THE DICTIONARY DATABASE AT WWW.RENAESSANCESPROG.DK:

An Online Tool for the Study of Renaissance Language in Denmark

By Jonathan Adams & Peter Zeeberg

The project Renæssancens Sprog i Danmark (The language[s] of the Renaissance in Denmark) ran from January 2007 until the end of 2009 at the Society for Danish Language and Literature in Copenhagen. It has resulted in two online searchable databases: a dictionary database and a text corpus (www.renaessancesprog.dk). The dictionary database forms the main focus of the article. The background to the project is provided by a description of the previous rather scanty lexicographical work still available for early modern Danish and Neo-Latin. The dictionary database presents a useful supplement within both fields by making seven Latin–Danish or Danish–Latin dictionaries from the period 1510–1626 available in searchable form. The article describes how using XML mark-up has made it possible to present these structurally different dictionaries together in one database. An account of the base’s search options and functionality is given. And finally, the value of the dictionary database is demonstrated by showing how it provides translations of Danish and Latin words as they were actually understood and used in the Renaissance.

Between 1500 and 1700, Denmark-Norway was a multilingual kingdom. Danish was the most important vernacular (in competition with German and, in the North Atlantic territories at least, Icelandic, Faroese and Greenlandic), but in the sphere of education and learning it was Latin that dominated. This bilingual or diglossic linguistic situation during the Renaissance (Latin + vernacular, or ‘high’ prestige language + ‘low’ language) is thus comparable to that of today with the heavy influence and use of English in business and education. For those wanting to understand the Renaissance in Denmark, it is thus necessary to study both Danish and Latin. There are, however, few tools currently available to assist those studying Renaissance Danish and Latin. We have attempted to ameliorate this situation with our project Renæssancens Sprog i Danmark (The language(s) of the Renaissance in Denmark), which ran between January 2006 and December 2008,
and was financed by The Danish Council for Independent Research: Humanities (FKK). The dictionary base, which comprises one part of this project, was developed in collaboration with Universitets-Jubilæets danske Samfund (UJDS) who allowed their facsimile editions of six sixteenth-century dictionaries to be used.¹ In addition to these, we made use of two dictionaries by Poul Jensen Colding: Etymologicum Latinum from 1622, and Vocabularium Herlovianum 1626. Etymologicum Latinum is a rather dense and complex dictionary that we have made available as a facsimile on our project website, while Vocabularium Herlovianum, which contains the same headwords and equivalents as Etymologicum Latinum, though in reverse order and stripped of encyclopaedic and etymological information, has been integrated into the dictionary database.

Early Modern Danish is traditionally limited to the period between about 1515 and 1700, a time of great economic and social change in Denmark. The highlights and lowlights of the period include the absorption of Norway into the Kingdom of Denmark, the loss of Sweden and the subsequent disastrous wars between the two countries, the Reformation and introduction of a Lutheran state religion, various political crises caused by aristocratic government, and finally the introduction of absolutism. However, the language of this eventful period, particularly the development of vocabulary around the time of the Danish Renaissance, has been largely overlooked in Danish scholarship. Indeed, at the time of writing, a Google search for ældre nydansk, the Danish term for the language of that period, provides fewer than two hundred results! There have been a number of studies limited to specific writers or genres, for example Johan Møhlenfeldt Jensen’s work on Christiern Pedersen’s writings before and after his conversion to Lutheranism, and Hanne Ruus’ work on the lexicon of folk ballads, but there has been no work providing an overview of lexical development in Early Modern Danish beyond a few lines in general works on Danish language history by Peter Skautrup or more recently Oskar Bandle.² Furthermore, work in the area is made difficult by the lack of reference books such as dictionaries. As far as Neo-Latin in Denmark is concerned there are no dictionaries available. There are two international dictionaries: René Hoven’s Lexique de la prose latine de la Renaissance, which only includes words from a rather limited corpus of prose texts, and Johann Ramminger’s Neulateinische Wortliste (http://www.neulatein.de), which although being based on a much larger corpus of material – including both prose and poetry – still only cov-

¹ See bibliography for a list of these titles. They are discussed in Andersson, Hjort & Jørgensen 1997, and Boeck 2009a.
ers a small segment of the enormous material. The situation for Renaissance Danish is better, but still far from adequate. The dictionary of Old Danish (Gammeldansk Ordbog) currently being compiled at the Society for Danish Language and Literature cuts off at the year 1515, while the recently updated multivolume Dictionary of the Danish Language (Ordbog over det danske Sprog) begins with the year 1700. The standard work used for researchers and students of the intervening early modern period is Otto Kalkar’s five-volume dictionary printed between 1881 and 1918. This pioneering work is a valuable tool, but it unfortunately suffers from a number of inadequacies as far as the language of the Renaissance is concerned. Firstly the period covered by the dictionary, four centuries from 1300 to 1700, is too broad for our purposes, as the dictionary contains a wide range of material – from words excerpted from some of the earliest Danish manuscripts to citations from works from the turn of the eighteenth century. Many of these words and examples clearly fall outside of the Early Modern Danish period and certainly outside of the Renaissance. A second problem is the somewhat idiosyncratic method of normalisation based on a hypothetical early form of Danish. For example, if we wanted to look up the Early Modern Danish word **bundgæld** meaning the ‘tax payable on a barrel of beer’, we would need to know that the first element in the compound, **bund-**, has been normalised to **botn-** by Kalkar, based on the earliest extant spelling, despite the fact that the vast majority of cited forms are in fact spelt with **bund-**. Under the headword **Botn** (see fig. 1), we find a number of compounds including our word **bundgæld**, though normalised to **bundgæld**. But why now **bund-** and not **botn-**? Well, there is no cited form of the word **botngæld** from Old Danish, so Kalkar changes his normalisation to reflect this. For this reason, the word **bodnløs** ‘bottomless’ which is found in Old Danish is therefore found after the word **bundgæld**. But that still doesn’t explain why Kalkar spells it **bodnløs** with a ‘d’ instead of **botnløs** with a ‘t’! Confused? You should be!

Collecting related words under one headword can also result in peculiar ordering making locating words tricky. For example, the verb **bredde** ‘to melt’ (derived from and thus listed under the adjective **brad** ‘quick’) comes before the noun **brad** meaning ‘the bagged game from a hunt’. The dictionary user is required to have fairly advanced skills in Danish etymology and language history in order to find quickly the words that s/he (presumably) does not understand (and surely, therefore, not be expected to know their etymology and derivation!). And finally the alphabet has a different order

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3 On both of these projects, see http://www.dsl.dk/, and Adams & Zeeberg forthcoming.

4 In fact, Kalkar is wrong here, as there is an earlier example of the word spelt ‘bodngyæld’ in a letter from 13/3 1345; see Christensen 1959, no. 132.
than that used in modern standard Danish ending in ‘å’, ‘æ’, ‘ø’ rather than ‘æ’, ‘ø’, ‘å’. The letter combination ‘ks’ is always written ‘x’ which can also be rather confusing. The alphabetsisation of the material is thus somewhat eccentric. All in all, despite its being a true trove of linguistic treasures, using Kalkar can be frustrating and rather like looking for a lemmatical needle in a particularly large and bizarrely constructed lexical haystack.

Fig. 1. Kalkar 1881–1918, t. 259–60

The dictionary database element of our project Renaissanceens Sprog i Danmark (www.renaessancesprog.dk) is not a new dictionary as such, but rather an edition of several dictionaries from the Renaissance period published between 1510 and 1626. Six of them (available in modern facsimile editions from UJDS) date from the sixteenth century, while Poul Jensen

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5 On the alphabetical ordering used in Danish dictionaries from c. 1500 to c. 1800, see Boeck 2009b.

6 For a full project description including information about the database of vernacular and Neo-Latin Renaissance texts from Denmark and related research, see the project website: www.renaessancesprog.dk.
Colding’s *Vocabularium Herlovianum* is from 1626. The seven dictionaries are quite different from one another. Only two of them are ordered alphabetically (Colding and Pedersen) while the rest are structured thematically. Five of them are Latin to Danish dictionaries, while two of them are Danish to Latin.

The first dictionary, compiled by the important Reformation figure Christiern Pedersen, is *Vocabularium ad usum dacrorum* published in Paris in 1510. Pedersen, born in 1475, had gone to school in Roskilde where he was taught, in his own view, useless Latin. In his short manifesto-like publication about education which he published in 1531, he does not describe the books he learnt Latin from in particularly flattering terms: “Like all Danes, I was forced to read trivialities by Alexander and Donatus, lists of proverbs by Peder Laale and that sort of crap, from which one can never learn or gain a good enough foundation to understand poetry or write good pure Latin [...]”.

Pedersen’s own humanistic offering, a schoolbook containing 13,000 Latin words listed alphabetically, includes Danish translations, grammatical and prosodic information and occasionally quotations from classical authors as well as encyclopaedic information and examples. As Sandbjerg Slot, the site of the Texts and Contexts IV conference, is a castle of sorts, we have chosen the word *arx* ‘castle’ to exemplify each of the dictionaries’ approaches to their lexical content. Pedersen has the following entry (Pedersen 1510/1973, 15r):

\[
\text{nomen substantiuum feminini generis arx arcis: vern eller torn.}
\]

Henrik Smith from Malmö in modern-day southern Sweden was a most productive literary figure during the Renaissance. In 1520, he published his first dictionary, an alphabetically ordered Danish-to-Latin dictionary. Here we find *arx* under the Danish headword *sloth* (Smith 1520/1974, 74):

- sloth
- Castrum
- Arx
- Arcicula
- castellum

Jon Tursen from Skåne was a schoolmaster and canon at Lund Cathedral. In 1561, he published a dictionary of Danish and Latin which he structured thematically, making it the first thematically structured dictionary in Den-

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7 "Men ieg nøddis till saa vel som alle andre danske At læse Alexandrum/ puerilia Donatum Peder laale/ Composita verborum/ caser oc andet saadant skarn Aff huike mand kan aldrig lære eller komme til ret fwndamente till ath forsta dicel eller scriffue nogen god reth Latine/ eller forsta Huad andre gode klercke/ Poeter och Historici haffue før scrreffuot och dicted vdi forme tid” (Pedersen 1850–1856, IV 505).
mark. There are some fifty-seven sections with headings such as “God and Heavenly Things”, “Parts of the Body”, “Illnesses” and “Animals that creep and crawl”. In the tenth chapter on “The town and what belongs therein”, we find the word *arx* (Tursen 1561/1974, 44):

> Arx slot

Two years later, in 1653, Henrik Smith published his second dictionary, a thematically structured Latin–Danish one. Smith has sorted his material into sixty-five chapters that cover many topics for describing life and death, heaven and earth. The word *arx* appears in the chapter on “The town” (Smith 1563/1991, 119):

> Arx, cis, Slot / generis feminini declinationis [tertia]

Little is known about the man behind the dictionary *Vocabulorum variorum expositio* from 1576. His name was Poul Nielsen Hingelberg and the dictionary is a translation of a Swedish work *Variarum rerum vocabula* published in Stockholm in 1538, and consequently the Danish version does contain a number of Swedish forms. Hingelberg’s dictionary is thematically structured and his entry for *arx* can be found in the section called “About the town” (Hingelberg 1576/1995, 63):

> Arx Slot

Mads Pors who was born in Horsens, but who spent much of his life in Ribe, published his *De nomenclaturis Romanis* in 1594. It is yet another thematically structured dictionary but contains only nouns. It does, however, not contain the noun *arx*, so the word *castra* ‘military camp’ is used as the example here taken from the chapter “About military things” (Pors 1594/1995, 96):

> CASTRA Cic. Leyre. Krigsleyre. Στρατόπεδον

Finally, there are the two seventeenth-century works by the lexicographer Poul Jensen Colding. His 786-page *Etymologicum Latinum* was published in 1622 and is by far the most detailed of the dictionaries that we are using in this project. His entry for *arx* looks like this (Colding 1622, 77):

> Arx, cis, feminini. tertiae. locus urbis in monte situs & natura munitus, sic dicta ab arcendo, vel quod arcta & conclusa sit, vel hostem arceat, Slott. Inde quævis montium & cujuscunqve altitudinis summatis & cacumen, ex qua depelli possunt hostes, Vern. Et translatē, tuitissimum ac validissimum præsidium, vel confugium, tilfluct och skerm / Roma bonorum & gentium arx: in arce legis præsidia sunt consti-
tuta: Item, arx corporis, i. e. caput. Aliter deductur ab Arcadibus, qui munitissimos quosqve colles sub Evandro tenerunt.
In 1626, Colding published an inverted version of his dictionary where Danish is used for the headwords and translations into Latin are provided. The entry containing the word *arx* looks like this in his *Herlovianum* (Colding 1626, 562):

**Slot/arx.**

To summarise then, our searchable database is constructed from seven Renaissance dictionaries, with an eighth provided as an online facsimile edition, with varying structures and levels of detail, but that all provide a not insignificant insight into both the vocabulary of the period and Danish humanists’ conceptualisation of the world. If we compare the types of information contained in these dictionaries as well as Colding’s *Etymologicum Latinum* from 1622, it is possible to see just how varied they are:

| Pedersen 1510 | *nomen substantium femininis generis* arx arct. vern eller torn. |
| Smith 1520 | sloth Castrum Arx Arcicula castellum |
| Tursen 1561 | *Arx* slot |
| Smith 1563 | *Arx. ci. Slot* / *generis feminini declinationis (tertiae)* |
| Hingelberg 1576 | *Arx* Slot |
| Pors 1594 | *CAstra Cis* Leyre Krigsleyre Σπατόπεδον |

Colding 1626: Slot/ax.

**KEY**

<table>
<thead>
<tr>
<th>Latin headword / equivalent</th>
<th>Greek equivalent</th>
<th>Morphological Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Danish headword / equivalent</td>
<td>Description</td>
<td>Example</td>
</tr>
</tbody>
</table>

The difficulties arise as soon as we try to adapt these dictionaries to suit our own purposes by using XML, or Extensible Markup Language. The creation of the database has required us to describe both the external qualities and the
internal contents of each entry in the dictionary. External qualities mean such things as the page, folio or column the entry is in, how many columns there are per page and in which dictionary the entry is to be found.

The contents of each entry needed to be described fully and correctly. Unfortunately, as these examples will show, this is not always straightforward as the change of medium, from printed book to searchable computer database, required us to make a number of changes to the entry while trying to remain faithful to its original structure.

In Tursen’s dictionary, for example, we find two words meaning ‘saviour’, they are printed in this fashion (Tursen 1561/1974, 2):

\[
\begin{align*}
\text{Iesus} & \quad \text{Frelssere} \\
\text{Saluator} & \quad \text{idem}
\end{align*}
\]

Were we to search on the word \textit{saluator} in the database, it would be no help whatsoever to learn that this word means \textit{idem} or ‘the same as the entry above’. Therefore, we have had to develop a system to tag each \textit{idem} in the dictionaries with the meaning from the entry above:

\[
\begin{align*}
\text{Iesus} & \quad \text{Frelssere} \\
\text{Saluator} & \quad \text{idem}
\end{align*}
\]

\[
\begin{align*}
\text{Saluator} & \quad \text{Frelssere} \\
\text{idem}
\end{align*}
\]

On screen, the user will see the word \textit{Saluator} translated as \textit{Frelssere}, and by moving the mouse over the Danish word will be able to see that the dictionary actually has \textit{Idem} here.

Each headword and equivalent have also been marked up in such a way that it is possible to see instantly which dictionary chapter it can be found in. This is particularly interesting for those dictionaries that are arranged thematically.

One area where we can expand on the work of the Renaissance lexicographers in our computerised edition is to supply information
about sources, persons and places mentioned. In this example, again from Tursen, we read (Tursen 1974, 99–100):

**Polenta**  **Grød eller velling aff Byggryn**  
Vnde in Iosue legitur: Et comederunt polentam eiusdem anni.

The quotation is from the Book of Joshua (5:11) and the entry’s mark-up looks like this:

```xml
<article>
  <element language="Latin">
    <word>Polenta</word>
  </element>
  <element language="Danish">
    <word>Grød</word>
  </element>
  <element language="Danish">
    eller
  </element>
  <element language="Danish">
    velling aff Byggryn
  </element>
  <example>Vnde in <author type="work" ref="Ios">Iosue</author> legitur: <quotation source="Ios 5:11" language="Latin">Et comederunt polentam eiusdem anni</quotation>.
  </example>
</article>
```

Again by mouse-over, the user is able to see the source of the quotation.

Here, for example, we have located the text about Judas Iscariot that this quotation is taken from (Tursen 1974, 201):

**Crepo ui itum ieg lyder / knager**  
crepo etiam significat frangor: Vt, iudas suspensus crepuit medius

The entry is marked up like this:

```xml
<article>
  <element language="Latin">
    <word>Crepo</word>
    <morphology>ui itum</morphology>
  </element>
  <element language="Danish">
    ieg lyder
  </element>
  /
  <element language="Danish">
    knager
  </element>
</article>
```
The quotation has been identified and marked up as coming from the Acts of the Apostles (1:18). It will also be noticed that the name *iudas* has been given a personal identification tag *JudIsk* which enables extra information about this name to be supplied and made visible to the user with a mouse-over action. The information is shown online by mouse-over as “Judas Iscariot (*Biblical; New Testament*): One of Jesus’ disciples who betrayed him”.

Place names have also been tagged in this way to provide the user with additional information; thus, moving the mouse over *Moguntia* gives “Mainz: A town in present-day Rheinland-Pfalz, Germany”, *Dyringen* gives “Thüringen: Province, now state, in Germany”, and *Gudland* gives “Gotland: An island in present-day Sweden”.

Searching for words in Early Modern Danish and to a lesser extent also in Latin, is made problematic by the lack of a standardised spelling. We have tried to solve this difficulty in two ways. Firstly, by creating a system of conversions in the search engine whereby certain letters or letter combinations trigger an orthographic conversion. For example, searching for the Danish word *kælder* ‘cellar’ will trigger a number of conversions:

\[
\begin{align*}
&k- &\rightarrow & ch-, k-, c-, q- \\
&\alphae &\rightarrow & ie, je, \ae, \jae, e, ee, ae, \alphae \\
&ld &\rightarrow & l, ld, ll \\
&-er &\rightarrow & -ere, -er
\end{align*}
\]

These conversions give twenty hits with five different spellings of the same word: *kelder*, *keldere*, *keller*, *kellere*, *kælder*. The large number of conversions means that we cannot always avoid irrelevant hits. For example, searching for the Danish word *kone* ‘(old) woman’ will trigger a number of conversions:

\[
\begin{align*}
&k- &\rightarrow & ch-, k-, c-, q- \\
&o &\rightarrow & aa, a, o, oe, oh, oo, ô, ó, ô \\
&n &\rightarrow & n, nd, nn \\
&e &\rightarrow & ie, je, \ie, \jae, e, \alphae, ee, eh, è, è, ê
\end{align*}
\]
These conversions give fifty-five hits with various spellings and not all of them are relevant to our search. However, by clicking on the button “Vis ORDFORMER af denne søgning”, we are presented with the results grouped by spelling. This allows us to sort through the material easily as a list of word-forms. As can be seen in the list, there are in fact only two relevant word-forms for our search – kone and konæ – with a total of twenty-eight hits:

<table>
<thead>
<tr>
<th>Ordform</th>
<th>Word after tokens</th>
<th>Ordform</th>
<th>Word after tokens</th>
</tr>
</thead>
<tbody>
<tr>
<td>kone</td>
<td>11</td>
<td>konæ</td>
<td>8</td>
</tr>
<tr>
<td>kande</td>
<td>7</td>
<td>kende</td>
<td>1</td>
</tr>
<tr>
<td>kante</td>
<td>28</td>
<td>kone</td>
<td>2</td>
</tr>
</tbody>
</table>

Thus, the search engine should be able to pick up any common spelling of a word. However, in those cases where a word is spelt in a very peculiar fashion in a dictionary, we have the possibility to add a variant tag. For example, Pedersen’s spelling of the Danish word koldsyge ‘cold fever’ is kaaoldsyuge. Due to its maverick spelling, this would not be picked up in our search engine using the conversion system, so we have tagged the word thus:

```xml
<variant word="koldsyge">kaaoldsyuge</variant>
```

If a word is extremely uncommon or extinct, we have also had the possibility of adding a synonym tag which should help the user locate it. However, we have used this tag very sparingly, as it is not our ambition to provide interpretations or translations of every Early Modern Danish and Latin word in the database. For example, Tursen uses the term ‘month of the worm’ (‘orme maanet’) to translate the month of July’s name Iulius. A user searching for the Danish word juli would never find ‘the month of the worm’ without it being tagged as meaning July:

```xml
<article>
  <element language="Latin">
    <word>Iulius</word>
  </element>
  <element language="Danish">
    <word>
      <synonym word="juli">Orme maanet</synonym>
    </word>
  </element>
</article>
```
Notice also that the problems of word division are solved by the search engine being able to ignore spaces between words. So a search on *Ormemåned* written as one word would result in a hit for *Orme maanet* written as two words.

We have marked up the dictionaries in a relatively detailed fashion which makes it possible to search for specific types of information. For example, if the user is particularly interested in the gender of a word, s/he can restrict a search to those dictionary entries that include grammatical information. If references to classical authors are wanted, then it is possible to search on quotations or mention of an author/work. Other categories for refining searches are morphological information, examples, personal names, placenames and miscellaneous information (including encyclopaedic information and so on). It is also possible to restrict one’s search to specific dictionaries and also to broaden it to a full-text search (rather than just searching on the dictionary headword). The full-text search allows quotations, source references, encyclopaedic explanations and so on all to become searchable. These possibilities are available on the page called “udvidet søgning” (extended search):
The importance of this dictionary database lies in the fact that it can provide its users with translations of a large number of Latin and Danish words as they were understood and used during the Renaissance. In total, there are in all some 65,000 dictionary entries that have been marked up using XML and thus made searchable. As many entries contain more than one translation or equivalent of the dictionary headword the number of searchable words is in fact significantly higher.

No modern dictionary provides us with the same sort of information as is available in the dictionary database of *Renæssancens Sprog i Danmark*. For example, we can read that Latin *offa* in an early modern Danish context meant ‘øllebrød’ (a sort of soup made of bread and beer), and that *tuba* could be used to describe a whole range of musical instruments, such as ‘skalmeje’ (shawm), ‘trompet’ (trumpet) and ‘basun’ (trombone). Similarly, Latin *upupa* was used for the birds ‘vibe’ (lapwing) and ‘haerfugl’ (hoopoe), as well as the tool ‘klaahammer’ (mattock). A *gladiator* was not just a ‘fectere’ (swordsman), but also a ‘skermere’ (guard, someone providing protection). And *glans* meant a number of things, including ‘agerne’ (acorn), ‘Castanie’ (chestnut), ‘huert træis fruct’ (the fruit of every tree), ‘Lod’ or ‘Kwl’ (ballistic shot for a gun), ‘lems hoffuit’ (head of the penis), and even ‘Stick pille’ (suppository).

Although the database does not take the place of an actual dictionary of either Danish Neo-Latin or Early Modern Danish, it does function well as a much needed addition and supplement to the material that is currently available. Furthermore, it will provide a valuable tool for future work on Neo-Latin and Danish dictionaries.

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