

NWO, Free Competition, Round 2015

The Art of Reasoning: Techniques of Scientific Argumentation in the Medieval Latin West (400-1400)

1. Project information

The Art of Reasoning: Techniques of Scientific Argumentation in the Medieval Latin West (400-1400)

2. Summary (249 words, max. 250 words)

The twelfth century has been characterized as an era of change, a cultural renaissance which saw the beginning of scholasticism, the rise of the universities, the introduction of new texts from the Graeco-Arabic philosophical tradition. It is this era, so it has been argued, that saw the birth of scientific reasoning. In this project we argue against this: scientific reasoning was already fully alive in the earlier Middle Ages. The instruments for a critical reflection on texts and a dialectical engagement with them were inherited from Late Antiquity, further developed and newly invented in the medieval period to serve new purposes. The evidence, however, has not been properly acknowledged by modern scholarship, because it took the shape of 'paratexts' rather than texts: annotations, glosses and diagrams written in the margins and on the flyleaves and empty spaces of books. These paratexts were, generally, not included in scholarly critical editions. Now that hundreds of manuscript collections are available online we can finally see this hidden material, and analyse its importance for the history of thinking. Exploring a core body of texts and following the paths of leading medieval scholars, we will reassess the continuities and changes in the techniques of scientific argumentation for the long Middle Ages through the lens of this marginal material. Thus we aim at a new understanding of the historical roots of a fundamental instrument in our own academic world: the dialectical method of reasoning, which still serves as the main scientific model in Western culture.

3. Main applicant

Prof.dr. M.J. Teeuwen

4a. Discipline code Humanities

Hoofddiscipline	Geschiedenis	
Subdiscipline	Disciplinecode:	Naam:
Subdiscipline 1	27.30.00	Middeleeuwse Geschiedenis
Subdiscipline 2	27.60.00	Culturele Geschiedenis
Subdiscipline 3	34.20.00	Geschiedenis van de middeleeuwse wetenschap

4b. Infrastructurele component: none

4c. Previous and Future Submissions

No previous submissions and no future submissions within the timeframe of the Vrije Competitie 2015 scheme.

5. Institutionele omgeving

Huygens Instituut voor Nederlandse Geschiedenis, KNAW

6. Period of Funding

4 jaar, 1 June 2016 – 31 May 2020

7. Composition of the Research Team

a. Hoofdaanvrager:	Prof.dr. M.J. Teeuwen
b. Medeaanvrager:	None
c. Beoogde uitvoerders:	subproject 1: Dr. I. van Renswoude, PostDoc subproject 2: to be determined
d. Other:	Advisory board: Prof. R. Dürr (Eberhard Karls Universität, Tübingen); Dr. E. Kwakkel (Leiden University); Prof. C. Mews (Monash University, Melbourne); Dr. D. van Miert (Utrecht University); Prof. S. Patzold (Eberhard Karls Universität, Tübingen); Prof. A. Visser (Utrecht University); Dr. O. Weijers (em. IRHT, Paris)

8. Structure of the Proposed Research

1.	Subproject 1: Science before the Universities (c 400- c 1150).	PostDoc 1: Dr. I. van Renswoude	Huygens ING, KNAW
2.	Subproject 2: Techniques of Scientific Argumentation in the Period of the Universities (c 1150- c 1400)	PostDoc 2: to be determined	Huygens ING, KNAW
3.	Subproject 3: Towards a New History of Scientific Reasoning	Main applicant: Prof.dr. M.J. Teeuwen	Huygens ING, KNAW

9a. Description of the Proposed Research

The Art of Reasoning: Techniques of Scientific Argumentation in the Medieval Latin West (400-1400) (2500 words, max 2500)

New sources for the history of thinking

In the grand narrative of the intellectual history of the Middle Ages, scholars only started to question received knowledge and think critically in the twelfth century, when the age of scholasticism created a new intellectual climate and universities were born. Yet the tools for thinking critically and challenging authorities have always been part of the intellectual world of the Middle Ages (and before). The misunderstanding is, we argue, not only caused by lingering prejudices about the 'Dark Ages', but also by the hidden nature of the evidence. Whereas the tools of the twelfth and thirteenth centuries manifested themselves in the production of texts and new textual genres (*sententiae*, *disputationes*), in earlier ages they often took the shape of *paratexts*: commentaries, marginal annotations, diagrams. It is only in the last years that these paratexts have become visible to a larger audience of researchers. Before 2000, they were largely hidden in manuscript margins, ignored in catalogues and editions. Now they are on free display in hundreds of online collections of digitized manuscripts, ready, for the first time, to be explored (<http://digitizedmedievalmanuscripts.org/>). We will examine these new sources from the perspective of the history of scholarly reasoning.

Up to now, certain periods of the Middle Ages have been highlighted as periods of intellectual flourishing, notably the Carolingian renaissance (McKitterick 1994, Contreni 1995) and the twelfth-century awakening, with the birth of urban schools and in its wake the founding of the first universities (Knowles 1988, Southern 1995). Instead of evaluating each period anew as a period of change, we will take a long-term approach. We will investigate how in the earliest manuscripts from Late Antiquity marginal texts already reflect, contrary to what one may think, a critical engagement with the texts read and studied in the period (McNamee 2007). We follow these ancient techniques in the ensuing centuries, when scholars developed new modes of working with text to serve the purpose of the Carolingian pursuit of learning (Contreni 2014). Our investigation ends in the period of the urban schools and universities, when the techniques of argumentation

and strategies of proof were at the very centre of the curriculum (Lawn 1993, Weijers 2013). Marginal annotations from this school context illustrate the specific disputation-like engagement with texts that became characteristic for late medieval scholarship (Hamesse 1999). At the same time, however, the old techniques for critical reading remained available and were put to use in the new scholastic programme. Throughout the Middle Ages, the manuscript page – especially its blank spaces – could be used as a workplace, where ideas blossomed, criticism was expressed, questions were asked, personal opinions and new understandings were added (Baswell 1992, Renswoude/Steinova forthcoming), allowing us to analyse the dynamics of reading. The study of their transmission and spreading give us chronological and regional ‘maps’ of responses to texts which caused interest, discussion or dispute. To explore paratexts from this dynamic perspective is a novel approach; in the old paradigm, glossed books were all too easily equated with school texts, only explored for their philological information or for the first instances of vernacular vocabulary. Only recently a growing number of scholars started to see the potential of these medieval texts for the history of science (Teeuwen 2011¹, Marenbon 2013). In earlier studies we already strove to raise this awareness and with this project we aim to strengthen and enrich it further.

Thus we focus on paratexts: notes added to manuscripts that echo the voice of the scholar, reader, critic, censor, etc. A core body of authoritative texts on rhetoric and dialectic in the Middle Ages will serve as our point of departure. These texts reflect the state of the art on reasoning and arguing, and will therefore contain medieval perspectives on these subjects in the shape of added notes, commentaries and diagrams. They include the Latin translations of Aristotle’s *Categories* and *On interpretation*, Porphyry’s *Isagoge*, Cicero’s *Topica*, his *De inventione*, the *Rhetorica ad Herennium*, Boethius’ translations/commentaries (a.o. his *De topicis differentiis*), the *Categoriae decem* and (Pseudo-)Augustine’s *De dialectica*. In the twelfth century, new texts were added to the curriculum, notably Aristotle’s *Topica*, *First* and *Second Analytics* and *Sophistical Refutations*. In addition to these texts, we will also explore other fields of science to see how ideas and techniques that were shaped by the study of rhetoric and dialectic were also applied to other studies.

In our attempt to reassess the continuities and changes over the long medieval period, from late Antiquity to the Renaissance, we explore the changes and continuities in scientific reasoning and critical reflection through the lens of marginal notes circulating with these texts. A full description of the projects follows below, but in a nutshell the set-up is as follows. In the first project the period before the universities is explored to see how late antique methods of reasoning were adopted and transformed to cater for new needs. In the second project, texts and manuscripts from the period of the universities are analysed to assess both continuous strands and new ones in the methods of scholarly engagement with texts and ideas. The third project will use the detailed observations of the two subprojects as building blocks for a synthetic study. Whereas the first two projects will focus on leading scholars, however, this project will use the mostly anonymous physical traces of studying, questioning and arguing in the margins of medieval manuscripts. Together the projects will offer a new perspective on the history of reasoning.

Sources and analytical method

In the process of research, we expect to unearth a hoard of new material: previously unobserved and unedited marginal annotations, which reflect on the text at hand and allow us to assess the intellectual activity it inspired. It will be a challenge to find the relevant manuscripts, since catalogues and editions only rarely contain information about paratextual materials in manuscripts. Still, an initial survey has already uncovered a wealth of material; a preliminary list of promising manuscripts is added to this proposal (*bijlage 2*). A first strategy we will use is to follow the footsteps of recent scholarship, such as, for example, on John Scottus, a ninth-century scholar who wrote provocative and innovative works, and who can be shown to have reworked his own text after having received criticism from his peers (Dutton 2002). Other examples of scholars who left their imprint in the margins of manuscripts and who have been subjected to recent research are Florus of Lyon (Chambert-Protat forthcoming) and Hugo of Saint Victor (Poirel 2013). A second strategy is to follow the path of texts themselves, of which the transmission histories (studied in Reynolds 1983; Munk-Olsen 1982-2014; *Catalogus Translationum et Commentariorum* 1946-2015) will guide us to the relevant manuscripts. Thirdly, groups of related manuscripts can be explored for clues about the intellectual activity of the writing

communities that produced them. The digitally reconstructed library of Lorsch, for example, offers a view of the lost library of early medieval Lorsch, including the practices of textual scholarship that were typical for the community. The libraries of other schools (e.g. Laon, Auxerre) and personal book collections of individual scholars (e.g. Gerbert of Aurillac) have been reconstructed in a similar way. We will build our own research on these sound foundations.

To map and analyse this material, we intend to make use of a database system which we built and tested for a previous project (<http://test2.marginalia.huygens.knaw.nl/>). In this system, we defined the relevant categories of observation and devised a method to fully use their amassed potential. Each observation field serves as a filter for searches, and can be infinitely combined with other fields. In this way, it is possible to search for specific phenomena (e.g. symbols that indicate critical judgements) and combine it with others (a dating to a certain period, a location or central master) to reveal patterns of specific uses and the spreading of practices or ideas. The Marginal Scholarship database will serve as a model for this project and we will invest in building and testing new functionalities, in particular the visualisation of data in charts, on timelines and maps. These visualisations will be powerful tools for the analysis of trends and movements, for tracking the path of innovations that succeeded or failed. Furthermore, the database, which will be freely accessible online, has the potential of growing into a more generic set of manuscript observations.

Apart from observing phenomena and entering them in the database, we will also, of course, engage with the content of the annotations we find. We will study as many of them as possible, guided by the corpus of core texts on the one hand, and shared research themes on the other. Both more distant reading techniques (counting the number of times certain terms pop up, or tracing them through time) and close reading techniques (a precise analysis of the main texts, their annotations and their relations to the network of texts in which they functioned) will be used here. The combination of content and form, however, will be crucial.

The research team and its network

In our project, we intend to approach our questions from the perspective of the medieval book, in which the understanding of texts is inextricably linked with their presentation on the page. Thus, we work with manuscripts instead of text editions, and intend to work closely together with other manuscript experts, notably Erik Kwakkel (Leiden University). The database will be supported and hosted by Huygens ING's ICT department. The Main Applicant has ample experience in developing tools in close collaboration with its developers.

Since we take the longitudinal approach we intend to involve scholars who specialize in different periods of Western intellectual history. The late-antique period, the Carolingian period and the 12th-13th centuries are well-covered by Teeuwen, van Renswoude, Kwakkel, Olga Weijers, Constant Mews and their respective networks. For the early modern period, we involved Arnoud Visser and Dirk van Miert (Utrecht University). At Huygens ING, we collaborate with researchers from Utrecht University (Descartes Centre), the Max Planck Institute for the History of Sciences in Berlin, and the Eberhard Karls Universität Tübingen (Steffen Patzold and Renate Dürr). These networks offer an ideal platform to involve expertise in the later periods to which this project wishes to contribute. It will guarantee both a rich intellectual environment for the researchers and give them a podium to present their results.

Whereas the three subprojects have their own focus and set of research questions, as a whole it is designed as a collaborative effort. The subprojects profit from each other, indeed, need each other to achieve both the broad view we have in mind and the synthesis. Yet because of the case-structured approach and the specific corpus of material, they will still be grounded in a manageable set of sources, which can be studied in detail by a single researcher. The Main Applicant will be involved in every stage of the project and bring the observations together in her synthesis.

Knowledge utilisation

As has been demonstrated, in particular by Kwakkel, medieval manuscripts are immensely mediagenic: they easily attract a wide audience and inspire a lively interest in our own cultural heritage (<http://www.bookandbyte.org/quill/>, <http://www.sexycodicology.net>). As part of the knowledge utilisation

strategy, therefore, we will bring as many attractive pictures of medieval intellectual culture as we can to the attention of a wide audience. For this strategy, we create two virtual exhibitions, use social media and existing platforms of manuscript lovers. We will organize a Dutch study day for a broad audience, complemented with a real display of manuscripts. It will be held in Leiden or Utrecht, where we can use the manuscripts of the University Libraries. In Leiden, we can join forces with the Manuscript Department (Bouwman), the Scaliger Institute (van Ommen) and the Master Book and Digital Media Studies (Hoftijzer); in Utrecht with the Manuscript Department (Jaski), the Descartes Centre (Mijnhardt) and the focus group for early modern literary culture (Visser). With each of the persons mentioned, contacts have already been established.

A second strategy is to give historical depth to modern cultures of scientific debate, analysing why we use the methods of science and scholarship that we use today and how they are shaped by history. Although the recent upheaval about the structure of our modern universities (e.g. the Rethink movement) may now be losing momentum, it is still a matter of debate why the humanities as such are valid in our modern society. We will participate in this public debate by bringing in the historical perspective: when the first universities were founded, what were their goals? Why did medieval society need an institution of that kind, and how did it transform through the ages? While we don't claim that lessons can or need to be learned from the past, we still believe that the analysis of an intellectual world which is very far removed from our modern society and yet holds its historical roots, will offer new and revealing insights in modern day problems.

A third strategy aims at encouraging Dutch holding institutions of manuscripts, which are, in comparison to other European countries, lagging behind in creating free online access to their manuscripts, to open up their treasures to the public. Therefore we will organize a study day for holding institutions to present models for digitizing manuscript collections, discuss their pro's and con's and consider strategies for finding funds and means for initiatives. Huygens ING can play a key role here with its strong focus on the development of tools for digital humanities and its role as secretary for CLARIAH. We can tap into a large network of specialists and stimulate a debate about possibilities and best practices.

Output: online products, articles and books

Our output will be partly online (two virtual exhibitions, Database), and partly on paper: articles, chapters, an edited volume and a monograph. We will present our work at international conferences and organise annual meetings to involve experts from abroad. An international conference in the final year will form the basis of a collaborative volume of papers. The Main Applicant will write an overall synthesis.

In sum, the output consists of 6 articles, 2 books, a manuscript database and two virtual exhibitions, distributed over the team members as follows:

- The two PostDocs will produce three articles each and submit these to A-rated and peer reviewed journals: e.g. *Journal for the History of Ideas*, *Speculum*, *Viator*, *Archives d'histoire doctrinale et littéraire du Moyen Âge*, *Philosophy and Rhetoric*, *Medieval Worlds*. They will collaborate on the Database in which all observations are automatically shared and create one virtual exhibition each to highlight the most appealing and revealing examples.
- The two PostDocs and the Main Applicant will organize annual meetings and an international conference, the proceedings will be published.
- The Main Applicant will collaborate on the Database and the exhibitions. She will produce a synthetic, illustrated monograph, aimed at a wide academic audience. She will organize two national study days: 1. to stimulate expertise in digital manuscript collections, 2. to present the results to a broad audience.

Description of the Subprojects

1. *Science before the universities (c 400 – c 1150)* (PostDoc 1: Dr. I. van Renswoude) (800 words, max. 800 words)

Before the twelfth century books in the Latin West were created and studied mostly in a monastic environment. Scribes used the margins to copy existing commentary traditions and create new ones. A new phenomenon in this period is the collection of different opinions in the margin, so as to show both matching and opposing authoritative voices (Teeuwen 2011²). The text became a point of departure for the exploration of subjects treated by multiple texts, and the margin became a place for juxtaposing and confronting the different opinions from both old and contemporary authors. Fundamental axioms or theories were condensed into diagrams in order to make them applicable in new scientific contexts (Eastwood 2011). New techniques for the management of old and new knowledge were thus created and experimented with.

Postdoc1 (Van Renswoude) will analyse the paratextual tools for scientific reasoning in this period by following the footsteps of scholars who were famous for their critical engagement with texts and knowledge: Cassiodorus, Alcuin, John Scottus, Abbo of Fleury, Rather of Verona, Gerbert of Aurillac, Alberic of Monte Cassino and Peter Abelard. What can we learn from studying the manuscripts they read, studied and annotated? And what kind of annotations did they add to texts in which the art of reasoning was put into practice, such as the polemical texts of the fourth- and fifth- century theological controversies? Did their critical engagement with these texts –reflected in comments, questions, textual criticism and personal notes of judgement– lead to new modes of logical thinking and argumentation?

Although in some cases annotated manuscripts of the mentioned scholars themselves have been identified in recent scholarship, such evidence does not survive for all of them. In cases where the evidence did not survive the test of time, other routes will be chosen to investigate their practices of appropriation of the classical body of dialectical and rhetorical texts and related (polemical) texts: the annotated manuscripts of the library of the institution in which these scholars were trained will be studied (e.g. Alcuin of York, Garrison 2012), or the manuscripts they bequeathed to the library of the institutions in which they worked as scholars and leaders (e.g. Gerbert of Aurillac, Lake 2014).

One of the leading questions in this subproject is whether the study of rhetoric and dialectic left an imprint on actual debates and disputes in which these scholars were involved. For most of the scholars mentioned this has not been studied yet. For some scholars (Alcuin, John Scottus (Marenbon 1990, 1997) and Alberic (Radding/Newton 2003)) it has been argued that they did indeed use classical dialectical techniques, but it is still largely unexplored *how* their study of the ancient texts shaped their own strategies of argumentation. The path from reading to applying, in other words, has been left uncharted. By studying the annotations of these scholars and their circles Van Renswoude will reconstruct how their reading practices and appropriation of knowledge were connected to their own argumentation strategies.

A practical use of dialectical reasoning in debates and discussions is commonly dated only in the eleventh century. Before that, it was argued, argumentation based on written authority was the norm. This development, however, must be dated much earlier: scholars already used dialectical methods in the late 8th century (Marenbon 1981; Renswoude forthcoming) and from the late 9th century onwards, richly annotated manuscripts of dialectical texts reveal both an active engagement with the subject and attempts to relate the theory of logic to a contemporary practice of debate. Initially the use of these dialectical methods led to acute clashes with contemporaries who were suspicious of the ‘novel’ practices of argumentation (e.g. John Scottus, see Marenbon 1990). The dynamics of these debates will provide a good insight into mechanisms of opposition and acceptance of dialectical and rhetorical devices: which elements in the argumentations caused unease, and why? How did the scholars succeed in getting new modes of reasoning and new strategies of proof accepted in the scholarly communities of their time?

To give the analysis proper depth, Van Renswoude will not only study annotated texts on dialectic and rhetoric, but also assess how the strategies of argument and rhetorical analysis they taught were applied in other fields of science. Previous research has brought up evidence for an intricate connection with exegesis and

textual criticism in which the classical instruments of dialectic and rhetoric were used (Brown 1998, Kennedy 1999), but other fields have so far largely escaped attention. Abbo of Fleury, for example, was famous for his quadrivial works as well as his philosophical ones; Gerbert of Aurillac published a treatise on the *abacus* and explored other Arabic scientific traditions. Which other texts did the selected scholars study and annotate, and to what extent did those reading habits and annotating practices influence their ways of building a scholarly argument?

2. Techniques of scientific argumentation in the period of the universities (c 1150 – c 1400) (PostDoc 2) (796 words, max. 800 words)

By the late twelfth century, the monastery was no longer the active hub of education. A few large cities provided physical and intellectual space in which masters could set up competing schools, from which students were relatively free to choose. Within these urban schools, even prior to the development of a university structure, a new dialectical tool was developed, characterized as the epitome of the Western art of reasoning: the *questio disputata*, or public academic debate (Weijers 2013). This scientific instrument offered a script for science in general, where all arguments *pro* and *contra* a certain thesis had to be explored, weighed and dissolved in a final conclusion.

PostDoc2 will analyse how earlier strategies of reasoning shaped the *disputatio*, and how it, in turn, changed older methods. Although it has been acknowledged that the *disputatio* grew from earlier practices of argumentation rather than being entirely new (Novikoff 2013, Weijers 2015), the transition itself has never been properly investigated. Moreover, scholars of medieval cultures of disputation have mainly focussed on the pedagogical forerunner of the *disputatio* in earlier ages, the didactic dialogue, rather than on dialectical structures of argumentation that can be found in comments and critical reflections. A precise study of the annotated manuscripts of the time will bring us closer to understanding the changes and continuities in practices of scholarly reasoning. The same core body of texts will be studied as in project 1, but in more recent manuscripts. Texts of the logical texts of Aristotle that were, at the time, either newly discovered or newly translated into Latin, will be added. PostDoc2 will use case-studies of leading scholars of the period (12th-14th centuries) and study their annotated books to analyse their working methods.

Contrary to what one may think, the manuscripts of the later Middle Ages are even less charted and systematically studied than the earlier ones. A precise, well-informed selection of prominent scholars from whom enough manuscripts survive to observe their working methods will, therefore, be part of the research, rather than point of departure. A list of promising scholars because of their reputation and intellectual impact includes William of Conches, John of Salisbury, Gilbert of Poitiers, Robert Grosseteste, Peter of Limoges and John Buridan.

To find the relevant manuscripts, PostDoc2 can follow the lead of modern scholarship. John of Salisbury's use of texts and manuscripts, for example, has been described (Herman-Schebat 2014); the hands of Peter of Limoges and Robert Grosseteste have been recognized in several manuscripts and margins (Bataillon 1988; Mackie/Goering 2003). PostDoc2 can also make full use of Weijers' *Répertoire* (an inventory of all the masters who studied at the Arts Faculty in Paris including lists of their works and manuscripts) to find manuscripts from this university context. Since the Arts Faculty was the basic step for every academic career, and since Paris was a place to which students from all over Europe flocked and from which students spread their wings again to all corners, Weijers' work has cast a wide and effective net. PostDoc2 will thus trace each of the mentioned scholars in manuscript evidence and will follow up with a full examination for the most promising cases.

Like their early medieval predecessors, many leading scholars of this period were also experts in biblical exegesis, some also in other fields of science. Peter of Limoges, for example, wrote theological works, but also a treatise on the workings of the eye; Robert Grosseteste has been nicknamed the founder of experimental science. As in project 1, their strategies of reasoning in their exegetical (and other) works will be compared therefore to those in their annotations on dialectical and rhetorical texts. As pointed out above, scholars used the margins of texts as a working space to express criticism, compare authorities, conduct

thought experiments and develop scientific arguments. The status of a marginal text differed in that respect from that of a published one. More boldness and more controversial thinking was allowed in this medium. In his commentaries on Boethius' *Consolatio Philosophiae*, for example, William of Conches speculated that the Platonic world soul could be equated with the Holy Spirit. He arrived at this controversial conclusion in his paratexts, but did not dare maintain it in his own writings (Baswell 1992). A comparison between forms of argumentation in the margins of the annotated books of the selected scholars and the arguing strategies they employed in their own published writings will thus allow us to see more than a study of their published texts alone. On occasion, it will grant us a privileged and unique view into the uncensored minds of leading scholars. This has already been demonstrated in a few early modern examples (Jardine/Grafton 1990, Gingerich 2004). The medieval manuscripts pose different challenges and new opportunities, which will be explored in this project.

**3. Towards a new history of scientific reasoning (Main Applicant: Prof.dr. M.J. Teeuwen)
(399 words, max. 400 words)**

In the third project, all observations will be lined up and complemented by further research. The twelfth century will no longer be seen as the period in which a dialectical engagement with texts started, but rather as a period in which both new and old techniques were used to create new scientific methods. The material gathered collectively will provide the basis to assess long term developments, such as the importance of textual criticism or the diagram as a new tool for abstract knowledge. The study will present a new understanding of the historical roots of the dialectical method of reasoning, still a fundamental instrument in our own academic world.

Whereas subprojects 1 and 2 focus on well-known scholars, this project analyses the anonymous witnesses of the schoolroom, workshop and university. During the entire period of the Middle Ages, masters and students applied a shared set of methods and techniques to work with text. Sometimes they chose to develop their own idiosyncratic methods, tailored to their specific needs. Tracing the paths of these practices will enable us to hear the voices of the anonymous scholars from the Middle Ages, in the midst of whom our well-known masters were trained; the voices of the pupils they taught, the assistants they worked with and the anonymous opponents who challenged them to sharpen their arguments.

Previous scholarship has already unearthed a few cases of these silent masters, disciples, opponents and assistants, who often did not produce works carrying their names, but whose annotations and thoughts still survive in the margins (Contreni 1978; Jaeger 1994). Pupils of John Scottus, for example, have been identified by their hands (Jeauneau/Dutton 1996), as well as assistants from the workshops of Florus of Lyon and Ratramnus of Corbie. Heiric of Auxerre and Anselm of Laon can be traced as the silent masters standing behind their famous pupils Remigius and Peter Abelard. Master Alberic, a leading logician in 12th century Paris, was a fierce opponent of Peter Abelard, yet his voice only survived in marginal comments.

In this project, Teeuwen will thus analyse processes of the transfer and transformation of knowledge in the medieval monastery, classroom or on the battlefield of the public *disputatio*. She will use the margin as a source to chart how the advanced practices and techniques of argumentation from famous scholars relate to the less famous voices of average students and teachers, readers and thinkers.

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- 2015, *A Scholar's Paradise. Teaching and Debating in Medieval Paris*, Turnhout: Brepols.

Appendix 2. Preliminary List of Promising Manuscripts

- Bern, Burgerbibliothek, Ms. 363 – s. IX, annotated miscellany with rhetorical and dialectical texts, of which some are connected to the predestination debate
- Cologne, Foundation Martin Bodmer, Cod. Bodmer 52 – s. XII, annotated manuscript of Cicero's *De inventione* and the *Rhetorica ad Herennium*
- Cologne, Foundation Martin Bodmer, Cod. Bodmer 188 – s. XIII, texts on the natural sciences from William of Conches, richly illustrated with diagrams
- Leiden, Universiteitsbibliotheek, VLF 70 – s. X, rhetorical and dialectical texts, annotated with diagrams and associated to Abbo of Fleury
- Leiden, Universiteitsbibliotheek, VLQ 33 – s. X/XI, miscellany with grammatical, rhetorical and dialectical texts, richly annotated in several layers
- Milan, Biblioteca Ambrosiana, Ms. I 142, s. XIV, annotated miscellany containing *Rhetorica ad Herennium* and Cicero's *De inventione* plus commentaries
- Oxford, Bodleian Library, Laud.lat. 49 – s. XI, annotated handbook of the artes, including rhetorical works (Cicero and the *Rhetorica ad Herennium*)
- Oxford, Bodleian Library, Ms e Mus. 121 – s. XIII, annotated manuscript with William of Conches, *summa* and *questiones* on the natural sciences, many diagrams
- Paris, Bibliothèque nationale de France, Latin 3605 – s. XV, annotated copy of Peter of Limoges treatise on the eye
- Paris, Bibliothèque nationale de France, Latin 7765 – s. XI, heavily annotated copy of Cicero's *De inventione*, Boethius' *De topicis differentiis* and an anonymous treatise on rhetoric.
- Paris, Bibliothèque nationale de France, Latin 7774A – s. IX, annotated copy of rhetorical texts from Cicero, richly annotated in several chronological layers (9th-12th centuries), many diagrams
- Paris, Bibliothèque nationale de France, Latin 11127 – s. X, miscellany of scientific and dialectical texts: Boethius, Aristotle and Gerbert of Aurillac, many annotations and diagrams, associated to a student of the latter
- Paris, Bibliothèque nationale de France, Latin 12949 – s. IX-X, heavily annotated compendium of dialectical texts
- Paris, Bibliothèque nationale de France, Latin 14614 – s. XIV, annotated copy of Abelard's *dialectica*
- Paris, Bibliothèque nationale de France, Latin 16709 – s. XIII, heavily annotated compendium of dialectical, scientific and theological texts, including Boethius' *De topicis* and Aristotle's *Topica*
- Paris, Bibliothèque nationale de France, Latin 17832 – s. XIII, annotated manuscript with commentaries on Nicomachus and Aristotle and texts from Robert Grosseteste
- Roma, Biblioteca Padri Maristi, Ms. A. II. 1 – before 814, earliest surviving copy of dialectical texts (Porphyry, Aristotle, Boethius, Alcuin), associated with Leidrad of Lyon
- St Gall, Stiftsbibliothek, Cod.Sang. 274 – s. IX, annotated compendium of dialectical texts (*Categoriae decem*, John Scottus, Alcuin)
- St Gall, Stiftsbibliothek, Cod.Sang. 775 – s. XIV, collection of scholastic texts from the area of the university of Paris, with a.o. John Buridan, *questiones* on Aristotle's natural scientific works
- St Gall, Stiftsbibliothek, Cod.Sang. 820 – s. IX-X, dialectical and rhetorical texts of Boethius, Aristotle, Alcuin, Cicero; annotated in different layers from the 9th to the 12th centuries
- St Gall, Stiftsbibliothek, Cod.Sang. 830 – s. XI, annotated compendium with rhetorical, dialectical and scientific texts, associated with Ekkehart IV of St. Gall
- St Gall, Stiftsbibliothek, Cod.Sang. 833 – s. XII, annotated compilation of dialectical texts
- Valenciennes, Bibliothèque Municipale, Ms. 404 – s. IX, rhetorical and dialectical texts with a set of diagrams
- Vatican City, Biblioteca Apostolica Vaticana, Ottob.lat. 1406 – s. XI, dialectical compendium from Montecassino
- Vatican City, Biblioteca Apostolica Vaticana, Pal.lat. 213 – s. IX-X, annotated miscellany with theological, grammatical, and logical texts
- Venice, Biblioteca Nazionale Marciana, lat. Z. 497 – s. XI, compendium of rhetorical, dialectical and scientific texts, associated with the teaching of Lawrence of Amalfi

10. Summary in Key Words

Medieval History, Intellectual History, History of Science, Manuscript Studies, Cultures of Reading

11. Work Programme

Timetable of Subproject 1

June 2016	2017	2018	June 2019
Data collecting in general			
Fine tuning of the database system; preparation of Article 1	Publication of Article 1; preparation of Article 2	Publication of Article 2; preparation of Article 3	Publication of Article 3
Manuscript visits to relevant European libraries (Paris, Oxford, various libraries in Switzerland and Italy, etc)			
		Preparation of Digital Exhibition 1	Online Release of Digital Exhibition 1
Assist with the organisation of annual expert meetings		Organisation of international end-meeting	Preparation of Proceedings
Participation in conferences, presentation of papers, writing of articles about case studies			

Timetable of Subproject 2

Oct 2016/Jan 2017	2017	2018	Oct/Dec 2019
Data collecting in general			
Fine tuning of the database system; preparation of Article 1	Publication of Article 1; preparation of Article 2	Publication of Article 2; preparation of Article 3	Publication of Article 3
Manuscript visits to relevant European libraries (Paris, Oxford, various libraries in Switzerland and Italy, etc)			
		Preparation of Digital Exhibition 2	Online Release of Digital Exhibition 2
Assist with the organisation of annual expert meetings		Organisation of international end-meeting	Preparation of Proceedings
Participation in conferences, presentation of papers, writing of articles about case studies			

Timetable of Subproject 3

June 2016	2017	2018	2019-June 2020
Data collecting in general			
Fine tuning of the database system			
	Collect material for synthesis; write chapter 1	Collect material for synthesis; write chapter 2-3	Synthesis; write chapter 4-5
Manuscript visits to relevant European libraries (Paris, Oxford, various libraries in Switzerland and Italy, etc)			
	Organisation of national study day about digital manuscript collections	Assist in the preparation of the online Exhibitions	Organisation of national study day for a broad public
Organisation of annual expert meetings		Organisation of international end-meeting	Preparation of Proceedings
Participation in conferences, presentation of papers.			

12. Word count

Aantal woorden 9a (Algemene beschrijving): 2500

Aantal woorden 9a (Beschrijving deelprojecten en synthese): 800 + 796 + 399 (= 1995)

Aantal woorden 9b (Investeringscomponent): niet van toepassing

Totaal aantal woorden 9a + 9b: 4495

13. Planned Deliverables

Year: 2016	Activities	Persons involved
June-Sept 2016	Fine tuning and launch of the Database system	All team members
Sept-Nov 2016	Visits to libraries	PD1, (PD2)
June-Sept 2016 (3 week holiday)	Start-up of Social Media communication networks (blog, twitter)	Main Applicant
	Presentation of the Project at Leeds IMC	All team members
Oct-Dec 2016 (1 week holiday)	Annual Expert Meeting 1	All team members

Year: 2017	Activities	Persons involved
Jan-March 2017	Visits to libraries	PD1, PD2, Main Applicant
April-June 2017	Article 1 (2 x) [*]	PD1, PD2
July-Sept 2017 (3 week holiday)	Study day for national holding institutions of manuscripts	Main Applicant
	Presentation of case studies at the Medieval Latin Conference in Vienna	PD1, PD2
Oct-Dec 2017	Annual Expert Meeting 2	All team members

Year: 2018	Activities	Persons involved
Jan-March 2018	Visits to libraries	PD1, PD2, Main Applicant
April-June 2018	Article 2 (2 x) [*]	PD1, PD2
July-Sept 2018 (3 week holiday)	Annual Expert Meeting 3	All team members
Oct-Dec 2018 (1 week holiday)		

Year: 2019	Activities	Persons involved
Jan-March 2019	Release of the two Virtual Exhibitions	PD1, PD2
	Study day for a broad audience	Main Applicant
April-June 2019	Article 3 (2 x) [*]	PD1, PD2
	Synthetic study; first draft ready	Main Applicant
July-Sept 2019 (3 week holiday)	International Conference	All team members
Oct-Dec 2019 (1 week holiday)	Preparation of the Proceedings	All team members

^{*} For a list of Journals, see the description of the Output under 9a

14. Short Curriculum Vitae of the Principal Applicant

- Mariken Teeuwen, Cornelis van Steenishof 36, 2341 PN, Oegstgeest. Born 08-11-1968, in Eindhoven, Dutch nationality. Married, three children (b. 1997, 1999, and 2003).
- e-mail: mariken.teeuwen@huygens.knaw.nl
- Present employment: Senior Researcher at Huygens Instituut voor Nederlandse Geschiedenis (Royal Netherlands Academy of Arts and Sciences) in The Hague; Grant Holder and Principal Investigator in the NWO-VIDI Project 'Marginal Scholarship: The Practice of Learning in the Early Middle Ages (c. 800 – c. 1000)'; professor extraordinarius (bijzonder hoogleraar) 'Transmission of Medieval Latin Texts' at Utrecht University, Department of History.
- Education: Master programmes in Musicology and Medieval Studies at Utrecht University (1987-1993); PhD student (OIo) at Utrecht University. Specialisations: Medieval Latin, Medieval Music, Manuscript Studies.

Since my PhD (8 Dec 2000) I have worked at Huygens ING, first as a junior researcher under Olga Weijers and later (since Febr. 2007) as a senior researcher in the department 'History of Science'. In 2003 I acquired a VENI Grant from NWO, for work on a digital edition of commentary traditions on Martianus Capella's *De nuptiis Philologiae et Mercurii*. Together with colleagues in the ICT department, we developed an innovative digital format for the edition. In 2010, I acquired a VIDI Grant for the project 'Marginal Scholarship: The Practice of Learning in the Early Middle Ages (c. 800 – c. 1000)', hosted by Huygens ING, 0,8 fte (May 2011-April 2016). Part of the project was building a Database system to catalogue and analyse marginal phenomena in early medieval manuscripts.

In my VIDI project I coach one PhD student and a PostDoc. I have been involved in several other PhD-theses as advisor, second reader or member of the examining committee. I coach MA-theses and internships. From September 2003 to the present, I regularly teach for Medieval Studies and Medieval History at Utrecht University, where I was appointed 'bijzonder hoogleraar' in 2011. My teaching includes a yearly class at BA-level, 'De Wereld van de Middeleeuwen I', yearly class at MA-level, 'The Secret Life of Texts', yearly tutorials and internships at Huygens ING.

International activities:

- Organization of several international conferences, among others 'Early Medieval Practices of Reading and Writing', Den Haag, June 2015; digital humanities conference in the Framework of the European COST Action Medieval Europe – Medieval Cultures and Technological Resources: 'Easy Tools for Difficult Texts', Den Haag, April 2013.
- Partner in several international organizations and committees: e.g. COST Action IS1005 *Medieval Europe – Medieval Cultures and Technological Resources*; member of the International Medieval Latin Committee; member of the international working group *Storehouses of Wholesome Learning*.

List of five key publications:

- M. Teeuwen, 'Carolingian Scholarship on Classical Authors: Practices of Reading and Writing', in: E. Kwakkel (ed.), *Manuscripts of the Latin Classics*, Leiden: Leiden University Press 2015, 23-50.
- M. Teeuwen, 'Seduced by pagan poets and philosophers: suspicious learning in the early Middle Ages', in: C. Giliberto and L. Teresi (eds.), *Foundations of Learning: The Limits of Learning*, Leuven, Paris, Sterling, VA: Peeters, 2011, 63-80.
- M. Teeuwen, 'Marginal Scholarship: Rethinking the Function of Latin Glosses in Early Medieval Manuscripts', in: P. Lendinara, L. Lazzari, C. Di Sciacca (ed.), *Rethinking and Recontextualizing Glosses: New Perspectives in the Study of Late Anglo-Saxon Glossography*, Porto: FIDEM 2011, 19-37.
- M. Teeuwen, 'Writing between the lines: Reflections of scholarly debate in a Carolingian commentary tradition', in: M. Teeuwen and S. O'Sullivan, eds., *Carolingian Scholarship and Martianus Capella: Ninth-Century Commentary Traditions on 'De nuptiis' in Context*, CELAMA 12, Turnhout: Brepols 2011, 11-34.
- M. Teeuwen, *The Vocabulary of Intellectual Life in the Middle Ages*. CIVICIMA. Études sur le vocabulaire intellectuel du moyen âge X. Turnhout: Brepols 2003.

15. Publiekssamenvatting (47 words, max. 50 words)

Wetenschappelijk redeneren en kritisch reflecteren op teksten is niet een moderne uitvinding: gedurende de hele Middeleeuwen vinden we er getuigenissen van, met name in de marges van handschriften. Wij volgen die stemmen uit de marge, en interpreteren ze in het licht van de geschiedenis van de wetenschap.

16. Samenvatting voor niet specialisten

De kunst van het redeneren: Technieken van wetenschappelijk argumenteren in middeleeuws Latijns Europa (400-1400) (798 woorden, max. 800)

In het grote verhaal over de intellectuele geschiedenis van Europa begint alles pas in de twaalfde eeuw: de periode waarin de eerste universiteiten gesticht werden in Bologna en Parijs, en nieuwe teksten uit de Griekse filosofische traditie via het Arabisch het Westen bereikten. In de twaalfde en dertiende eeuw, zo zegt men, begint dan de echte wetenschap: een kritische benadering van autoriteiten door middel van een dialectisch spel, waarin een stelling getoetst wordt door middel van tegenargumenten en de wetenschapper een nieuwe synthese formuleert. In dit project betogen wij dat de wetenschappelijke methode van argumenteren en redeneren niet een vernieuwing was van de twaalfde eeuw, maar altijd al de basis was van wetenschap in het Westen, van de Oudheid tot nu. Echter, waar in de twaalfde eeuw nieuwe tekstgenres ontstaan die de dialectische benadering benadrukken, nam deze vóór die tijd (en trouwens ook nog erna) de vorm aan van 'parateksten': teksten in de marge en op schutbladen, commentaren, glossen en diagrammen.

Deze parateksten zijn tot nu toe grotendeels ontoegankelijk geweest voor moderne wetenschappers, omdat zij traditioneel geen deel uitmaakten van de historisch-kritische editie. Filologen waren op zoek naar de tekstversie die het 'origineel' van de auteur het dichtst zou benaderen, en waren geneigd latere toevoegingen en veranderingen in teksten te bestempelen als 'corrupties', te negeren of (op zijn best) te verstoppen in tekstkritische apparaten onderaan de bladzijden van hun edities. Zo waren de parateksten uitsluitend zichtbaar voor het handjevol paleografen, codicologen en filologen die voor hun onderzoek wel toegang moesten zoeken tot de over de hele wereld verspreide handschriften, streng bewaakt als zij werden door de instituties die voor het behoud van de kostbare collecties moesten zorgen. Sinds het begin van deze eeuw, echter, zijn tientallen Europese bibliotheken bezig om hun collecties middeleeuwse handschriften te digitaliseren, en vrij toegankelijk op het web te plaatsen. Nu vallen ons plotseling de schellen van de ogen: we zien hoe schrijvers hun teksten voorbereiden voor hun lezerspubliek, en hoe lezers er verschillende lagen aantekeningen aan toevoegden. De stemmen uit de marge getuigen vanaf de late Oudheid tot in de late Middeleeuwen van een wetenschappelijke omgang met teksten: tekstversies worden met elkaar vergeleken, passages die niet kloppen worden gemarkeerd, contrasterende meningen van autoriteiten naast elkaar geplaatst en met elkaar geconfronteerd. De aantekeningen bieden, met andere woorden, een veel rijker beeld van de middeleeuwse intellectuele cultuur dan we tot nu toe hadden.

In dit project beogen we twee dingen, beide voortvloeiend uit hetzelfde basismateriaal (de stemmen uit de marge). Ten eerste willen we onderzoeken welke dialectische technieken er werden toegepast in de wetenschap van vóór de twaalfde eeuw, welke teksten er centraal stonden en hoe deze onderworpen werden aan kritische reflectie. Ten tweede willen we onderzoeken hoe de nieuwe dialectiek wordt ingebed in de oude, hoe oude technieken enerzijds worden overgenomen, en anderzijds worden vervangen in de periode van ná de twaalfde eeuw. We richten ons in de deelprojecten op twee periodes, de periode van voor de twaalfde eeuw, waar het intellectuele leven zich voornamelijk afspeelde in de kloosters, en die erna, waarin stadsscholen en universiteiten een grotere rol spelen. In het derde project worden de observaties samengebracht: we kijken niet alleen naar verschillen en vernieuwingen, maar juist ook naar continuïteiten en langzame transformaties: hoe vormden de dialectische methodes van de vroege middeleeuwen de basis voor het ontstaan van de latere genres zoals de *disputatio*, het openbare academische debat?

Een corpus van teksten over de retorica en de dialectica (werken van Cicero, Aristoteles, Porphyrius, Boethius en (Pseudo-)Augustinus) zal het hart vormen van ons onderzoek, voor de periode van ná de twaalfde eeuw aangevuld met de nieuwe teksten die de *logica nova* (de 'Nieuwe Logica') vormden. Deze teksten vormden immers de kern van wat er aan kennis over debatteren en argumenteren circuleerde in de Middeleeuwen, en zullen dus ook een goed uitgangspunt vormen om middeleeuwse reflecties daarop te vinden in de marges.

Voor onze verkenning van het handschriftelijk materiaal treden we in de voetsporen van bepalende denkers: Cassiodorus, Alcuin, Johannes Scotus Eriugena, Abbo van Fleury, Rather van Verona, Gerbert van Aurillac, Adalbert van Monte Cassino en Petrus Abelard uit de periode van vóór de twaalfde eeuw, en Willem van Conches, Johannes van Salisbury, Gilbert van Poitiers, Robert Grosseteste, Peter van Limoges en Johannes Buridanus uit de periode van de stadsscholen en de universiteiten. We volgen hun reflectie op de antieke kennistraditie op het gebied van dialectica en retorica door te onderzoeken met welke handschriften zij werkten, hoe zij deze annotateerden, en hoe zij de opgedane kennis al dan niet in praktijk brachten in debatten en in hun eigen werken. Hiermee zullen we een nieuw licht werpen op de opkomst van de universiteiten en hun werkwijze, en daarmee op de wortels van onze eigen Westerse wetenschappelijke traditie, die nog altijd gefundeerd is op het dialectische model.

17. Research Budget

See the separately attached form.

Wetenschappelijke Integriteit

Door het indienen van dit document verklaart de aanvrager te voldoen aan de nationale en internationaal aanvaarde normen van wetenschappelijk handelen zoals neergelegd in de *Nederlandse Gedragscode Wetenschapsbeoefening 2014* (VSNU).