgy as the Dominican order, as did the Teutonic order and the

31 Ottosen, *The Responsories and Versicles of the Latin Office of the Dead,* 249–50.

Types	Sections	Locations
2-6		Ambrosian
14-32		Cambrai
14-36		Lyon: 14, 36, 46, 51, 75, 95 ... • Carthusian: 14, 36, 46, 67, 51, 33 ... • Grandmontine: 14, 36, 67, 46, 51, 75 ... • Saint-Rufus and Coimbra: 14, 36, 72, 32 ...
14-68-72		Arles
14-72-21		Agde, Lerida, Marseilles
14-72-24	32-28-57	Strasbourg
14-72-24	32-57-12	Bayeux
14-72-24	32-57-28	Various variants, including Dominican, "Metz-Normandy-Sarum"
14-72-24	32-57-36	England
14-72-24	32-57-37	Nantes
14-72-24	32-57-38	Autun, Fleury
14-72-24	32-57-40	Avranches, Rouen, Dol
14-72-24	32-57-46	Various unrelated variants
14-72-24	32-57-51	Noyon, Tournai
14-72-24	32-57-56/62	Minor sections: Italy
14-72-24	32-68-57	Romano-Germanic pontifical, model of the following
14-72-24	32-57-68	Bamberg and derivations
14-72-24	46-32-57	Roman use, Franciscan
14-72-24	47-1	Marbach, Sion
14-72-24	56-46-58	Orléans
14-72-24	57-32-40	Premonstratensian
14-72-24	68-57-82	Utrecht, Windesheim
14-72-24	82-32-57	Reims, Laon
14-72-24	90-32-57	Cluny and derivations
14-72-24	90-32-68	Aniane, Bobbio, Monza
14-72-28		Mâcon
14-72-32	24-57-68	Chartres
14-72-32	57-24-28	Prüm
14-72-32	68-24*-46	Sens and derivations
14-72-40		Loches
14-72-46		Cistercian
14-72-47		Littlemore (Oxford)
14-72-51		Saint-Oyen (Jura)
14-72-56		Italy, Vallumbrosan order

Types	Sections	Locations
14-72-58		Flanders
14-72-68		Évreux, Albi, Aurillac
14-72-79		Cologne
14-72-82	1-28-93	Troyes
14-72-82	24-32-1	Vich
14-72-82	24-32-57	Nîmes
14-72-82	32	Toulouse, Schleswig
14-72-83		Münster
14-72-90		Old Roman, Italy
14-72-138		Saint-Ghislain (Hainaut)
14-82-72		Grenoble
72-14	24	Péronne
72-14	32	Paris, Meaux, Saint-Quentin, Saint-Pol-de-Léon
72-14	38	Arras
72-14	40	Auxerre
72-14	56	Amiens
72-14	68	Valence
72-82		Châlons-en-Champagne
82-72		Vienne (France)
82-83 and 83-82		Lund
83-25		Saint-Vaast (Arras), Bruges, Lille, Scandinavian dioceses
25		Major offices: Flanders, Utrecht, Windesheim
36		Major offices: Saint-Vanne (Verdun)
44		Major offices: North German dioceses, Odense, Constance
58		Major offices: St. Lambrecht (Austria)
70		Major offices: Southern Germany, Austria
79	1	Major offices: Trier, Murbach, Lobbes
79	10 and 27	Major offices: Nonnberg, Salzburg, Mondsee, Aquileia
79	44 and 58	Major offices: Trier, St. Emmeram, Passau, Erfurt
79	76	Major offices: Metz
79	82 and 83	Major offices: Bamberg and German institutions
85		Major offices: German institutions, Thérouanne
Extraordinary types		

Tab. 3 Overview of K. Ottosen's findings. Series named according to the order of responsories in the series and to the numbering of responsories by K. Ottosen.

Mercedarians. Therefore, it can be seen as a specifically Dominican cluster, and the proof of the Dominican influence on some Scandinavian dioceses.[32] Similarly, a large and (at first glance) incoherent group with the series 14, 72, 24, 90, 32, 57, 68, 28, 46 extends from Winchcombe and Evesham in England to Marseille and Montmajour in Provence. K. Ottosen points out the influence of Cluny on all the institutions concerned.[33]

Despite some diversity, the Low Countries are largely a coherent liturgical region. K. Ottosen identified some series of responsories that were in use in this area: three minor offices and two major ones. These are, on the one hand, the minor office starting with "14, 72, 58" and found mostly in psalter-hours linked to the region; the Premonstratensian office (14, 72, 24, 57, 32, 40); and the minor office of Utrecht and Windesheim (Utrecht: 14, 72, 24, 68, 57, 82, 93, 58, 29; Windesheim: 14, 72, 24, 68, 57, 82, 32, 58, 38); and, on the other hand, the major office "83-25" and "25" used in the Low Countries and Upper Rhine region.[34] The latter group is subdivided into "25-44" and "25-72". Table 4 shows the series of major offices with the three groups. These display a total of 8 different series with only 17 different responsories, in particular 9 that are reshuffled and are characteristic of the region.

The type "25", with responsory 25 in the first position, links the uses of Antwerp, Utrecht, Liège, and Brussels to the uses of Verdun and Cologne,[35] and type "25, 44, 47" corresponds to Utrecht, Windesheim and Corssendonck.[36] Type 83-25, which is not very large geographically, does not extend beyond the borders of Flanders, except for an excursion to Scandinavia.[37] It comprises not only Saint-Omer, Lille, Phalempin, Tournai, Saint-Donatian in Bruges, Henin-Lietard, Watten, Notre-Dame-du-Bon-Conseil, Mont-Saint-Eloi, but also Nidaros and Skalholt.

K. Ottosen's study has demonstrated the complexity of the liturgical history and opened a clear path to understanding liturgical evolutions, coherences and connections between distant places. However, his presentation, as well as some of the conclusions based on the order of the responsories, should now be revised.

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32 Ibid., 239–42.

33 Moissac, Winchcombe, Jumieges, Mont-Saint-Michel, Saint-Benigne in Dijon, Saint-Thierry [Reims], Saint-Amand, Saint-Vaast, Bourgueil, Troarn, Saint-Sepulchre in Cambrai, Saint-Bertin [Saint-Omer], Saint-Ghislain, Saint-Victor in Marseille, Montmajour, San Benito el Real, Corbie, Evesham, Broholm, Vendome, Saint-Ouen, Saint-Germain-des-Prés [Paris], Saint-Maur-des-Fossés, Cluny, Saint-Remi [Reims], Villeneuve-les-Avignon, and others which are unidentified.

34 Ottosen, *The Responsories and Versicles of the Latin Office of the Dead,* 336–43.

35 Ibid., 343–346.

36 Ibid., 345.

37 Ibid., 336–40.

Location	Time	R1	R2	R3	R5	R6	R7	R9	R10	R11
Utrecht, Windesheim, Corssendonck	1300–1400	25	44	47	13	93	83	40	79	18
Verdun	1300–1400	”	72	18	”	58	”	93	82	38
Brussels	1350–1550	”	”	38	”	40	”	”	58	18
Liege	1100–1200	”	”	”	”	93	”	82	”	”
Antwerp	1496	”	”	”	32	57	13	68	”	”
Saint-Donatian of Bruges	1520	83	25	13	58	29	93	72	82	38
Lille	1200–1300	”	”	”	”	”	”	82	72	”
Saint-Omer	1270–1290	”	”	”	”	93	29	72	82	”

Tab. 4 Office of the Dead: uses of the major offices of the Low Countries (responsories numbered according to K. Ottosen).

3.1.2 *Re-reading K. Ottosen's data and studying a textual network*

For all the major input to liturgical research of his study, K. Ottosen did not provide general statistics on his corpus and did not try to interpret the full network of liturgical uses and manuscripts. Types are juxtaposed and analyzed based on their beginning, without any evaluation of their other shared responsories. While many clusters have been explained by K. Ottosen, we can now add statistical remarks on the overall corpus, introduce the (social) network analysis techniques for the textual contents, and come to new conclusions.

The dataset contains 2047 series recorded from primary sources and 557 different "locations" in which the liturgy was in force (including an unidentified blank location for 141 sources). There are 697 distinct series or responsories, and 1067 distinct pairs of one "location" and one series of responsories.[38]

The corpus of responsories is small. From Ottosen's list of seventy-five responsories (numbered in alphabetical order from 1 to 95, with additional numbers from 101 to 138), only twenty are used more than 200 times.[39] Some responsories are used almost universally at a certain position, e.g., responsories 14, 72, and 38

38 For these statistics, we take the absent responsory "0" as a discriminating feature and count all series recorded by K. Ottosen, even if incomplete.

39 When a responsory is not attested due to the specifics of the source or because it is a secular institution (for resp. 4, 8 and 12), he records "0".

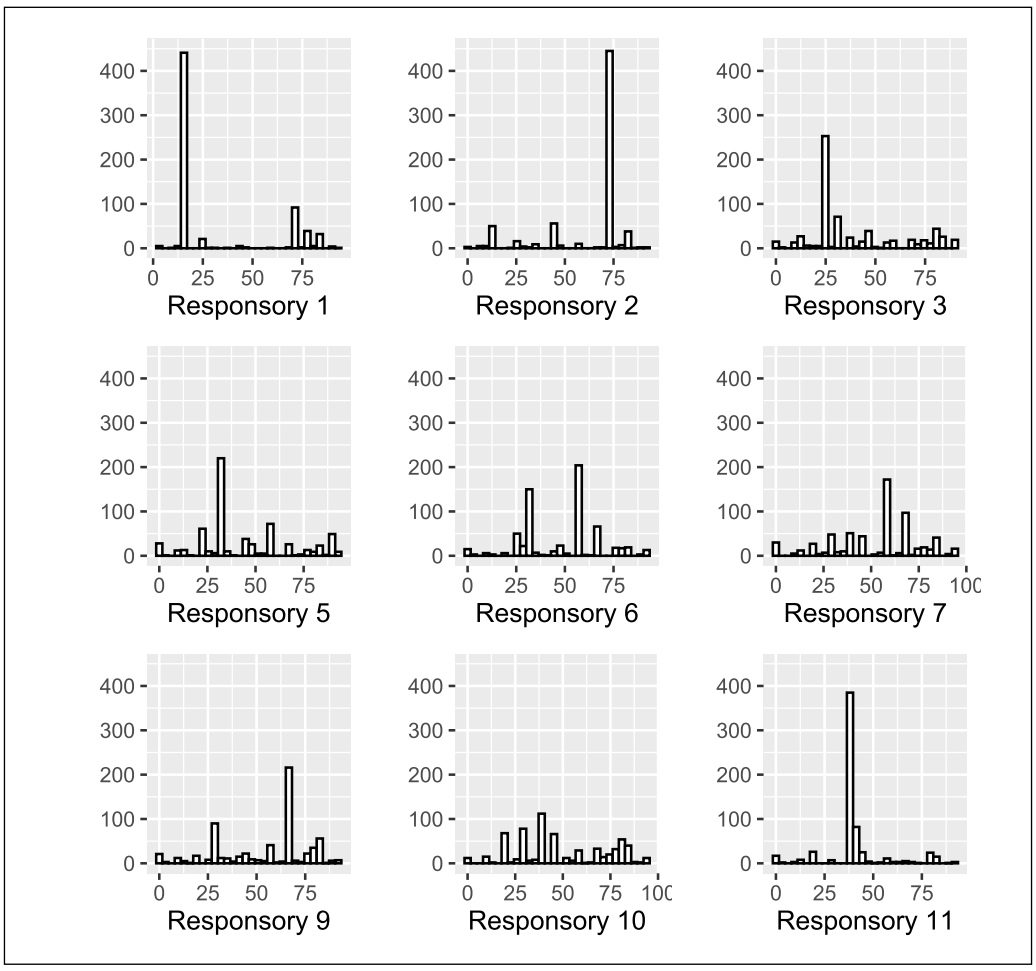

Fig. 1 Number of occurrences of each responsory across the different sets in the nine main positions (responsories numbered from 1 to 99 according to K. Ottosen). Source of the data: K. Ottosen.

in the first, second and penultimate positions, while there are more distributed possibilities in other positions, as illustrated in Figure 1.

As illustrated by Table 5, there are a large number of variant sets for some locations and this number is not strictly correlated with the number of witnesses examined by K. Ottosen. As evidenced by Table 6, manuscripts for the same use are not distributed evenly across the attested sets, but rather concentrate on certain sets of responsories. For the Roman use, almost all manuscripts bear the same text – the only difference is how an additional responsory is indicated at the end. For Paris, the same applies, yet the diversity is increased by the presence of hours with only one nocturn. In Rouen, it is once again the same, although there is a choice between resp. 28 and 40 at the end of the second nocturn (R8). Con-

Location	Witnesses	Sets of responsories
unidentified	141	109
Paris	52	11
Roman	70	9
Zwiefalten	9	8
Rouen	36	7
Tournai	16	7
Amiens	18	6
Bamberg	14	6
Saint-Denis	6	6
Utrecht	27	6
Weingarten	8	6
Ambrosian	5	5
Aquileia	8	5
Besancon	18	5
Braga	6	5
Chartres	13	5
Évreux	12	5
Hildesheim	6	5
Meaux	12	5
Münster	12	5
Passau	8	5
Poitiers	14	5
Sarum	27	5
Senlis	8	5
Soissons	7	5
Saint-Ghislain	5	5
Saint-Wandrille	6	5

Tab. 5 Number of different records and of different sets of responsories for the same "location" (table for more than 5 records and more than 5 sets).

Location	Series of responsories (R1 to R12)												Witnesses
Paris	72	14	32	na	57	24	68	na	28	46	38	na	30
	72	14	32	na	57	24	68	na	28	46	40	38	9
	72	14	38	na	na	na	na	na	na	na	na	na	5
Rome	14	72	24	na	46	32	57	na	68	28	40	38	34
	14	72	24	na	46	32	57	na	68	28	38	na	17
	14	72	24	na	46	32	57	na	68	28	38	40	6
	14	72	24	na	46	32	57	na	68	28	40	na	6
Rouen	14	72	24	na	32	57	40	na	68	82	38	na	17
	14	72	24	na	32	57	28	na	68	82	38	na	9
	14	72	24	na	32	57	28	40	68	82	38	na	3
	14	72	38	na	na	na	na	na	na	na	na	na	3

Tab. 6 Most frequent sets of responsories and number of witnesses for the use of Paris, Rome and Rouen (responsories numbered according to K. Ottosen, NA used for not applicable, rather than "0" used by K. Ottosen).

versely, the sets of responsories may be linked by K. Ottosen to up to 27 different locations, as illustrated in Table 7.

Beyond the clusters interpreted by K. Ottosen, some series currently resist interpretation, such as the set 14, 72, 24, 32, 57, 28, 68, 82, 38, which groups together the following locations in K. Ottosen's data: Nidaros, Carmelite [order], Hereford, Lincoln, Metz, Sarum, Templars, Reenes [sic for Rennes?], Oxford, Rennes, Rouen, Saint-Arnulf [Metz], Lisieux, Coutances, The Hague, Hospitallers, Hours of Marie de Bohun, Montieramey, Seez, Saint-Lo-de-Rouen, Saint-Jacut-de-la-Mer, Saint-Sauveur Toul, Saint-Lo-de-Coutances, Dol, Aversa, Saint-Maur Verdun. For such groupings, an interpretation is beyond the scope of the present article.

We now propose to use the same data to see if other connections can be highlighted. In order to study the Office of the Dead as a network, the modelling is not straightforward. K. Ottosen's census does not essentialize liturgical uses, and provides the manuscript evidence with a liturgical location. He also records additional, or "extra", responsories which may be used at the end of each nocturn to integrate some of the intrinsic variability of liturgical uses. For example, the last responsories for Rome may be not only 38 *"Libera me, Domine, de morte"*, but also 40 *"Libera me, Domine, de viis inferni"*; alternatively, the manuscripts may indicate both responsories, so that the extant witnesses provide four different sets, all

R1	R2	R3	R5	R6	R7	R9	R10	R11	R12	Different locations
14	72	24	32	57	28	68	82	38	na	27
14	72	24	90	32	57	68	28	46	na	27
14	72	24	46	32	57	68	28	40	38	21
14	72	24	90	32	57	68	28	46	38	17
14	72	24	32	57	68	28	40	38	na	15
14	72	38	na	na	na	na	na	na	na	15
14	72	24	90	32	57	68	28	38	na	12
79	1	18	47	58	83	10	76	38	na	11
14	72	24	32	57	28	68	46	38	na	10
14	72	24	46	32	57	68	28	40	na	10
14	72	82	32	57	40	68	46	38	na	10
44	47	58	76	83	79	1	18	38	na	10
14	72	24	32	57	28	68	82	40	na	9
72	14	32	57	24	68	28	46	38	na	9
14	72	24	32	57	28	68	40	38	na	8
14	72	24	32	57	28	68	82	38	40	8
14	72	24	32	57	68	79	40	38	na	8
14	36	72	32	68	24	51	56	38	na	7
14	72	24	32	57	68	82	83	38	na	7
14	72	24	90	32	57	68	28	40	na	6
14	72	24	na	na	na	na	na	na	na	6
14	72	82	32	57	38	68	28	40	na	6
72	14	38	na	na	na	na	na	na	na	6
14	72	24	46	32	57	68	28	38	40	5
14	72	46	32	57	40	68	28	38	na	5
25	44	47	13	93	83	40	79	18	na	5
83	25	13	58	29	93	82	72	38	na	5

Tab. 7 Sets of responsories and number of identified locations: table for more than 4 locations. The responsories are numbered according to K. Ottosen (NA is used for not applicable, rather than "0" used by K. Ottosen); responsories in R12 are variants of R11, as present in the source data from K. Ottosen. Statistics by the authors.

starting with 14, 72, 24, 46, 32, 57, 68, 28, and ending with 38, or 38+40, or 40, or 40+38 as illustrated in Table 6. For the following, we keep only the information in R1–R3, R5–R7, R9–R11, and only complete sets.

Building a network of responsories without taking into account the position would not render the liturgical process. The required formalization is not adequate to render the variability of "extra" responsories.

In a first approach, we can build a comprehensive network of manuscripts and responsories defined as follows:

- bimodal network with entities of type [Manuscript] and [Responsory]
- [Responsory] entities combine seriality and text, with the number given by K. Ottosen or with the incipit (e.g., "R1_14" or "R1_Credo quod"); [Responsory] entities corresponding to a missing information (e.g., "R4_0") should then be discarded
- liturgical locations are an additional piece of information

A second step is to project this multimodal network onto a unimodal one and establish links directly between manuscripts and weight edges according to the number of common readings. This can be done either through a dedicated library, e.g., MultimodeNetworksTransformationPlugin in Gephi, or by creating a specific edge table. For the present article, we use the R libraries "network" and "ggnetwork".

The network is very dense and concentrates around the small number of popular responsories. This can be amended in the second approach with a cut-off, for example by limiting the creation of edges for manuscripts which share at least four responsories.

Figure 2 provides a visualization with the Fruchterman-Reingold force directed algorithm, allowing us to evaluate how close the manuscripts and the uses they instantiate are from one another. Many clusters represent liturgical affinities, such as the one which groups Paris, Beauvais, Meaux, Thérouanne, and Saint-Pol-de-Léon, or the one grouping dioceses in southern Germany. Other cliques represent only one isolated, albeit popular use (e.g., Cambrai, Bourges).

Even with the correction of the cutting point, the network is biased by the popularity of some uses. Links from many manuscripts for one use (e.g., Rome, Cambrai, Paris) to all the others for the same use abet the creation of cliques and dense clusters. Although this may well represent how medieval people perceived liturgical uses, popular responsories, and their order, it precludes the correct perception of liturgical affinities. Therefore, we decided to remove the duplicates in K. Ottosen's table in order to keep a single instance of a location and a corresponding set of responsories.

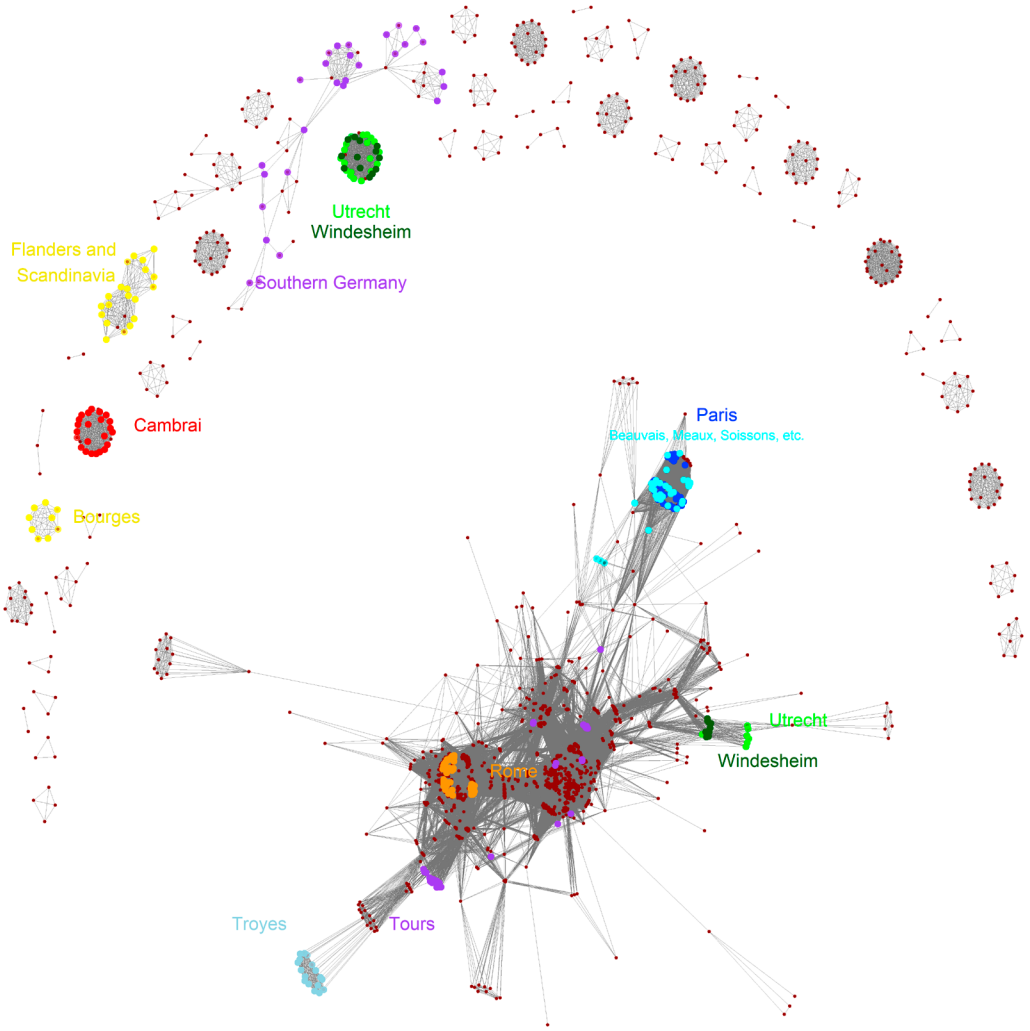

Fig. 2 Office of the Dead: network of manuscripts according to their liturgical uses (edges defined by more than five common responsories). Source of the data: K. Ottosen. Parameters and network graph by the authors, using R libraries "network" and "ggnetwork", applying the Fruchterman-Reingold algorithm.

Going back to a network approach to enquire if proximities may be spotted on a purely liturgical basis (i.e., without the help of the most copied and popular uses) proves to be useful. It does not change the overall perspective, but highlights links between different locations and helps to spot links for rarer uses, which would otherwise remain unnoticed.

In this instance, network analysis can shed light and give a broader perspective on a corpus that had already been the subject of a detailed analysis. It allows

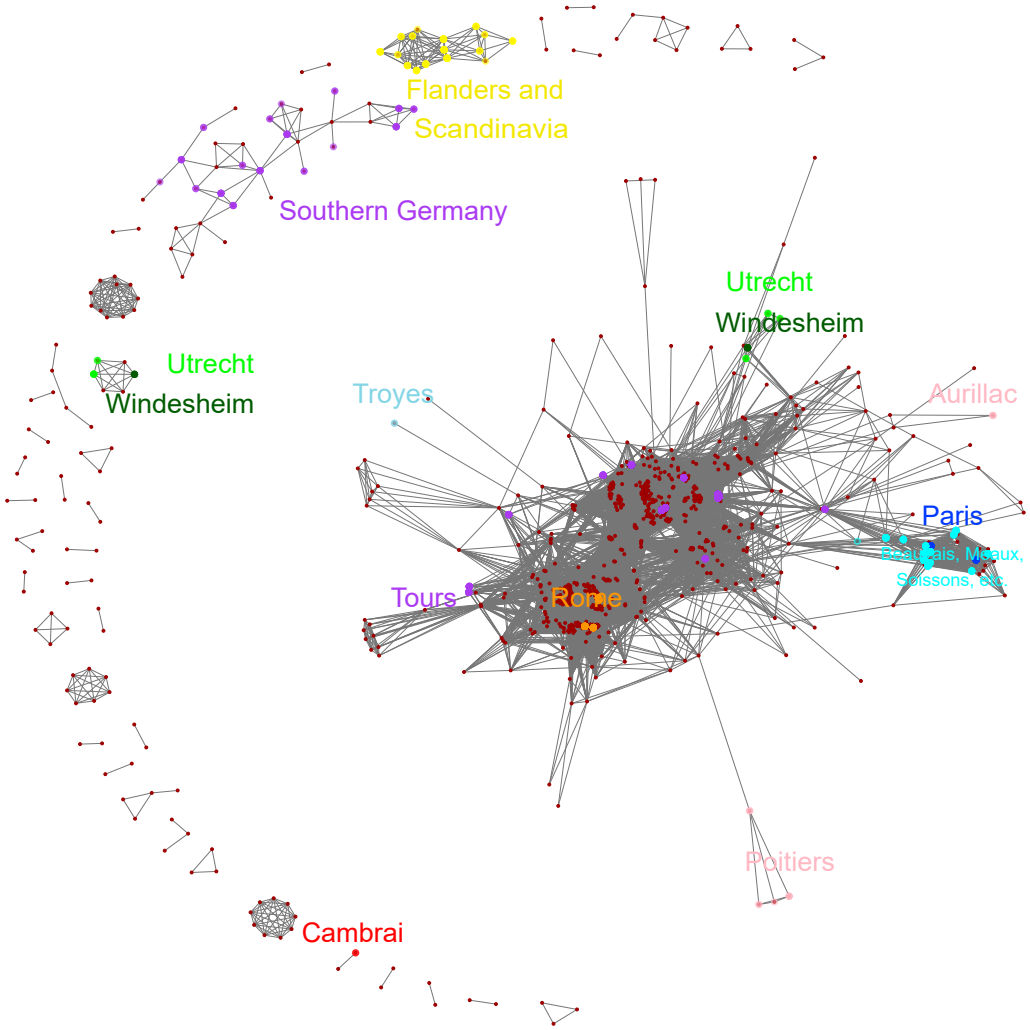

Fig. 3 Office of the Dead: network of liturgical uses (edges defined by more than five common responsories). Source of the data: K. Ottosen. Parameters and network graph by the authors, using R libraries "network" and "ggnetwork", applying the Fruchterman-Reingold algorithm.

for a clearer view of links and proximities of uses on a large scale, but also in the detail of local clusters. This is not the place to comment and analyze in detail certain unexpected connections in the liturgy of the Office of the Dead, which K. Ottosen knew of, such as the fact that Caen, Troarn and Saint-Wandrille in Normandy are in the cluster of southern German dioceses and institutions, and similarly that Saint-Pol-de-Léon and Quimper belong to the Parisian cluster.

With regard to the Low Countries, we may formulate two preliminary remarks. First, this network provides an excellent view of the singularity of major offices.

These stand out by themselves, while the minor offices are closer to the large continent (i.e., biggest connected component) of uses that are more or less related to Rome. In this continent, the minor offices are closer to dioceses in German territories (Würzburg, Basel, Weingarten), but also, less expectedly, to Angers and Saint-Jean-en-Vallée near Chartres.

The series of the major offices do not build a common group. The Flemish-Scandinavian cluster of the 83-25 group is not connected to others in our Figure 3, which demonstrates that no other use shares more than five responsories in the same position. It is therefore not only the choice of the first two responsories that is idiosyncratic, but the whole arrangement of the nine responsories. These connections between Flanders and Scandinavia are obviously not a random phenomenon. They are currently being studied by S. Myking.[40]

On a more profound level, the criterion of the first responsories should be discussed. On a first sight, it proves to be efficient. The liturgical uses and their connections as studied by K. Ottosen do not appear randomly, and the role and place of the first two responsories is probably a very profound liturgical mark. Nevertheless, the coincidences between the first responsories turn out to be greatly overestimated by the Danish scholar. Our new approach allows us to distinguish the kind of specificities and to measure the closeness of liturgies.

For example, Amiens (72, 14, 56, 24, 32, 57, 68, 40, 1/38) has been associated with some French uses, based on the first two responsories, whereas we can observe that the set of responsories in Amiens is very close to the series of the Vallumbrosian order (*14, 72,* **56**, **24**, **32**, **57**, **68**, 28, 46). There is only the inversion of the first two responsories and a change in the last two responsories.

Cambrai and Bourges are both isolated in the network, whereas K. Ottosen treats them in a very different manner: Cambrai as a type, because it starts with 14-32, while Bourges (14, 72, 82, 36, 46, 68, 57, 32, 38) is only mentioned in passing, as a "remote derivation from the Nîmes series" (14, 72, 82, 24, 32, 57, 68, 56, 40).[41] Bourges has fewer than five responsories in common with any of the other uses, but , nevertheless, was not analyzed by Ottosen as a separate type. However, Bourges was the see of an archbishopric and the responsory 36 in position R5 is very rare, and common to the Ambrosian rite and a witness of an Old Roman rite – the latter being more flexible than most.[42] The parallel between Bourges and Nîmes based on responsory 83 as R3, as happens in a large geographical zone, does not seem to be proof that Bourges took its liturgy from Nîmes. On the con-

40 Myking, 'Ter Doest, Lund, and the *Legendarium Flandrense*'; Myking, 'Les livres français dans la Norvège médiévale'.
41 Ottosen, *The Responsories and Versicles of the Latin Office of the Dead,* 321.
42 Ibid., 322–28.

trary, the prominent and vast see of Bourges, whose province in the high Middle Ages covered the dioceses of Albi, Cahors, Clermont-Ferrand, Le Puy, Limoges, Mende, and Rodez, may well be a partial witness to early or independent liturgical habits.

Yet again, the liturgy of Troyes does not truly stand out in K. Ottosen's presentation, as it starts with three common responsories (14, 72, 82, 1, 28, 93, 53, 68, 38). The second nocturn and the first responsory in the third nocturn are highly idiosyncratic, close to the common liturgical mainstream, but still isolated. One of the closest sets is a late series from Passau (14, 72, 82, 24, 28, 32, 68, 57, 38). This outlier position in the network should be the basis for new enquiries.

Even more peculiar is the presentation of Saint-Ruf and the congregation of Coimbra (14, 36, 72, 32, 68, 24, 51, 56, 38), almost in passing, because in Saint-Ruf "the two initial responsories indicate Lyonese influence".[43] In Figure 3, these seven locations build a separate clique. The series of Lyon (14, 36, 46, 51, 75, 95, 19, 94, 69) only coincidentally has the two initial responsories in common with Saint-Ruf, but there is not a single other shared responsory at the same position, and only one (responsory 51) shared in the ensemble. On the contrary, Narbonne (**14**, *72,* 82, **32**, **68**, 21, **51**, 79, **38**) or Arles (**14**, *68,* **72**, **32**, 79, 90, 40, 83, **38**), in which archdiocese Saint-Ruf is located, seem much more likely connections thanks to five (Narbonne) or four (Arles) responsories in common at the same positions, and one additional in the ensemble.

Another example shows how misleading it is to present according to the order of responsories and their incipits. The diocese of Auxerre (72, 14, 40, 32, 8, 12, 68, 36, 38) is analyzed in a separate section, but de facto inserted between Arras, Amiens, and Châlons-en-Champagne. Auxerre is isolated on our graph. Beyond the threshold of five identical responsories, one of the most similar sets is that of Bayeux (14, 72, 24, 32, 57, 12, 68, 40, 38), with the inversion of the first two responsories, and differences in R3, R6, R10. K. Ottosen described the use of Auxerre and stressed how late the first witnesses are (the end of the fourteenth century).[44] We have no further indication, and we should not presume relations or liturgical reforms too lightly. Nevertheless, there are clues that point towards some connections between Auxerre and Bayeux. Pierre de Villaines, bishop of Auxerre for a short period of time (1344–1347), was born in Bayeux and applied to be transferred from Auxerre to the see of Bayeux, where he was then bishop until his death in 1360.[45] His biography in the *gesta episcoporum* does not mention a li-

43 Ibid., 224.
44 Ibid., 332.
45 Lebeuf, *Mémoires concernant l'histoire ecclésiastique et civile d'Auxerre, tome premier,* 454–56; Lebeuf, *Mémoires concernant l'histoire civile et ecclésiastique d'Auxerre et de son diocèse,* 517–18.

turgical reform.[46] Some years later, Guillaume d'Estouteville, bishop of Auxerre at the time of the production of the first witnesses, was born in Normandy, was bishop of Évreux until 1376, then of Auxerre until 1382, then of Lisieux until his death in 1415.[47] In this latter instance, there is no proof that bishop Guillaume had connections to Bayeux. The second link is weak, but the first is direct, and our statistical view on the liturgy, which is not based on the first responsories, invites a fresh look at the liturgical evidence.

Finally, the set of Poitiers is well established (14, 72, 68, 57, 32, 46, 24, 51, 40/38). K. Ottosen treats it as a "derivation" from a type that is very difficult to characterize, with its earliest witness in Aurillac, but mostly attested in Provence with some outliers in Évreux in Normandy and Soignies in northern France.[48] Despite the common beginning (14, 72, 68), our Figure 3 shows Poitiers has no connection with Aurillac or the other manuscripts from the group. The only set that shares at least six responsories in common with Poitiers is from Ivrea (**14**, **72**, 24, **57**, **32**, 68, 67, **51**, **38**), while Aurillac only has three (**14**, **72**, **68**, 32, 38, 79, 67, 40, 64). The responsory 51 in position R10, common to Poitiers and Ivrea, is very rare. Among the very few other examples is Bordeaux (**14**, **72**, 24, 46, **32**, 57, 68, **51**, **40**). This latter use has only five responsories in common if we take the position into account, but also has exactly the same ensemble of responsories. The difference between Poitiers and Bordeaux consists of only two interchanges: responsories 24 and 68 in R3 = R10 and responsories 57 and 46 in R5 = R7. There is an evident connection, since Poitiers is a suffragan diocese of the Archdiocese of Bordeaux. This link is missing in our network (Figure 3), because we chose to create edges for more than five responsories in common.

From our examples, we can draw three methodological conclusions. First, a positive conclusion – the linear presentation and exploitation by K. Ottosen is unable to capture proximities, and even historically proven and basic links are hidden if one takes the responsories in their sequence. This is where network analysis based on the entire set of responsories provides an enhanced access to comprehending the differences between liturgical uses. The second conclusion is that a greater statistical proximity is not always proof of a closer link (Bordeaux is a better match than Ivrea). Third, it would probably be beneficial to introduce a hybrid analysis of the responsories as ensemble and as series at a further stage, in order to better evaluate and weight the existing differences. All these observations do not directly contradict K. Ottosen's highly nuanced conclusions and hypotheses. They do, however, show how (social) network analysis techniques may

46 Sot, *Les gestes des évêques d'Auxerre, Tome III,* 30–32.
47 Chartraire, 'Auxerre. IV. Liste des évêques d'Auxerre'.
48 Ottosen, *The Responsories and Versicles of the Latin Office of the Dead,* 312–15.

be applied to the same source data and offer an additional view that allows us to better understand proximities, to spot links that a linear presentation obfuscates, and to position liturgical series in relation to one another.

3.2 Hours of the Virgin

Unlike in the case of the Office of the Dead, with the in-depth study by K. Ottosen, there is no equivalent for the Hours of the Virgin, and there is no analysis of correspondences and influences between uses, despite repertories of varying pieces within the liturgy across different uses. We will demonstrate that representing the textual findings as a network is also helpful in this case.

3.2.1 *Data*

The Hours of the Virgin are composed of 400 to 500 different pieces, distributed in eight hours, each divided into five sections. As is the case for the responsories of the Office of the Dead, the possible variations are immense, including the absence of specific pieces at specific moments of the liturgy.

Scholars have used the variants to identify liturgical uses. For instance, F. Madan used only four pieces among the four hundred, namely the antiphons and chapters of Prime and None.[49] V. Leroquais used a much larger set of texts in his unpublished notes on 198 distinct uses,[50] and E. Drigsdahl makes a similar selection of nearly thirty texts for 85 distinct uses.[51] There is much variation that Leroquais's and Drigsdahl's data cannot capture, but their data are sufficient to nourish a liturgical or historical analysis of the Hours of the Virgin, and we have decided to initiate a database with the available information and to enhance it, namely to disambiguate similar incipits and to check if absent texts were only missing in the records, or also from the source manuscripts (recorded as "Expected but not attested" even if some positions are very rare). We then expanded the data under review, and we now have more than one hundred recorded texts for certain manuscripts. For 160 uses, we have recorded more than 55 different texts, excluding "Expected but not attested" (cf. Figure 4).

The uses with few recorded texts have little impact on our study. They are incomplete either because of the original documentation or through an incomplete previous recording. For example, the use of Tarentaise is partially described

49 Madan, 'The Localization of Manuscripts'.
50 MS. Paris, BnF, NAL 3162, available on Gallica since January 2018 (https://gallica.bnf.fr/ark:/12148/btv1b10033474t).
51 Drigsdahl, 'Late Medieval and Renaissance Illuminated Manuscripts – Books of Hours 1300–1530'.

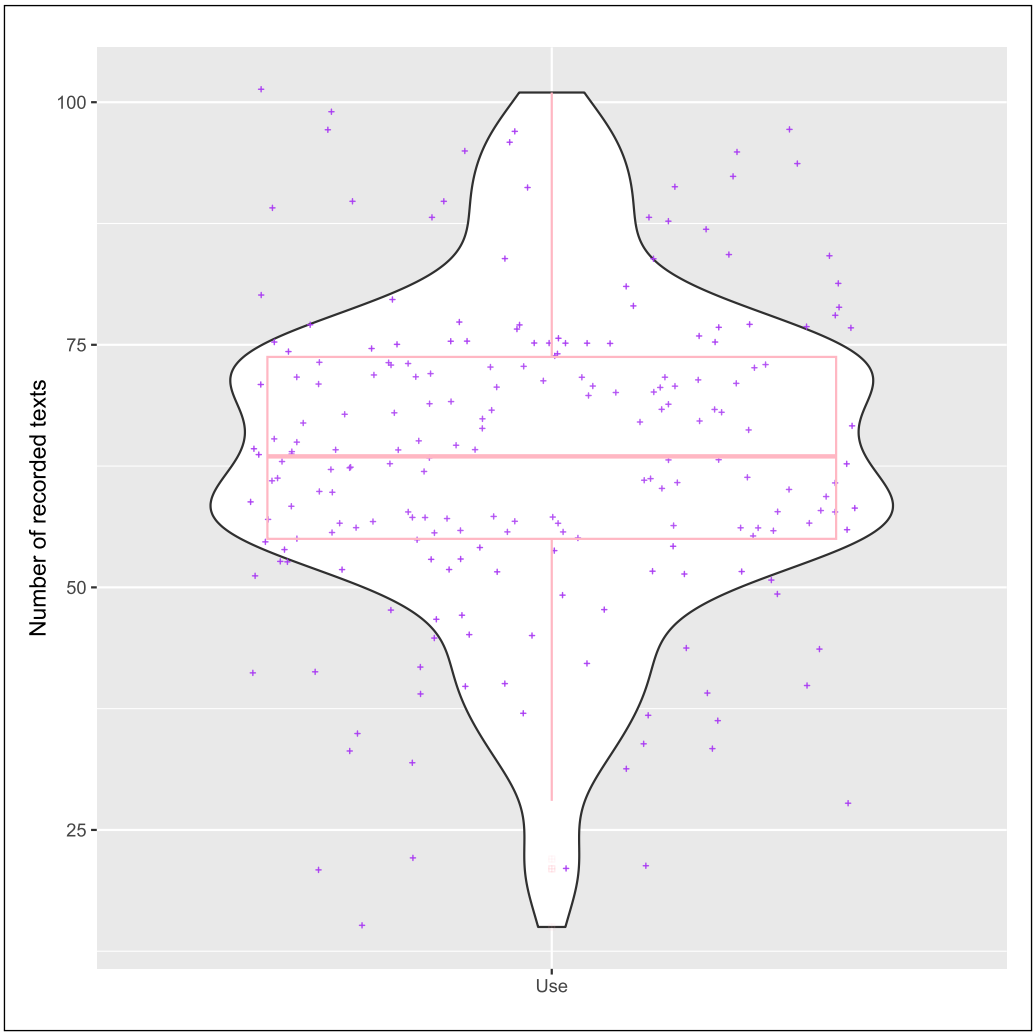

Fig. 4 Number of recorded attested texts by use.

by V. Leroquais, who stopped after Matins with a note stating that the text was useless; however, we have integrated this within in our data for future comparisons.[52] The uses of Uzès and Sisteron are documented by early printed breviaries in which the cursus for Prime, Terce, Sext and None is limited to the short lesson (*capitulum*). Most uses with fewer than 41 recorded texts are monastic, and therefore marginal in our study.

52 "Ce début d'office est intitulé: 'Incipit officium beate Marie in magno tempore'. Ce n'est pas l'*officium parvum*" (Paris, BnF, NAL 3162, f. 41r).

Text	#
Laetatus sum | Psalm 121	348
Nisi Dominus | Psalm 126	311
Ave maris stella | Cantus ID 8272.1	215
Ad te levavi oculos | Psalm 122	212
Veni creator Spiritus | AH 27066	209
Qui confidunt in Domino | Psalm 124	208
In convertendo | Psalm 125	207
Memento salutis auctor | Cantus ID 8248z = AH 5047	205
Nisi quia Dominus | Psalm 123	203
Dominus regnavit | Psalm 92	200
Benedicta tu in mulieribus | Cantus ID 001709 | Luke 1:42	192
Domine, Dominus noster | Psalm 8	190
O gloriosa domina | Cantus ID 008375e	189
Caeli enarrant gloriam Dei | Psalm 18	178
Quem terra, pontus, aethera| AH 22290 = Cantus ID 008375	178
Domini est terra | Psalm 23	176
Levavi oculos meos | Psalm 120	176
Ad Dominum cum tribularer | Psalm 119	174
Beati omnes qui timent Dominum | Psalm 127	170
Sancta et immaculata virginitas | Cantus ID 007569	161
Sancta Maria succurre miseris | Cantus ID 004703.1	161
Domine, non est exaltatum cor meum | Psalm 130	157
Sicut cynamomum et balsamum | Ecclesiasticus 24:20	156
Saepe expugnaverunt me a juventute mea | Psalm 128	151
Beata es Maria quae Dominum portasti | Cantus ID 006163	150

Tab. 8 Most frequent texts in the Hours of the Virgin across 214 liturgical uses recorded in the HORAE database (here: texts linked to 150 or more records).

As illustrated by Table 8, some texts appear more than 300 times across our 214 liturgical uses, which means they are frequently read twice a day in the same cursus. Psalm 121, for example, is commonly part of the psalm section of Terce and of Vespers, but also, albeit less frequently, in Prime and Vespers as in Agde, Aix-en-Provence or Béziers. Psalm 126 is similarly often read more than once a day, generally at None and Vespers, but also at Sext and Vespers in some dioceses.

3.2.2 *Hours of the Virgin as a network*

The inner complexity of the liturgical cursus for the Hours of the Virgin may be studied with the same methods as for the responsories in the Office of the Dead. Figure 6 represents a network of the liturgical uses as a one-mode network. Each dot represents one of the uses declared by V. Leroquais and E. Drigsdahl, for which they may have several sources, and to which we have added our own observations on medieval manuscripts and early printed books.

Edges and weights are created and calculated according to the percentage of common pieces within common recorded positions. Our index is not an IoU or Jaccard index, since we may have different levels of completeness in the description for different uses and it would distort the placing of less well described uses. Let's imagine a use that is known only by a fragment with a series of thirty pieces and which is in complete agreement, for this part, with another use for which we know a set of 100 texts. IoU would be low (30/100 = 0.3), whereas our computation will give a percentage of 100%. This is necessary due to the state of the documentation.

Figure 5 provides an overview of the calculated similarities between the different liturgical uses. As we compare 216 different uses, we have 45796 potential edges, if we include comparisons from A to B and B to A as well as comparisons with self. There is a total of 22791 (N × (N – 1) / 2) edges if reciprocal links are de-

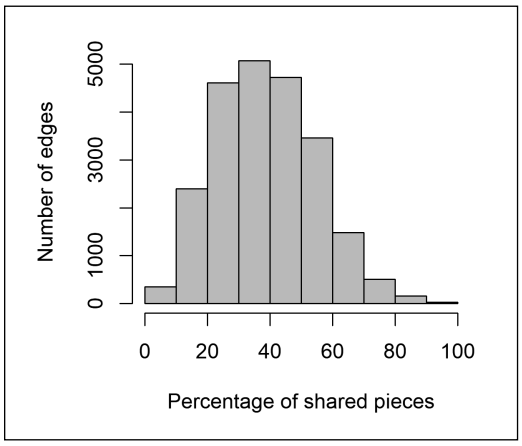

Fig. 5 Distribution of the similarity between 216 different uses. For example: in 200 cases of 1-to-1 comparison, the uses share 12% of their constituent pieces in the same positions.

clared once. Most uses have between 20% and 60% of the recorded texts in common in the same positions.

Given the repartition of percentages, we chose a cut-off point of 70 to retain a sufficient number of significant commonalities. Therefore, we have declared edges between nodes (liturgical uses) if the percentage of shared texts at the same positions is higher than 70%. Moreover, edges are weighted by the percentage. There are 691 edges linking 159 different nodes (institutions).[53]

We have introduced no other weighting parameters based on the length of the texts, their liturgical nature (psalms, hymns, antiphons, etc.), their performance in the collective liturgy (chanted or read), nor through scaling. We have also excluded the sixteenth-century use of Tours, which our records show as a mix of different sources that generates multiple links between otherwise separate clusters.

Figure 6 represents the textual network for the Hours of the Virgin in a similar way as Figure 3 represents the network for the Office of the Dead, with a Fruchterman-Reingold force directed algorithm. These two networks diverge and cannot be superposed. From a liturgical and historical standpoint, this is an important clue to the development of the liturgy at a local level. An office is introduced or reformed at a certain point in time and records, *volens nolens,* the connection of the institution at that moment. As both offices were adopted at different points in time, the connections are strikingly different.

For the Hours of the Virgin, an important first conclusion is that groupings appear on a geographical basis. For instance, a single group gathers almost all German dioceses. From a historical perspective, this correlates to K. Ottosen's demonstration for the Office of the Dead and shows how, beyond the desire of identifying manuscripts, recording the many pieces and elements of such an office may help in tracing regional coherences and probable shared liturgical developments. In this instance, the cluster of old Benedictine abbeys in a disconnected geographical setting in northern and eastern France is most likely a trace of very early liturgical connections when the small (votive) Office of the Virgin started to be recited on a daily basis. Likewise, a group covering Normandy and Brittany in France (Rouen, Sainte-Croix in Saint-Lô, Évreux, Bayeux, Avranches, Dol, Tréguier, Saint-Brieux), but also England with Sarum and York, bears witness to the known connections between Normandy and England.

53 There are 2177 edges between 185 nodes with a threshold at 60%. The overall graph is similar, but much denser, because of the numerous weak links.

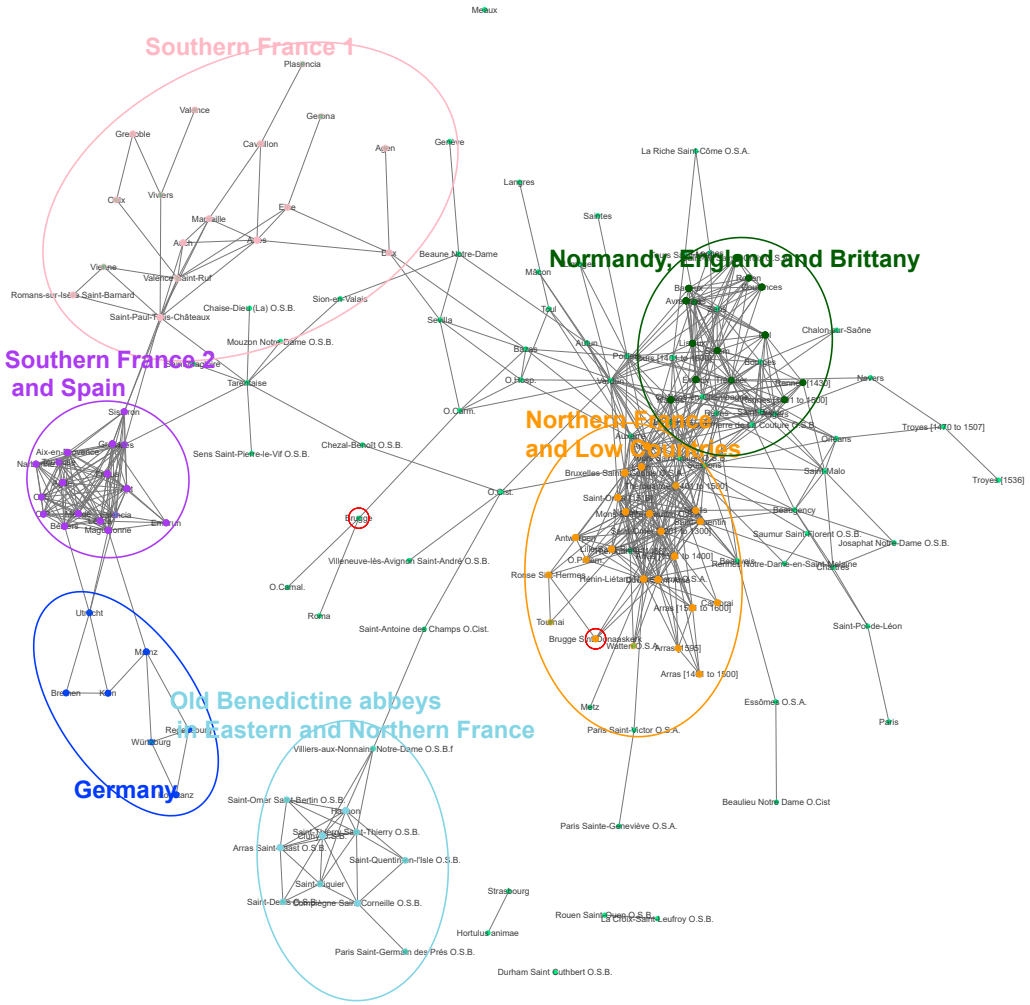

Fig. 6 Hours of the Virgin: network of liturgical uses. Network graph by the authors, using R libraries "network" and "ggnetwork", applying the Fruchterman-Reingold algorithm.

At a second level, splits and divisions are as important as the first regional clustering. Two groups cover southern France and Spain with some nearby cities (e.g., Narbonne and Montpellier or Marseille, Arles and Aix-en-Provence) in different clusters.

A special mention should be made to the liturgy of the Dominican order. In our statistics and network, it is 82% identical with Toulouse, Béziers and Maguelonne. As the order was founded in Toulouse in 1215, it may not come as a surprise. However, the liturgy of the order was completely redesigned under the direction of Humbert of Romans, fifth Master General of the Order, to accom-

modate the needs of an internationalized order and the demands from brothers of various origins and habits. A.-E. Urfels-Capot stresses that, in this operation, the Preachers have precisely introduced a major innovation in the votive office of the Virgin *in sabbato* with a complete set of lessons.[54] Even the "Dominican prototype" of 1256 (MS. Rome, Santa Sabina, XIV L 1) stresses that the set of lessons for the daily office is "not original": *"Istae lectiones, sive potius orationes, non originales sunt"*.[55] There was therefore no need for the Little Office to keep its text set close to the order's local origins.

V. Leroquais described the office based on two late books of hours (Hours of Frederick of Naples or of Aragon in MS. Paris, BnF, lat. 10532, and MS. Paris, BnF, Bibl. Arsenal, Ms-438), to which E. Drigsdahl added a printed book of hours and a comparison with the Hours of Jeanne d'Évreux.[56] These late sources may cast doubt on the context and actors using this set of texts and their faithfulness to the Dominican liturgy. However, we can confirm that the text given by V. Leroquais and E. Drigsdahl corresponds to the Dominican liturgy. For example, we have the same liturgy in the Dominican prototype, in which the daily office is described on f. 85^{v}–86^{r}, or again in the copy for the Master of the Order (MS. London, British Library, Add. MS 23935, on f. 139^{v}–140^{v}),[57] or in a random breviary (MS. Paris, BnF, Bibl. Arsenal, Ms-193, on f. 151^{v}–153^{v}).[58] P. Gleeson also stressed that the "Saint Dominic breviary", which furnishes a text linked to the founder of the order from before the Humbertian reform, is even closer to Toulouse and the

54 Urfels-Capot, 'Le sanctoral du lectionnaire de l'office', 319–20; Urfels-Capot, *Le sanctoral du lectionnaire de l'Office dominicain, 1254–1256,* 582–92.

55 Urfels-Capot, *Le sanctoral du lectionnaire de l'Office dominicain, 1254–1256,* 479.

56 Drigsdahl, 'Hore Beate Marie Virginis – Use of the Dominican Order'.

57 On this manuscript, cf. Huglo, 'Comparaison du "Prototype" du couvent Saint-Jacques de Paris avec l'exemplaire personnel du maître de l'Ordre des Prêcheurs (Londres, British Library, Add. ms 23935)'.

58 In all these manuscript sources, there is one difference from E. Drigsdahl's description. The antiphon *"Regem Virginis filium"* for the invitatory at Matins replaces the *"Ave Maria"* erroneously indicated by E. Drigsdahl, perhaps because in the Dominican liturgy, the verse *"Ave Maria"* is to be said before each hour. But the antiphon for the invitatory is also indicated as *"Regem Virginis filium"* in the books of hours of Jeanne d'Évreux (MS. New York, Metropolitan Museum, The Cloisters Collection, Acc. 54.1.2, f. 17^{r}), as well as in MS. Paris, BnF, lat. 10532, p. 108. The notes of V. Leroquais should be clarified for the responsory of the second lesson of Matins transcribed *"Beata es virgo Maria"* as in *"Beata es virgo Maria Dei genetrix quae credidisti"* (Cantus ID 6165), but it is *"Beata es Maria quae Dominum portasti creatorem"* (Cantus ID 6163). In the series of psalms at Lauds, the breviaries do not record Ps. 66 (*Deus miseratur*) before *Benedicite,* but it is present in the hours of Jeanne d'Évreux (f. 39^{v}) and Frederick of Naples (p. 124). Moreover, the breviaries and V. Leroquais and E. Drigsdahl do not explicitly indicate the psalms 149–150 after psalm 148 at Lauds, but they are attested by the Hours of Jeanne d'Évreux (f. 45^{v}–48^{r}) and Frederick of Naples (p. 128–129). At Vespers, V. Leroquais notes *"Ecce mater pulcre dilectionis"*; it stands for *"Ego mater pulchre dilectionis",* as correctly given by E. Drigsdahl.

Teutonic order.[59] This manuscript cannot, however, be considered as the source of the Dominican liturgy, as the lessons, responsories and versicles of the Office of the Dead do not correspond to any identified source.[60]

On top of this first observation, the main surprise in our study of the network of uses is the connection of German dioceses. Indeed, Constance, Regensburg, Würzburg, Cologne, Mainz, Bremen, but also Utrecht are collocated on the graph beyond the southern French groups and only have connections to this group. Our working hypothesis is that the German votive liturgy was developed (or perhaps reformed) at a relatively late stage in the thirteenth century based on examples from southern European regions. If our dating is correct, this probably happened through an imitation of Dominican or Teutonic offices. It would require an in-depth study to prove the connections, which is beyond the scope of this article. The question is nevertheless addressed below in section 4 for the specific case of Utrecht.

A final observation is that, apart from Utrecht in the German cluster, two other groupings concern the region of Flanders, Hainaut and the Low Countries. In this network, we have two representants for Bruges: one from Saint-Donatian, close to other regional uses, and a second, close to the isolated Roman use (both highlighted in red on Figure 6). The specificities of the textual networks of the liturgy in the southern Low Countries will now be addressed in part 4.

4. Network and hybridization: Definitions and examples from the Low Countries

In the liturgical networks devised above in section 3, several phenomena appear specific to the Low Countries. We will now turn to this region, which is the basis for our further analysis on hybrid texts and volumes.

The Low Countries were one of the most important centers for the production of books of hours in the Middle Ages. In our HORAE research project database,[61] we know of 520 books of hours that originate from this region. This production has already been the subject of numerous studies, mainly from an art historical perspective. For example, focusing on iconography and statistical correlations, D. Vanwijnsberghe evidenced seven variants on the Flemish Infancy cycle and

59 Gleeson, 'The Pre-Humbertian Liturgical Sources Revisited', 111.

60 Ottosen, *The Responsories and Versicles of the Latin Office of the Dead,* 241–42; Gleeson, 'The Pre-Humbertian Liturgical Sources Revisited', 110–11. The responsories correspond, to the extent the incomplete manuscript contains them, to the Bamberg minor series. The manuscript originated in southern France or Spain.

61 Stutzmann, 'HORAE – Hours: Recognition, Analysis, Editions'.

proved how different iconographical cycles were typical of a local production.[62] In an earlier study, he analyzed the artistic production with the unique set of texts provided by the Hours of the Virgin in a manuscript painted by Jean Tavernier (Brussels, KBR, IV 1290),[63] especially the short lesson (*capitulum*) *"Virgo Verbo concepit"* and the hymn *"Fit porta Christi"* at Compline.[64] He stressed that many Flemish books of hours present unidentified variants. We will address this point later.

This part will focus on the Hours of the Virgin and the hybridity of liturgical uses in manuscripts produced in this region.[65] First, we will further explore the links between the Dominican use and Utrecht and propose a new hypothesis on the constitution of the use of Utrecht. We will then explore a liturgical use called "Bruges" by V. Leroquais and prove that it comes from a book of hours for the use of Rome, and was obtained by the replacement of a whole section. In both cases, we will try to explain the process of hybridization.

4.1 The use of Utrecht, Windesheim and Geert Groote

Most books of hours of the northern Low Countries were written in Dutch from 1410 onwards, representing 90% of the extant books of hours from the region.[66] The linguistic features of translations, including the most prominent one by Geert Groote, and their relationship with Latin models, especially for the Hours of the Virgin, is a field of ongoing research. After the seminal publication by F. Gorissen in 1968 claiming that Geert Groote compiled the text that would become the cursus for the use of Utrecht and Windesheim,[67] a publication by J. Marrow called for a renewed scrutiny of the liturgical uses and variants in the Hours of the Virgin in the Low Countries,[68] and A. Korteweg proposed a clear distinction of the uses and an explanation for Geert Groote's text.[69] Analyzing the calendar and the litanies, as well as both the Hours of the Virgin and the Office of the Dead, she first observed that the uses of Utrecht and the Windesheim congregation are easily distinguished (the addition of Augustine as patron and of Meinulfus after 1430, changes in the order of the litanies).[70] She then repeated and exemplified

62 Vanwijnsberghe, 'The Cyclical Illustrations in the Little Hours of the Virgin in Pre-Eyckian Manuscripts'; Vanwijnsberghe, 'Le cycle de l'Enfance des petites heures de la Vierge dans les livres d'heures des Pays-Bas méridionaux'.
63 Vanwijnsberghe, 'L'apport du texte et des éléments de contenu'.
64 Ibid., 44.
65 The oral presentation of this paper included remarks on the Office of the Dead that would require a full demonstration. We reserve this for a future publication.
66 Korteweg, 'Books of Hours from the Northern Netherlands Reconsidered', 235.
67 Gorissen, 'Das Stundenbuch im rheinischen Niederland'.
68 Marrow, 'Notes on the Liturgical "Use" of the Hours of the Virgin in the Low Countries'.
69 Korteweg, 'Books of Hours from the Northern Netherlands Reconsidered'.
70 Ibid., 239–40.

K. Ottosen's findings on the differences for the Office of the Dead by adding several instances of manuscripts that contain both major and minor series.[71] With regards to the Hours of the Virgin, despite the lack of early witnesses, she introduced archival evidence to argue that a Utrecht use existed before Geert Groote's work – who acted mainly as a translator – and that it was integrated practically unchanged in the liturgy of Windesheim, only being regularized onto the Roman cursus.[72] Dutch translations were also copied based on different Latin models, for example transmitting the uses of Rome,[73] St. Gudula in Brussels, and Antwerp or at least a Brabantine institution,[74] or with the specific use for Malines (Mechelen).[75]

In our analysis of the liturgical uses of the Hours of the Virgin as a network (cf. Figure 6), we stressed that Utrecht was the use from the German cluster closest to the southern French cluster. Therefore, we ought to address the conclusions of F. Gorissen and A. Korteweg. F. Gorissen stated that Geert Groote wanted to compile a cursus avoiding Roman elements, because they were in use in the Franciscan liturgy.[76] He tries to connect the version by Geert Groote to the Bridgettines and, above this, to the Cistercians, and then comes to the Dominicans.[77] As the Bridgettines have a complex cursus with variations according to the days of the week, F. Gorissen points to the presence of texts not only on Thursday (*feria quinta*), but also on other days.[78] He concludes that the hours of Geert Groote were compiled from the offices of the Bridgettines and Dominicans.[79]

In Table 9, we compare the uses of Utrecht-Windesheim, Geert Groote and the Dominican order. The use of Utrecht-Windesheim and its variants are described according to A. Korteweg's description, with complements from V. Leroquais's and E. Drigsdahl's descriptions.[80] The use of the Dominican is described by combining the descriptions by V. Leroquais and E. Drigsdahl with our observations reported above.

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71 Ibid., 241–46.
72 Ibid., 246–54.
73 Deschamps, 'Een zeldzaam afschrift van een middelnederlands getijdenboek, in de 14de eeuw in West-Vlaanderen ontstaan'; Marrow, 'Notes on the Liturgical "Use" of the Hours of the Virgin in the Low Countries', 285–86, 291.
74 Marrow, 'Notes on the Liturgical "Use" of the Hours of the Virgin in the Low Countries', 285–87, 291–93.
75 Marrow, 288, 294.
76 Gorissen, 'Das Stundenbuch im rheinischen Niederland', 90–91, 96.
77 Gorissen, 91–96.
78 Gorissen, 91–93.
79 Gorissen, 94, 96.
80 Leroquais, 'Paris, Bibl. nat. de France, NAL 3162. Répertoires bibliques, liturgiques et iconographiques du chanoine Victor Leroquais. VI Hymnes, antiennes, psaumes, leçons, répons et capitules des Heures de la Vierge.'; Drigsdahl, 'Hore Beate Marie Virginis – Use of Utrecht c. 1430'.

	Use of Utrecht	Geert Groote	O.Praed.
Matins			
Invitatory	In honore beatissimae Mariae virginis *Variant.* Ave Maria gratia plena	≡	≠ 'Regem Virginis' *Variant.* ≡ **ED*
Hymn	Quem terra pontus aethera *Variant. No hymn *VL *ED*	≠ ≡	≡ ≠
Antiphon I	Benedicta tu in mulieribus	≡	≡
Psalm I	Domine Dominus noster **VL*		≡
Psalm II	Caeli enarrant gloriam Dei **VL*		≡
Psalm III	Domini est terra **VL*		≡
Lesson I	Sancta Maria, uirgo uirginum	≡	≡
Responsory I	Sancta et immaculata virginitas **VL *ED*		≡
Lesson II	Sancta Maria, piarum piissima	≠	≡
Responsory II	Beata es Maria quae Dominum portasti **VL*		
Lesson III	Sancta Dei genitrix que digne meruisti	≠	≡
Responsory III	Felix namque es sacra virgo **VL*		≡
Lauds			
Antiphon I	O admirabile commercium	≡	≠ 'Post partum'
Psalm I	Dominus regnavit **VL *ED*		≡
Psalm II	Jubilate Deo **ED*		≡
Psalm III	Deus, Deus meus **ED*		≡
Psalm IV	Deus misereatur nostri**ED*		≡ **ED*
Psalm V	Benedicite omnia opera **ED*		≡
Psalm VI	Laudate Dominum de caelis **ED*		≡
Psalm VII	Cantate Domino canticum novum **ED*		≡
Psalm VIII	Laudate Dominum in sanctis ejus **ED*		≡
Short lesson	In omnibus requiem quesiui *Variant.* Ego quasi vitis **VL*	≠ ≡	≠ ≡
Hymn	O gloriosa domina excelsa	≡	≡
Benedictus Antiphon	Sub tuam protectionem confugimus *Variant.* O stella matutina *Variant.* Virgo piisima **VL*	≠ ≠ ≠ '[O] gloriosa' = O.P.	≠ ≠ ≠ 'O gloriosa' = G. Groote

	Use of Utrecht	Geert Groote	O.Praed.
Prime			
Hymn	Memento salutis auctor	≠	≡
	Variant. Rex Christe clementissime	≡	≠
	Variant. Veni creator spiritus	≠	≠
Antiphon	Quando natus es	≡	≠ 'Dignare me'
Psalm I	Ad Dominum cum tribularer **VL *ED*		≡
Psalm II	Levavi oculos meos **VL *ED*		≡
Psalm III	Laetatus sum in his **VL *ED*		≡
Short lesson	Ab initio et ante secula		≡
Responsory	Christe fili dei vivi **ED*		≠ 'Post partum'
Terce			
Hymn	*As Prime*	≡	≡
Antiphon	Rubum quem viderat	≡	≠ 'Gaude Maria virgo'
Psalm I	Ad te levavi oculos meos **VL *ED*		≡
Psalm II	Nisi quia Dominus erat in nobis **VL *ED*		≡
Psalm III	Qui confidunt in Domino **VL *ED*		≡
Short lesson	Et sic in Sion firmata sum	≡	≡
Responsory	Specie tua et pulchritudine tua **ED*		≠ 'Sancta Maria mater'
Sext			
Hymn	*As Prime*	≡	≡
Antiphon	Germinavit radix Jesse	≡	≠ 'In prole mater'
Psalm I	In convertendo **VL *ED*		≡
Psalm II	Nisi Dominus aedificaverit **VL *ED*		≡
Psalm III	Beati omnes qui timent **VL *ED*		≡
Short lesson	Et radicavi in populo honorificato	≡	≡
Responsory	Adjuvabit eam deus vultu suo **ED*		≠ 'Ora pro nobis'
None			
Hymn	*As Prime*	≡	≡
Antiphon	Ecce Maria genuit nobis salvatorem	≡	≠ 'Beata mater et innupta/intacta'
Psalm I	Saepe expugnaverunt me **VL *ED*		≡

	Use of Utrecht	Geert Groote	O.Praed.
Psalm II	De profundis clamavi **VL *ED*		≡
Psalm III	Domine, non est exaltatum **VL *ED*		≡
Short lesson	Quasi cedrus exaltata sum	≡	≡
Responsory	Diffusa est gratia in labiis tuis **ED*		≠ 'Elegit eam'
Vespers			
Antiphon I	Beata mater et innupta virgo	≡	≠ 'Sancta Dei genitrix'
Psalm I	Dixit Dominus Domino **VL *ED*		≡
Psalm II	Laudate, pueri, Dominum **VL *ED*		≡
Psalm III	Laetatus sum in his quae dicta **VL *ED*		≡
Psalm IV	Nisi Dominus aedificaverit **VL *ED*		≡
Psalm V	Lauda, Jerusalem, Dominum **VL *ED*		≡
Short lesson	Sicut cynamomum et balsamum *Variant.* In omnibus requiem **VL*	≠ ≡	≡ ≠
Hymn	Ave maris stella **VL *ED*		≡
Magnificat Antiphon	Sancta Maria succurre miseris **VL *ED*		≡
Compline			
Antiphon I	Cum jucunditate nativitatem	≡	≠ 'Virgo Maria non est'
Psalm I	Memento, Domine, David **VL *ED*		≡
Psalm II	Ecce quam bonum **VL *ED*		≡
Psalm III	Ecce nunc benedicite **VL *ED*		≡
Short lesson	Transite ad me omnes	≠ 'Sicut cynamomum'	≠ 'Ego mater pulchrae'
Hymn	Fit porta Christi pervia	≡	≠ 'Virgo singularis'
Nunc dimittis Antiphon	Glorificamus te Dei genetrix	≡	≠ 'Sub tuum praesidium'

Tab. 9 Comparison of the uses of Utrecht-Windesheim, Geert Groote and the Dominican order. Descriptions of Utrecht-Windesheim and Geert Groote uses are mainly from A. Korteweg, texts with asterisks are supplemented from other sources (*VL: Victor Leroquais; *ED: Erik Drigsdahl). For the Dominican cursus, see footnote 56. Signs ≠ and ≡ indicate the difference and identity with the use of Utrecht. Blank cells: missing information.

Agreeing with and expanding upon F. Gorissen's remarks, Table 9 shows that the uses of Geert Groote and Utrecht-Windesheim almost always agree with the Dominican use. Thanks to A. Korteweg, we can add that when the uses of Groote and Utrecht differ, at least one of them follows the Dominican version, while both disagree with the Dominican use for the series of antiphons from Lauds to Vespers, the responsories to short lessons (or *capitula*), and most of the cursus of Compline. In the following, we do not analyze the responsories to short lessons, because they are not always recorded or indicated in manuscripts.

While the uses of Cologne and the Cistercian order differ greatly in other respects, when it comes to the antiphons, Table 10 shows that the entire cycle of antiphons for the psalmody from Lauds to Vespers could have been taken from the Cistercian order, and the use of Cologne could plausibly explain the recorded variants. The reverse is true for the short lesson at Vespers (or, alternatively, the use of Cologne was based on the Cistercian use and kept possible variants).

As for the constitution of the cursus of Compline, it cannot be explained so easily. Cologne may have been the model for the hymn *"Fit porta Christi",* already mentioned by D. Vanwijnsberghe in the Tavernier hours (see above), and the antiphon for *Nunc dimittis.* Alas, we do not know its first antiphon. The short lesson *"Transite ad me omnes"* is unique to Utrecht at this position (it differs both from Geert Groote's and the Dominican use). Therefore there is no direct model. However, Cologne is one of only sixteen cursus where we know of this short lesson.

Only a renewed enquiry into the specific liturgy of Cologne could extend or nuance our observations. As indicated by A. Korteweg, following P. Séjourné,[81] Cologne adopted the Little Office of the Virgin in 1240. It shares some features of the Cistercian use and differs substantially from what the Dominican office was and remained after the Humbertian reform in 1256. We do not know when Utrecht adopted the recitation of the Little Office.

Our working hypothesis is as follows. The use of Utrecht was based on the Dominican use, and its antiphons for the psalmody from Lauds to Vespers were replaced by the Cistercian antiphons. The material of some short lessons and Compline was rearranged based on the use of Cologne, to which Utrecht was suffragan. This hypothesis is coherent with A. Korteweg's demonstration that the use of Utrecht is older than the version of Geert Groote, since the former is closer to the Dominican use (e.g., no inversion of lessons). In the lesson "*Transite ad me omnes",* unique to Utrecht, Geert Groote's use does not have the Dominican lesson either.

81 Korteweg, 'Books of Hours from the Northern Netherlands Reconsidered', 250.

	Use of Utrecht	O.Praed.	Selection of other uses
Matins			
Invitatory	In honore beatissimae Mariae virginis *Variant.* Ave Maria gratia plena	≠ *Variant* ≡	≡ Köln *Variant* ≡ Cist.
Lauds			
Antiphon I	O admirabile commercium	≠ 'Post partum'	≡ Köln, Cist.
Short lesson	In omnibus requiem quesiui *Variant.* Ego quasi vitis **VL*	≠ ≡	≡ Cist. *Variant* ≡ Köln
Benedictus Antiphon	Sub tuam protectionem confugimus *Variant.* O stella matutina *Variant.* Virgo piisima **VL*	≠ ≠ ≠ 'O gloriosa' = G. Groote	≡ Köln ≠ Cist. 'Beata dei genitrix'
Prime			
Hymn	Memento salutis auctor *Variant 1.* Rex Christe clementissime *Variant 2.* Veni creator spiritus	≡ ≠ ≠	≡ Cist. *Variant 1.* ≡ Köln
Antiphon	Quando natus es	≠ 'Dignare me'	≡ Köln, Cist.
Terce			
Antiphon	Rubum quem viderat	≠ 'Gaude Maria virgo'	≡ Köln, Cist.
Sext			
Antiphon	Germinavit radix Jesse	≠ 'In prole'	≡ Köln, Cist.
None			
Antiphon	Ecce Maria genuit nobis salvatorem	≠ 'Beata mater et innupta/intacta'	≡ Cist. ≠ Köln
Vespers			
Antiphon I	Beata mater et innupta virgo	≠ 'Sancta Dei genitrix'	≡ Cist. ≠ Köln 'Ecce tu pulchra'
Short lesson	Sicut cynamomum et balsamum *Variant.* In omnibus requiem **VL*	≡ ≠	≡ Köln *Variant.* ≡ Cist.
Compline			
Antiphon I	Cum jucunditate nativitatem	≠ 'Virgo Maria non est'	? Köln ≠ Cist.
Short lesson	Transite ad me omnes	≠ 'Ego mater pulchre'	≠ Köln 'Multae filae' ≠ Cist. 'Sicut cynamomum'
Hymn	Fit porta Christi pervia	≠ 'Virgo singularis'	≡ Köln ≠ Cist.
Nunc dimittis Antiphon	Glorificamus te dei genetrix	≠ 'Sub tuum praesidium'	≡ Köln ≠ Cist.

Tab. 10 Comparison between Utrecht, Cologne and the Cistercian order when the use of Utrecht differs from the Dominican use.

This new hypothesis of a Utrecht use based on the Dominican use with some systemic changes originates in the observation of the complete network of uses as provided in section 3.2.2. In it, not only Utrecht and Cologne, but also a series of German uses are close to the Dominican use. It is unlikely that all connections depend on Geert Groote's compilation and that none of these dioceses had its own use before Groote's work. On the contrary, from a liturgical standpoint and as seen for the different offices, it is much more likely that the Utrecht use emerged in imitation of a given cursus while considering the liturgical context. The last part of the hypothesis relies on the theory that texts are replaced in coherent patterns and in a meaningful process, as already stressed by K. Ottosen. Creating a use does not work by cherry-picking at random; the liturgical analysis requires a finer level of observation.

We will now apply the same method of analysis to the "Bruges" uses described by V. Leroquais and attempt to characterize the process of creation of a hybrid use.

4.2 The southern Low Countries and "Bruges" in the network

For books of hours in Latin produced in the Low Countries, Bruges was a leading site of production that developed in workshops from the end of the fourteenth century onwards.[82] Some of the production of books of hours in the Low Countries and Bruges was obviously destined for a local market. Beyond art historical evidence, textual clues for the origin in Bruges are the mentions of saints Adrian, Donatian, Walpurga, Gertrude, Aldegonde or Bavo of Ghent in the calendar, suffrages, and litanies.

The liturgical uses of the Hours of the Virgin in the region display a mix of regional specificities and links to more distant regions due to historical connections, as evidenced in our Figure 6. A rather large gathering groups together institutions and dioceses in northern France and Flanders, including Amiens, Arras (three uses attested in the fifteenth and sixteenth centuries, but not the one from the fourteenth century), Beauvais, Saint-Amé in Douai, Hénin-Liétard, Laon, Noyon, Saint-Quentin, Thérouanne (uses attested in the thirteenth century and in 1488), and Saint-Omer, and in modern-day Belgium, including Antwerp, Saint-Donatian in Bruges, St. Gudula in Brussels (O.S.A.), Sainte-Waudru in Mons (O.S.A.), Sint-Hermes in Ronse, Tournai, and Watten (O.S.A.). Also belonging to this cluster are Cambrai in modern-day France, but belonging to the Holy Roman Empire in the Middle Ages, and the Premonstratensian order, whose mother house lies in the same region, not far from Laon. Extending partially into

82 Bergen, 'De Meesters van Otto van Moerdrecht. Een onderzoek naar de stijl en iconografie van een groep miniaturisten, in relatie tot de productie van getijdenboeken in Brugge rond 1430'; Wijsman, *Luxury bound*.

the same region, there is a smaller clustered gathering of older Benedictine abbeys in eastern and northern France, with Hasnon, Saint-Thierry near Reims, Saint-Corneille in Compiègne, Saint-Quentin-en-l'Isle, Saint-Vaast in Arras, Saint-Bertin in Saint-Omer, Saint-Denis and Saint-Germain-des-Prés near Paris, Villiers-aux-Nonnains, and also Cluny in Burgundy. In addition, we have discussed how the use of Utrecht was connected to the uses in southern France and the Dominican liturgy.

Yet a large part of this production was destined for export. The texts, calendars, hours or litanies of such book of hours do not depend on the liturgical uses of the Low Countries, but are generally based on the target market with adaptations, especially for English uses. To discern such books of hours for the English market, N. Rogers analysed heraldic features, but also "Lincoln calendars" and rare saints, showing two prominent examples of how the devotion to specific saints may help to identify or presume English patrons,[83] but she does not go into a textual analysis of the offices. Another obvious indication is provided by books of hours with offices for the use of Sarum. The insertion of the widespread use of Rome may also be a clue to an intent to export, as it can be considered universal. 54% of the manuscripts produced in the cities of the Low Countries in our database show Hours of the Virgin for the use of Rome, with an additional 5% for the use of Sarum. The manuscripts sent to the English market most often have a calendar for Sarum or York, and specific texts like the "Fifteen O's" by Bridget of Sweden, the Commendation of Souls, the prayers to the Five Wounds of Christ, the Psalter of the Passion, or the Psalter of Saint Jerome.[84] S. van Bergen explores the "influence of customers", most noticeably in the choice of the suffrages or *memoriae* which are always "drawn from a fixed repertoire of twelve saints" in England,[85] and the "sliding scale" ranging from standard books of hours produced for the free market and available off the shelf, to customized and supplemented volumes, and to manuscripts copied to order.[86]

With this knowledge, we can now interrogate two uses in our datasets. There are two representatives for Bruges: one from Saint-Donatian, close to other regional uses, and a second one for an unspecific "Bruges", named so by V. Leroquais, the single closest use to the otherwise very isolated Roman use (both highlighted in red in Figure 6). Leroquais's source is the manuscript MS. Rouen, Bibliothèque patrimoniale Villon, 3024 (Leber 137), hereinafter MS. Rouen 3024.[87] The attribution to "Bruges" is indicated without an explanation, but the use is different

83 Rogers, 'Patrons and Purchasers'.
84 Bergen, 'The Production of Flemish Books of Hours for the English Market', 271; Bergeron-Foote and Samson, 'Horae à l'usage de Sarum: Montréal, McGill, LRCS, ms 98'.
85 Bergen, 'The Production of Flemish Books of Hours for the English Market', 275.
86 Ibid., 276.
87 MS. Paris, BnF, NAL 3162, f. 112r.

from the collegiate church of Saint-Donatian of Bruges.[88] This latter use is described by V. Leroquais, and after him by E. Drigsdahl, from a breviary printed in 1520.[89] Given the lack of manuscripts with this use, E. Drigsdahl suggested that this cursus was created by the editors of the breviary using unknown earlier sources: "No book of hours, produced in Bruges in the fifteenth century, has so far been found to contain this office! I suspect that the editors of the breviary took recourse to an old source in the archives, and revived a long-forgotten use".[90] We will discuss the date of Saint-Donatian's use later. For now, it is unclear if Leroquais shows a liturgical use for an unidentified institution in Bruges or a different state of Saint-Donatian's liturgy, although the answer is probably neither.

The manuscript was produced in Bruges around 1410. Its calendar contains several saints from the Low Countries, including the very informative Saint Donatian, and lacks the Office of the Dead – which is a feature present almost exclusively in Flemish manuscripts. This justifies the assumption by V. Leroquais. On folio 12v, in front of the Annunciation, a miniature shows a kneeling man accompanied by Saint George with a dragon, a spear, and a helmet with a coat of arms (red cross on silver) as his identifying attributes (Figure 7). It is therefore fair to assume that the product was intended for the English market. But the use is atypical, close to but different from that of Rome.

The Hours of the Virgin are largely for the use of Rome, including its most unusual pieces, but with one major exception in the Matins as is evidenced in Table 11. The Roman readings of Matins are replaced by others, which enjoy widespread use, both in the region of origin and in the target export market. The three readings ("*Sancta Maria virgo*", "*Sancta Maria piarum piissima*", "*Sancta Dei genitrix*") and their responsories ("*Sancta et immaculata*", "*Beata es Maria*", "*Felix namque*") are shared by numerous uses in Europe, not only in Saint-Donatian of Bruges and Saint-Peter of Lille, but also, for instance, in the Dominican order, the English use of Sarum and the Norman use of Rouen. Therefore, the modification of the Roman use which takes place in this manuscript is difficult to characterize, but it is as if the Roman nocturn had been switched as a whole against one that is customized, perhaps the local use of Saint-Donatian in Bruges.

However, a second difference appears in the blessings and is more specific. MS. Rouen 3024 presents the following three blessings before the three readings: *Alma virgo virginum, Precibus sue matris, Nos cum prole pia.* By contrast, in the use of Rome, where there is one blessing before the first reading (*Nos cum prole pia*), no blessing before the second reading, and the blessing *Per virginem*

88 Ibid., f. 183r.
89 *Breviarium ad usum insignis ecclesie sancti Donatiani Brugensis dyocesis Tornacensis, Pars hiemalis,* Parisius: Anthonius Bonnemere, 1520.
90 Drigsdahl, 'Use of Bruges St. Donatian 1520'.

Fig. 7 MS. Rouen, Bibliothèque patrimoniale Villon, 3024 (Leber 137), f. 12v–13r. Source: https://gallica.bnf.fr/ark:/12148/btv1b101019444/f32 and https://gallica.bnf.fr/ark:/12148/btv1b101019444/f33.

	Rome	**MS. Rouen 3024**	**Saint-Donatian Bruges**
Ad Matutinum	Ave Maria	Ave Maria	Ave Maria
Hymnus	Quem terra	Quem terra	(No hymn)
Ant. ps. 8	Benedicta tu	Benedicta tu	Benedicta tu
Lectio i. R. i.	In omnibus requiem R. Sancta et immaculata	Sancta Maria virgo R. Sancta et immaculata	Sancta Maria virgo R. Sancta et immaculata
Lectio ii. R. ii.	Et sic in Syon R. Beata es Maria	Sancta Maria piarum R. Beata es Maria	Sancta Maria piarum R. Beata es Maria
Lectio iii. R. iii.	Quasi cedrus R. Felix namque	Sancta Dei genitrix R. Felix namque	Sancta Dei genitrix R. Felix namque
Ad Laudes	Pss. 92, 99, 62, 66, B, 148, 150	Pss. 92, 99, 62, 66, B, 148, 150	Pss. 92, 99, 62, 66, B, 148
Antiphona	Assumpta est	Assumpta est	Sancta Dei genitrix

	Rome	MS. Rouen 3024	Saint-Donatian Bruges
Capitulum	Viderunt eam filie	Viderunt eam filie	Virgo verbo
Hymnus	O gloriosa domina	O gloriosa domina	O gloriosa domina
Antiphona	Beata Dei genitrix	Beata Dei genitrix	Beata Dei genitrix
Ad Primam	Pss. 53, 84, 116	Pss. 53, 84, 116	Pss. 1, 2, 5
Hymnus	Memento salutis	Memento salutis	Gloria tibi Domine
Antiphona	Assumpta est	Assumpta est	Sub tuam protectionem
Capitulum	Que est ista	Que est ista	Hec est virgo
Ad Tertiam	Pss. 119, 120, 121	Pss. 119, 120, 121	Pss. 119, 120, 121
Hymnus	Memento salutis	Memento salutis	Ave maris stella
Antiphona	Maria virgo assumpta est	Maria virgo assumpta est	Cum iocunditate
Capitulum	Et sic in Syon	Et sic in Syon	Paradisi porta
Ad Sextam	Pss. 122, 123, 124	Pss. 122, 123, 124	Pss. 122, 123, 124
Antiphona	In odorem	In odorem	Sancta Maria
Capitulum	Et radicavi	Et radicavi	Virgo Dei genitrix
Ad Nonam	Pss. 125, 126, 127	Pss. 125, 126, 127	Pss. 125, 126, 127
Antiphona	Pulchra es	Pulchra es	Alma virgo Maria
Capitulum	In plateis sicut	In plateis sicut	Per te Dei genitrix
Ad Vesperas	Pss. 109, 112, 121, 126, 147	Pss. 109, 112, 121, 126, 147	Pss. 109, 112, 121, 126, 147
Antiphona	Dum esset rex	Dum esset rex	Beata mater
Capitulum	Ab initio et ante	Ab initio et ante	Beata es Maria
Hymnus	Ave maris stella	Ave maris stella	Ave maris stella
Antiphona	Beata mater et innupta	Beata mater et innupta	Sancta Maria succurre
Ad Completorium	Pss. 128, 129, 130	Pss. 128, 129, 130	Pss. 12, 42, 128, 130
Antiphona	– (no antiphon)	– (no antiphon)	Post partum
Capitulum	Ego mater pulchre	Ego mater pulchre	Gaude Maria virgo
Hymnus	Memento	Memento	Fit porta Christi
Antiphona	Sub tuum presidium	Sub tuum presidium	Glorificamus te

Tab. 11 Comparison of the main pieces in the uses of Rome and Saint-Donatian of Bruges and in MS. Rouen 3024.

matrem before the third reading. According to our research, the first and third blessings of MS. Rouen 3024 only occur together in these positions in the Dominican and thus Teutonic and Carmelite orders, which, however, include the blessing *Sancta Dei genitrix* in the second position. The uses of the possible target markets of Rouen and Sarum only share the first blessing with MS. Rouen 3024. They include another blessing in the second position (*Oret voce/prece pia*) and have the blessing *Sancta Dei genitrix* as a third blessing. As for Saint-Donatian of Bruges, the only source distributes the blessings along the days of the week, with the following list from Sunday to Saturday: *Sancta Dei genitrix, Sancte Marie precibus, Alma virgo virginum, Precibus sue matris, In omni tribulatione, Sancte Marie intercessio, Ad gaudia civium.*

What was the rationale for this switch? The liturgical use of Bruges cannot be a complete source for MS. Rouen 3024, given the lack of *Nos cum prole pia.* The combination of blessings in MS. Rouen 3024 may indicate a special devotion or connection to the Dominican order. However, the second blessing of MS. Rouen 3024 *Precibus sue matris benedicat nos filius Dei patris* does not originate in the Dominican use, whose blessing *Sancta Dei genitrix* was also a valid option in the local context. Although known in other regions or abbeys like Saint-Germain in Paris or Geneva, albeit not in the second position, the blessing *Precibus sue* is used almost exclusively in the Low Countries. This blessing is found in the same position in Saint-Peter in Lille, and also in Bruges on Wednesday. It is as if the Dominican series was used, but changed because of the clashes of blessings and positions in more local uses.

Therefore, we believe that MS. Rouen 3024 does not represent an autonomous use, for which we would lack an institution to ascribe it to, but rather an example of a hybridization process during the production. Here the universal use of Rome is mixed with external elements, including the replacement of one section with texts of the same section for other liturgical uses, here including elements which are clearly local. The use is clearly hybrid.

The concept of "hybridity" is apt to capture the state of such manuscripts. It defines the mixing of elements borrowed from different uses and posits that we can identify two or more liturgical uses as a reference, which are well-formed and described, stable, and predates the mixed forms. Hybrid forms may (1) replace and switch sections; (2) complement missing parts; (3) cross several elements. In this study, we have only addressed the first type of hybridity.

	ROME	O.PRAED.	MS. ROUEN 3204	LILLE (S. Peter)	ROUEN/ SARUM
Ad Matutinum					
Jube Domne benedicere					
Benedictio i.	*Nos cum prole pia*	*Alma virgo virginum*	*Alma virgo virginum*	*Alma virgo virginum*	*Alma virgo virginum*
Lectio i.	In omnibus requiem	Sancta Maria virgo	Sancta Maria virgo	Sancta Maria virgo	Sancta Maria virgo
R. i.	Sancta et immaculata	Sancta et immaculata	Sancta et immaculata	Sancta et immaculata	Sancta et immaculata
Jube Domne benedicere					
Benedictio ii.	[No blessing]	*Sancta Dei genitrix*	*Precibus sue matris*	*Precibus sue matris*	*Oret voce/ prece pia*
Lectio ii.	Et sic in Syon	Sancta Maria piarum	Sancta Maria piarum	Sancta Maria piarum	Sancta Maria piarum
R. ii.	Beata es Maria	Beata es Maria	Beata es Maria	Beata es Maria	Beata es Maria
Jube Domne benedicere					
Benedictio iii.	*Per virginem matrem*	*Nos cum prole pia*	*Nos cum prole pia*	*Sancta Dei genitrix*	*Sancta Dei genitrix*
Lectio iii.	Quasi cedrus	Sancta Dei genitrix	Sancta Dei genitrix	Sancta Dei genitrix	Sancta Dei genitrix
R. iii.	Felix namque	Felix namque	Felix namque	Felix namque	Felix namque
Canticle: Te Deum laudamus					

Tab. 12 Hours of the Virgin: readings and blessings in MS. Rouen 3024 compared to Dominican and local uses.

5. Conclusion on textual networks: hybrid, local, intentional?

This contribution has demonstrated how the notions and techniques of network analysis can be applied to liturgical texts and shed new light on complex data, in which seriality plays a crucial part. Section 3.1 re-examined the dataset compiled by K. Ottosen on the Office of the Dead. We were able to demonstrate that some parts of his presentation were misleading and that a full view of the network allows us to formulate more satisfactory hypotheses, especially for Auxerre

and Poitiers. The use of network analysis in section 3.2 then helped us extend the notion of dynamics and historical evolution in liturgy that we saw for the Office of the Dead to the Hours of the Virgin, uncovering regional coherences, but also a link between the southern France, the Dominican order and Utrecht. In part 4, we dived deeper in the phenomenon of hybridity. With examples chosen at the regional level of the Low Countries, we have formulated new hypotheses to explain what we know of the uses of Utrecht and of Bruges, the latter represented by an apparently incoherent, hybrid text. Switching, inserting, and mixing were key operations.

Network analysis and statistics can offer proof of a regional diffusion and help to measure how local a text is, on its own or through its context. In fact, not only may some texts have a purely regional diffusion, but their position in the cursus may also be characteristic of the uses of a region. Texts such as the blessing *Precibus sue matris* could therefore serve as an identity token and be recognized as a piece of local liturgy, despite its use in distant institutions. However, we have no evidence that people were aware of the locality of this reading. As a consequence, we cannot infer intentionality for such a hybridization.

Local or regional uses can also present other characteristics or changes. Textual variants in the blessings – and probably in other pieces – will most likely be specific of regional uses.[91] Hybrid uses lead us to consider a complex process of circulation of liturgical texts. "Pure" uses are adapted and incorporated into local text collections, depending on the place of production and the target market. This process raises the question of the status of texts inscribed in a regional network.

Our findings question the value and normativity of liturgical uses in books of hours. In theory, they follow the prescriptions of a diocese or order in their integrity. They are not, however, invested with the same authority as the *ordo* of a diocese and can certainly be modified. However, we lack the understanding of the reasons for modifications. Are they due to special devotions, practices of workshops, or liturgical modes? If so, how is it that specific sections or specific types of texts, such as antiphons, are modified and not others? We can now describe groups of manuscripts as well as groups of uses, but we would like to understand better the actors involved, the workshops, scribes, purchasers, and the intention behind the choice of adding or removing texts from a pre-existing liturgical form.

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91 For example, the blessing *"Oret mente pia pro nobis Virgo Maria"* is a rare variant of a common verse *"Oret voce pia pro nobis Virgo Maria."* To our knowledge, this variant only appears in books of hours produced in the southern Low Countries and (due to trade?) in England: in Bruges (MS. Paris, Centre culturel irlandais, E3), Ghent and Tournai (MS. Paris, Beaux-Arts, Masson 22), Hainaut (MS. Cologny, Fondation Martin Bodmer, Cod. Bodmer 180) and York (MS. Boulogne-sur-Mer 93).

Liturgical texts are part of the cultural life and evidence for local, regional and international influence, through the diffusion of practices and applied exegesis. We can study books of hours as networks of texts and of manuscripts, both through the compilation process at the level of the codices, and through the compilation process within each office. It is a network of manuscripts, of texts, and of norms. Manuscripts may contain offices for different uses, and the uses themselves can be analyzed as networks of texts, both in their conjunctions and in their inner constitution. In this context, phenomena of hybridity appear.

From a methodological point of view, we have added the notion of seriality to the core of the usual text networks in manuscripts. The correct thresholding to define what should be considered a link is, as always, a sensitive issue, as is the correct weighting of presence and position here.

We have also recognized hybrid texts and developed tools to analyze them. They are both surprising with regard to the normativity of liturgy, and unsurprising with regard to the copying mistakes and other customization processes at work in the books of hours. The process and intentions are now open to enquiry. The availability of models (or lack thereof) may play a role, even if the Roman use and its texts were known in the region (although perhaps not fully within the workshops). The orality and memory of performed liturgy likely also played a role, with an unconscious reminiscence or quotation practice through embodied liturgical knowledge, which would explain the specific changes to chanted pieces. Beyond that, the reception and use of these hybrid manuscripts is also entirely unknown. Nor do we know if readers could recognize and perceive these quotations, switches, insertions, and combinations. Without additional sources, it is difficult to assess the space for ignorance and mistakes, and conversely the level of knowledge and intentionality. Indeed, we would need external testimonies in order to study if the actors and readers were aware that their text sets were regional, if the quotations disclose a regional identity, and if they were aware of liturgical norms and wished to produce structured and coherent hybrids.

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