The Vroegmiddelnederlands Woordenboek and the Computer

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1. THE VROEGMIDDELNEDERLANDS WOORDENBOEK

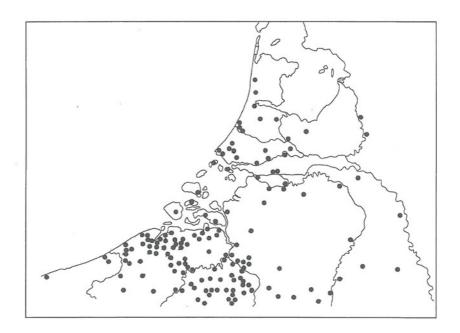
At the Institute for Dutch Lexicology in Leiden a team of four lexicographers has been compiling the *Vroegmiddelnederlands Woordenboek* (*Dictionary of Early Middle Dutch*) since 1988. This dictionary based on historical principles describes the vocabulary of the recorded thirteenth-century manuscripts written in the Middle Dutch dialects. The oldest literary products in Middle Dutch date from the beginning of this century and soon after the vernacular also came into use for administrational purposes. The language area involved stretches from Holland, Utrecht and the Lower Rhine in the North to Flanders, Brabant and Limburg in the South (see Figure 1). In 1998, the lexicosemantic description of the Early Middle Dutch word stock is to be completed.

2. SOURCES

The source material of the *Vroegmiddelnederlands Woordenboek* consists of three genres. First, there is the lexicographical material of the *Glossarium Bernense*, a Latin-Middle Dutch word list. Then, we have more than 2000 charters. Most of these are part of the first series of the so-called *Corpus*-Gysseling, an edition of almost all recorded official documents written in a Middle Dutch dialect up to and including the year 1300. Finally, we make use of almost all known literary texts and *artes* texts that have come down to us in thirteenth-century manuscript.

They, for the larger part, have been included in the second series of the *Corpus*-Gysseling. The total amount of word forms in the source material of the *Vroegmiddelnederlands Woordenboek* comes to 1,600,000. These will be described in approximately 28,000 different entries.

Figure 1. The Dutch-speaking area in the thirteenth century. The dots represent scribe centers. (W.J.J. Pijnenburg: "Het Vroegmiddelnederlands Woordenboek (VMNW). Regionale en toevallige vormvarianten", in Lexicologie. Een bundel opstellen voor F. de Tollenaere (Groningen, 1977) pp. 209-220.



3. THE COMPUTER SYSTEM

The computer plays an important part in the realisation of the *Vroegmiddelnederlands Woordenboek*. Not only both the source material and the edited dictionary articles are stored in databases, but the analysis and interpretation of the source material take place in a computerised environment too. The lexicographical system used for the *Vroegmiddelnederlands Woordenboek* consists of three mutually linked

parts. The corpus database contains the complete source material for the dictionary. It is a relational database wherein all Early Middle Dutch word forms are provided with different kinds of additional information the lexicographer might need for the compilation of a dictionary article. The second part of the computer system is the so-called lexicographer's workbench. Here, the selected source material is shown to the lexicographer, so that he can interpret and analyse the data for the dictionary article. There are different options in which the lexicographer can choose to have the material presented to him. It can, for instance, be arranged alphabetically or chronologically, or with or without context. The third component of the computer system is the lexical database, also a relational one. There, the results of the lexicographer's analysis are put into an electronic form containing different fields of information: the elements of a dictionary article.

3.1. The corpus database

As said before, the corpus database with the source material of the *Vroegmiddelnederlands Woordenboek* is a relational database, containing approximately 1,600,000 word forms. As the *Corpus*-Gysseling was published at our institute, we had a version of most texts on tape so that it was relatively easy to transfer them into the computer. The few texts that were not available on tape were digitised through an optical reader. This resulted in a series of linear text files.

To prepare the material for lexicographical purposes all word forms were provided with a morphological code of three digits, referring to word class and inflection, and with a modern Dutch headword, enabling the lexicographer to gather all Middle Dutch spellings of a word (which can be quite a lot) at once. This process was done semi-automatically. Based on the indexes a valuation was made of the most probable code and headword for every word form type and these codes and headwords were automatically put into the texts. For example, all Middle Dutch word forms *ende*, mostly representing the conjunction *and*, but sometimes the noun *end*, were provided with the morphological code 800 (co-ordinated conjunction) and the headword EN (the modern Dutch equivalent of the conjunction). Hereafter, all texts were verified and the necessary corrections were entered manually. This meant that all instances where *ende* represented the noun *end* were changed from 800_EN to 000_EIND (see Figure 2).

Figure 2. A small piece of material from the linear text files containing documental information, Early Middle Dutch text, morphological codes and modern Dutch headwords.

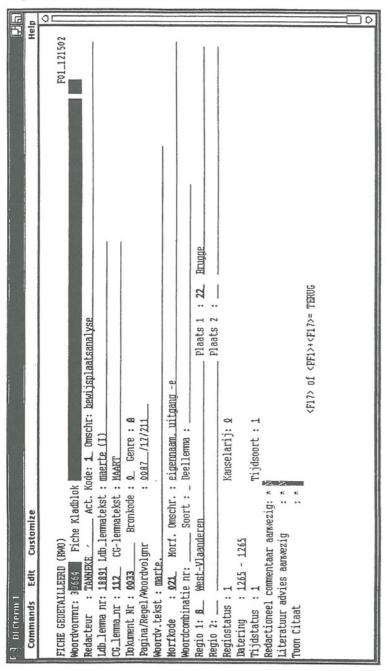
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After this, an automated verification procedure checked the more technical aspects of the text, for instance whether every word form had a code and a headword and whether every document had a place of origin and was properly dated. Finally, all texts were incorporated into the corpus database. The relational organisation of this database makes is easy to link the word form with information about, amongst others, headword, word class, date and place of origin, inflection and text genre (see Figure 3).

3.2. The lexicographer's workbench

The selected source material is copied into the lexicographer's workbench. Here, the lexicographer interprets and analyses the data, which can be presented in two ways. To get a first insight into the material he can ask the computer to give all word forms in combination with a summary of the most important information. It concerns information about the source, the document, page and line number in the text edition, genre, date and place of origin and a number that, amongst others, is important for the citations in the dictionary. This summary can be sorted alphabetically, chronologically, regionally or according to a combination of these. This enables the lexicographer to look at the variation in spelling and at the distribution in time, space and

Figure 3. The function "show detail".



genre. There are three more columns in this view I have not yet discussed; category and sub-category (to be seen as one item) and citation. With the help of the function of categorisation the lexicographer can classify his material and bring structure into it. In the citation column it is indicated whether the lexicographer has chosen a word form to be an illustrative example in the dictionary (see Figure 4).

For the determination of the exact meaning of a word, the word forms can also be presented in their context. The lexicographer can choose the size of the context, but normally the default concordance of 15 words before and 15 words behind the headword is used. There is little room left to show additional information directly on screen. Presented are headword, morphological code, categorial codes and citation indication (see Figure 5). If the lexicographer needs to see the rest of the information he can ask the computer for headword detail. With the help of these functions the lexicographer can analyse the meaning(s) and determine the inflection of the word he is describing. The material can be categorised more elaborately and citations can be formed on screen by marking off the beginning and the end of the Middle Dutch text surrounding the headword. When working with a lot of material it can sometimes be useful to have a printed version of the concordances. This contains both the concordances and the additional information from the summary.

Another tool for the description of large articles is the function that can sort the word forms according to their context. The lexicographer can define one or more word patterns and the computer will select only these cases answering to the search conditions. While working on the article *marte* (I) 'March', for instance, it became clear that this noun is often preceded by an adjective, indicating a more specified period of the month. The lexicographer can ask for all instances of the word *marte* directly preceded by an adjective (code 1**), as a result of which collocations as *inganghende / ingaende marte* ('the beginning of March'), *half / midde marte* ('half March') and *uteganghende / utegaende marte* ('the end of March') can very easily be distinguished (see Figure 6).

3.3. The lexical database

Finally, all information is gathered in the lexical database. The lexicographer uses an electronic form with different fields for the various information categories (see Figure 7). This way of storage makes it not

Figure 4. The function "show summary".

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Figure 5. The function "show concordances".

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only possible to ask for Early Middle Dutch headwords or parts of headwords (for instance, all words ending with the suffix -scap), but also to search for, for instance, articles dealing with an adverb or a noun or articles containing only literary material or material from a certain document. What fields there are and the nature of the information they contain will be dealt with later on in this article.

The lexicographer can use special functions, which enable him to look through all the existing finished articles to see how certain problems have been solved earlier. This helps to maintain a certain degree of uniformity. Automatic procedures determine the place and date of the oldest occurrence, the total amount of occurrences and their frequency per genre. While filling in the form several checking procedures are active. For fields like word sort and inflection, for instance, the right abbreviation can be chosen from a table. It is also checked whether the fields that are essential for a dictionary article are filled in, for instance headword, word sort or date and place of the oldest citation. An article cannot be closed (that is, be given the status of finished) if one (or more) of these fields are left empty. The computer gives a warning and indicates what information is lacking.

3.4. The method of working

How is the actual practice of editing a dictionary article for the *Vroegmiddelnederlands Woordenboek*? The lexicographer works on a personal computer (which is linked to a mini computer on which all data is stored) with windows, containing the lexicographer's workbench and the lexical database (see Figure 8).

First, he registers a selected headword in the electronic form in the lexical database. Subsequently, the source material is selected in the lexicographer's workbench. Basically, these are the word forms carrying the chosen headword, but other word forms can also be added to the article.

When the lexicographer has selected all the necessary word forms, he can choose the way of presentation (as single word forms or in context), and the sorting order (alphabetically, chronologically, according to region or to a combination of these criteria). Based on this selection, the spelling of the Middle Dutch entry is chosen, whereby several basic rules have to be considered. The word sort is entered as well as the total amount of occurrences, the frequency per genre and the

Figure 6. The function "context sort".

Figure		1:7
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[⟨PF1⟩+ ⟨F17⟩terug ⟨F18⟩print ⟨F20⟩store ⟨Apcoll.cat. ⟨D⟩detail ⟨F⟩cat.decl. ⟨B⟩goto ⟨H⟩selectiegeg. ⟨A⟩coll.red. ⟨S⟩sorteer ⟨PF1+S⟩=toom sleutels ⟨ENTER⟩(sub)cat. ⟨D⟩detail ⟨F⟩cat.decl. ⟨B⟩goto ⟨H⟩selectiegeg. ⟨Ap>coll.red. ⟨S⟩sorteer ⟨PF1+S⟩=toom sleutels ⟨ENTER⟩(sub)cat. ⟨D⟩detail ⟨F⟩cat.decl. ⟨B⟩goto ⟨H⟩selectiegeg. ⟨Ap>coll.red. ⟨S⟩sorteer ⟨PF1+S⟩=toom sleutels ⟨ENTER⟩(sub)cat. ⟨D⟩detail ⟨F⟩cat.decl. ⟨B⟩goto ⟨H⟩selectiegeg. ⟨Ap>coll.red. ⟨B⟩sorteer ⟨PF1+S⟩=toom sleutels ⟨ENTER⟩(sub)cat. ⟨D⟩detail ⟨F⟩cat.decl. ⟨B⟩goto ⟨H⟩selectiegeg. ⟨Ap>coll.red. ⟨B⟩sorteer ⟨Ap>coll.red. ⟨D⟩detail ⟨F⟩cat.decl. ⟨B⟩goto ⟨H⟩selectiegeg. ⟨Ap>coll.red. ⟨B⟩sorteer ⟨Ap>coll.red. ⟨D⟩detail ⟨F⟩cat.decl. ⟨B⟩goto ⟨H⟩selectiegeg. ⟨Ap>coll.red. ⟨B⟩sorteer ⟨Ap>coll.red. ⟨D⟩detail ⟨Ap>coll.red. ⟨B⟩goto ⟨H⟩selectiegeg. ⟨Ap>coll.red. ⟨Ap>coll.red. ⟨D⟩detail ⟨Ap>coll.red. ⟨Ap>coll.red	FICHES BESENTHEERD OP CONTEXT LOB_Lemmant: 18891 Sortering op: LEMMATEKST_CG FOLO11519(PAS) Lemma_cg morf <	
<pre>int <f20>store >coll.red. <s>sorteer <pf1+s>=toom sleutels <enter>(su</enter></pf1+s></s></f20></pre>	MATEKST_CG t	
b)cat.	9(PAS) © E r c C C C C C C C C C C C C C C C C C C	

Figure 7. The first part of the electronical form of the entry *marte* (I) 'March'.

****************** WBA: 18891 21-FEB-1995 16:15:02.22 Pagina 1 ****************** Lemmanr LDB: 18891 Lemma VMNW: marte (I) Lemma sorteervorm: marte (I) Lemmanr CG: 112 Lemma CG: MAART **TANNEKE** Redacteur: 11-MAY-1994 Aanvang: 26-MAY-1994 Afsluiting: Revisie: 30-SEP-1994 Status lemma: 0 Status select: 1 Indicatie MNW: Lemma MNW: maerte Fase: Aantal fiches: 268 Afkorting woordsrt: znw.m. Korte betekenis: maart Aantal vindplaatsen: 267 Oudste vindplaats: Limb Oudste datum vanaf: 1240 Oudste datum t/m: 1240 1 Frequentie lex: Frequentie ambt: 253 Frequentie lit: 13 maert(h)e, mart(h)e, meerte(1x), merteSpellingvariatie: Morfologie: Geo-info: De vormen maerte, marte zijn uitsluitend aangetroffen in Vlaanderen, Holland (7x,

Nr betekenis:

Label:

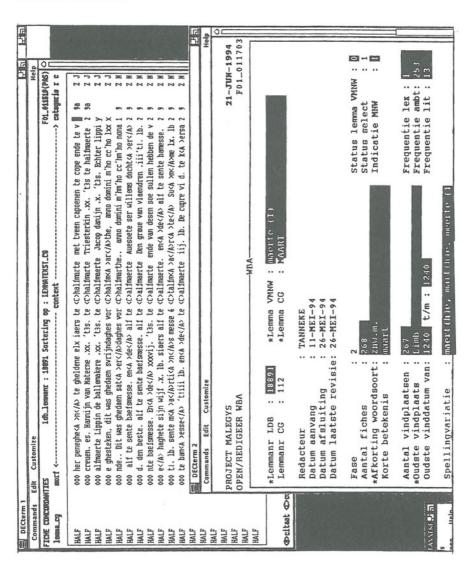
Definitie:

Dordrecht), Zeeland (2x) en de Nederrijn (1x). Limburg en West-Brabant kennen alleen de vormen meerte, merte. De regio Brabant-Noord heeft tweemaal een vorm met -a(e)- en eenmaal een vorm met -e-. Opvallend is de vorm merte in Geraards bergen (1297). < Lat. (mensis) martius '(maand) maart'. Etymologie: Nb: Flexie soort: ns Flexie tekst: Flexie soort: ds Flexie tekst: Flexie soort: as Flexie tekst: Nr onderscheiding: Ι Label: Overkoep. Betekenis:

Maart, derde maand van het jaar.

1

Figure 8. The lexicographer's work bench and the lexical database in windows on screen.



place and date of the oldest occurrence. If relevant, a link is made to the *Middelnederlandsch Woordenboek* (*Middle Dutch Dictionary*), describing the Middle Dutch stock of words from 1280 till 1550. Further, there are fields for spelling variation, morphology, etymology and dialect-geographical information.

To determine the inflection and the meaning of the word the lexicographer uses the concordances in the lexicographer's workbench. He examines all occurrences and orders them according to their meaning. The most representative occurrences are used as citations. Hereafter, the structure of the article is put into the lexical database by giving every meaning a number and definition and by indicating collocations and special means of usage. A survey of the complete structure of the article is given in the definition in short. Then, the citations can be transferred automatically from the lexicographer's workbench to the lexical database by means of the word form number (when dealing with only one citation at a time) or the categorial code (when dealing with more citations at the same time). The advantage of this method is not only that the text of the citations is copied faultless into the lexical database, but that all information about the source, page and line number and date and place of origin is copied as well. This does not only diminish the amount of typing work considerably, it also saves much correction work (see Figure 9).

Some fields in the lexical database are for internal use only. Examples are the name of the lexicographer who made the article, the date on which the article was begun, the date it was finished and an indication of the reference works. Based on the latter, for instance, the bibliography can be generated automatically. Finally, the article is ready and can be stored definitively in the lexical database.

There are two ways to print the result of the lexicographer's work. First, it is possible to print the article in database structure, which is useful when checking whether all fields contain the correct information. It is also possible to print the article as it will appear in the dictionary. For this we make use of two conversion programmes. The first programme translates the information from the different fields in the database to a sequential file, which is structured by various lay out codes. The other programme performs the conversion to WordPerfect and delivers a file that looks like a real dictionary article (see Figure 10). Now the lexicographer can see if the information from the various fields forms a nice, clear and conveniently structured article. If not, he

Figure 9. An Early Middle Dutch citation with all necessary information copied alongside. Text codes will be converted to WordPerfect characters later on, for instance, 's0i becomes í.

CITAAT (buiten verbinding): Nr citaat: 6 De marte is so gedaen. du salt d's0ines l's0iues Tekst citaat: grote hude hebben dan. Vindplaats: Gez.reg. Herkomst: Nrijn Nr dokument: 2060 346 t/m: Blz van: t/m: Regel van: 12 Jaar van: 1253 t/m: 1254

can reopen the entry and make the necessary changes.

4. CONCLUSION

The advantage of making a dictionary with the help of a computer lies not in the domain of the actual interpretation and analysis of the data. The gain, however, is to be found in the amount of time needed for the preliminary work: the selection and presentation of the material. Moreover, as the computer takes over some of the checking procedures, a higher degree of uniformity is guaranteed and less time is needed for correction. Another advantage is the flexible method of working. Whereas conventional dictionaries often have to work alphabetically, we can work thematically and describe all words referring to the same subject at once, irrespective of their alphabetical place in the dictionary. Because of the fact that the dictionary will not be published before the end of the project in 1998, rectifications can be made and new insights and material can systematically be added to all articles. The general conclusion may be that the use of a computer does not automatically result in a better dictionary, but that it has certain advantages in enabling one to give extra attention to the lexicographer's part of the work: the interpretation and analysis of the data.

Figure 10. A part of the entry marte (I) 'March' in the Vroegmiddelnederlands Woordenboek.

marte (I) znw.m.
maart [267]

(maerte) 1/253/13 Limb 1240. maert(h)e, mart(h)e, meerte (1x), merte; ns -; ds -; as - < Lat. (mensis) martius '(maand) maart'. De vormen maerte, marte zijn uitsluitend aangetroffen in Vlaanderen, Holland (7x, Dordrecht), Zeeland (2x) en de Nederrijn (1x). Limburg en West-Brabant kennen alleen de vormen meerte, merte. De regio Brabant-Noord heeft 2x een vorm met -a(e)- en 1x een vorm met -e-. Opvallend is de vorm merte in Geraardsbergen (1297).

- I 1. Maart, derde maand van het jaar. De Romeinse tijdrekening begon oorspr. in maart, vanaf circa 153 v.C. werd het echter gebruik om het nieuwe jaar in januari te laten beginnen (Strubbe/Voet, p. 51, 59) || marcjus: merte, Bern. 248,3 (Limb 1240). De marte is so gedaen. du salt dínes líues grote hude hebben dan, Gez.reg. 346,12 (Nrijn 1253).
- 1.1. Maart, als deel van een datering. || Dese pointinghe ghinc in int iaer van lxxxi vpden eersten dach van maerte, Corp.I 613,34-35 (Roeselare? 1282).

In de verb. ingaende/inganghende marte; die inganc/dat ingaen van marte. Begin maart, mog. meer bep.: 1 maart. || dit was ghedaen. tsfrindaghes na inganchende marthe, Corp.I 299,39-40 (Brugge 1276). Dit was ghedaen vp den jnganc van marthe. Corp.I 1190,39-40 (Brugge 1287). tsaterdaghes Na jngaende maerte. Corp.I 1430,34 (Brugge 1290). int jngaen van marte, Corp.I 1858,28 (Bergen-op-Zoom/Drongen 1294). Smaendaghes. ten jnghanghe van marte. Corp.I 317,31 (Oudenaarde 1312).

In de verb. half marte. Half maart, mog. meer bep.: 16 maart. \parallel Dese lettren waren ghemaect ende ghegheuen jnt van den jncarnatione hons heren ihesus kerst .M°.CC°. ende .lxxx°. iar omtrent alf. marte. Corp.I 551,40-42 (Gent 1281).

 (\ldots)

In de verb. onser vrouwen dach/avont in marte. Onze-Lieve-Vrouwedag in maart, Maria-Boodschap, 25 maart. || in onser vrouwen daghe in marte. Corp.I 251,3-4 (Brugge 1273).

1.2. Maart, als periode voor betaling van pacht of huur.

1.2.1. Als betalingsperiode van een jaarlijkse pacht of huur. || Echter van onser mersch te Berchem die ionfrouen katelinen van griequart was .v. õ. te maerte. Corp.I 1080,32-33 (Oudenaarde 1285). (...)

In de verb. te midde marte. Half maart, mog. meer bep. de 16e. Slechts 1x aangetroffen. || (Geoorkond wordt) dat wi onse porte van dordrecht gheloven met d[e]sen brieve quite ende scadeloes te houden. van dien ses hondert ponden ende dertich daer zi borghen af ziin ieghens haren janne pac van brucghe voer onse lude van suethollant te gheldene te midde marte die naest comet. Corp.I 1362,17-21 (Holland, graf.kans. 1289).

1.2.2. Als betalingsperiode voor een halfjaarlijkse pacht of huur.

In de verb. te inganghende marte. Begin maart, mog. meer bep.: op 1 maart. De termijnen zijn 1 oktober en 1 maart. \parallel omme tiene schelleghe tsiars goeder vlamscher peneghen tegheldene elkes jars. dene helt sinte bauesmesse & dander helt te jngancghende marthe, Corp.I 787,37-39 (Brugge 1284).

(...)

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