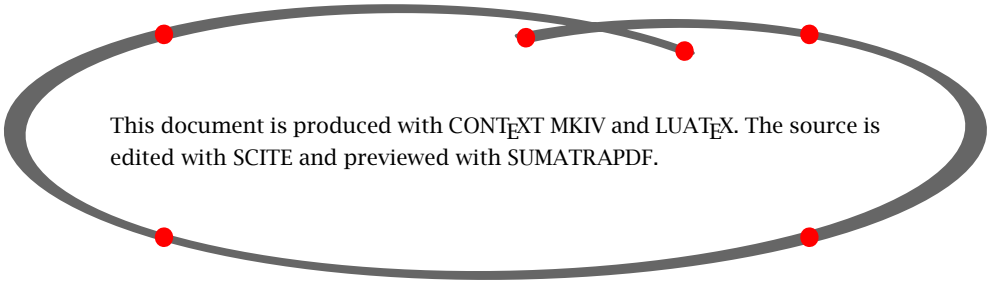
ConTEXt Mark IV
an excursion

English

Ton Otten
PRAGMA ADE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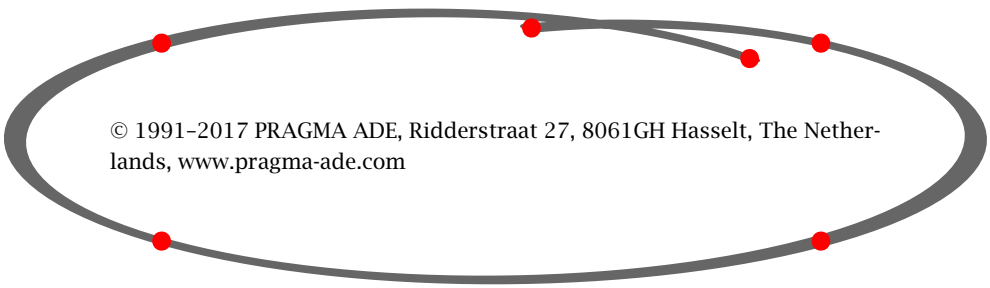
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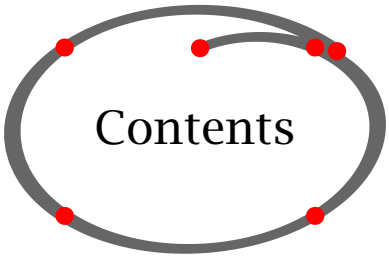

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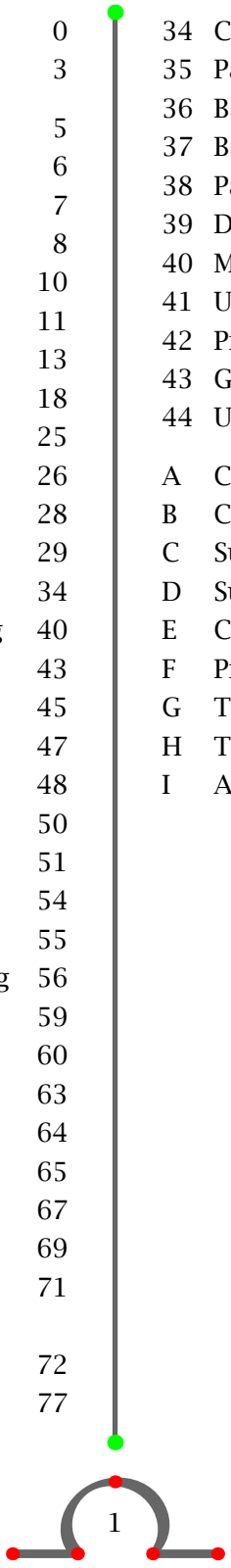

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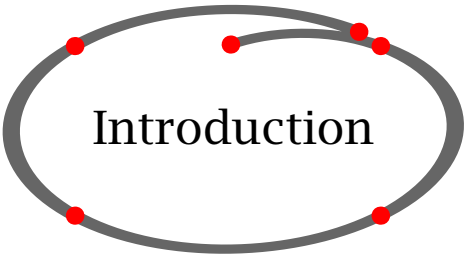


Introduction

CONTEXT is a document engineering system based on TEX, a typesetting system and programming language to typeset and produce documents. Ths system is easy to use and enables you to make complex paper and electronic documents.

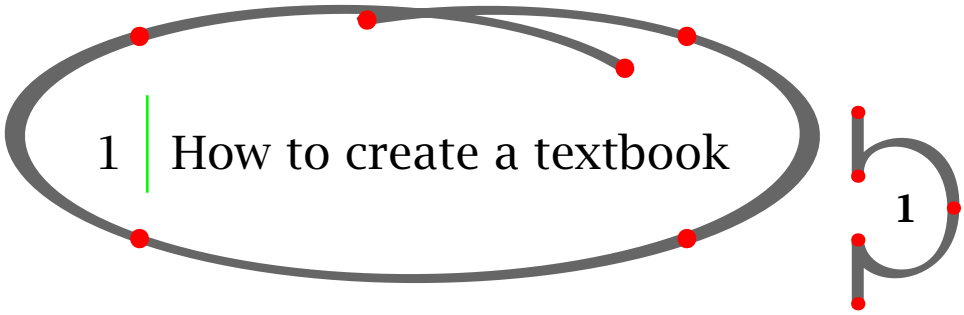
This manual describes the capabilities of CONTEXT MKIV, the available commands and their functionality.[1]

This system is developed for practical applications: the typesetting and production of documents ranging from simple straight forward books up to very complex and advanced technical manuals and textbooks in a paper or an electronic version. This introductory manual describes the functionality necessary to apply standard text elements in a manual or textbook. CONTEXT, however, is capable of much more and for users who want more there are other manuals and sources available.

CONTEXT has a multi lingual interface to enable users to work with the system in their own language. This manual is available in Dutch and English.

If you want to install CONTEXT on your computer you can follow the installation description on the CONTEXT WIKI.

[1] All paper and electronic products around CONTEXT are produced with CONTEXT. All sources of these products are or will be made available electronically to give you insight in the way these products are made up.



1 How to create a textbook

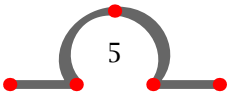
Let's assume you want to create a simple textbook. It has some structure and contains a title page, a few chapters, sections and sub sections. Of course there is a table of contents.

CONTEXT can create such a document automatically if you offer the right input by means of a file. So first you have to create an input file. An input file consists of a name and an extension. You can choose any name you want but the extension has to be `.tex`. If you create a file with the name `mybook.tex` you will find no difficulties in running CONTEXT.

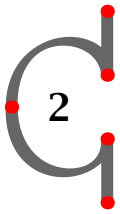
An input file could look like this:

```
\starttext

\startstandardmakeup
  \midaligned{From Hasselt to America}
  \midaligned{by}
  \midaligned{J. Jonker and C. van Marle}
\stopstandardmakeup

\placecombinedlist[content]

\chapter{Introduction}

... ties between Hasselt and America ...

\chapter[rensselaer]{The Rensselaer family}

\section{The first born}

... was born in the year ...

\section{The early years}

... in those days Hasselt was ...

\section{Living and workin in America}

... life in America was ...

\chapter[lansing]{The Lansing family}

... the Lansing family was also ...

\chapter[cuyler]{The Cuyler family}

... much later Tydeman Cuyler ...

\stoptext
```

CONTEXT expects a plain ASCII input file. Of course you can use any text-editor, as long as you save the file as standard ASCII (also called txt file) with the extension `.tex`. Note that spaces in the filename are not allowed.



The input file contains the text you want to typeset and the CONTEXT commands. A CONTEXT command begins with a backslash \. With the command `\starttext` you indicate the beginning of your text.



A command is sometimes followed by an argument which is enclosed by curly braces `{}`. The command `\chapter[cuyler]{The Cuyler family}` that you see in the example will have its effect on *The Cuyler family*. Its actions will have effect on the design, typography and structure. The actions may be:

1. start a new page
2. increase chapter number by one
3. place chapter number in front of chapter title
4. reserve some vertical space
5. use a big font
6. put chapter title (and page number) in the table of contents

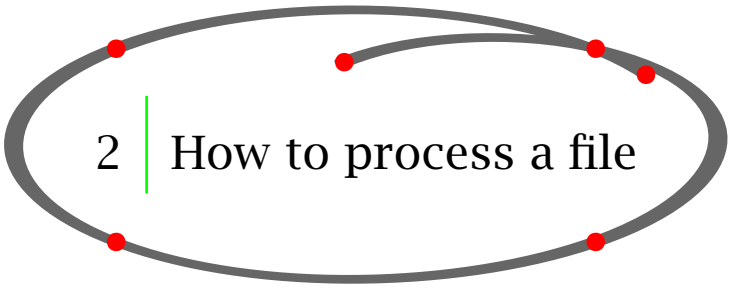
Other actions concerning running heads, number resetting and interactivity are disregarded at this moment.

Sometimes you will see two brackets (`[]`) directly after the command. These brackets are used to feed specific options to the command. Further on in this manual you will get more information on these brackets.

The commands in your input file can have the following appearance:

Appearance of command	**Example**
`\startcommand ... \stopcommand`	`\starttext ... \stoptext`
`\startcommand[] ... \stopcommand`	`\startitemize[packed] ... \stopitemize`
`\command`	`\item`
`\command[]`	`\in[cuyler]`
`\command{}[]`	`\at{page}[cuyler]`
`\command{}`	`\index{America}`
`\command[]{}`	`\chapter[cuyler]{The Cuyler family}`

If you have CONTEXT process the above example file, you would obtain a very simple document with a title page, a few numbered chapters and section headers and a table of content (because of `\placecombinedlist[content]`).



In this chapter we assume that you have installed and initiated CONTEXT MKIV correctly so that

you can run it from the commandline in your working directory. You can find the CONTEXT installation procedure on the CONTEXT WIKI.

If you want to process a CONTEXT input file, you should type at the command line prompt:

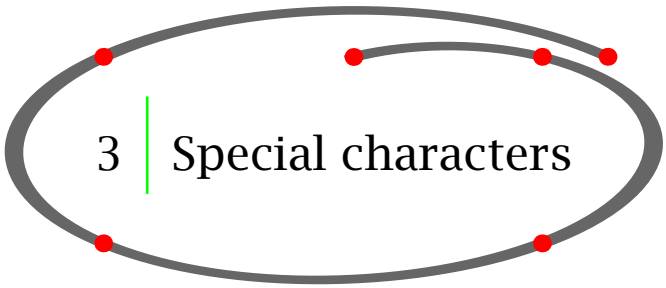
```
context myfile.tex
```

the extension `.tex` is not needed. See appendices H and I for more information on the `context` command.

After pressing `ENTER` processing will be started. CONTEXT will show processing information on your screen. During the processing of your input file CONTEXT will also inform you of what it is doing with your document. For example it will show page numbers and information about processing steps. Further more it gives warnings. These are of a typographical order and tells you when line breaking is not successful. All information on processing is stored in a `log` file that can be used for reviewing warnings and errors and the respective line numbers where they occur in your file.

If processing is succesful the command line prompt will return and CONTEXT will produce the file `myfile.pdf`. The abbreviation PDF stands for Portable Document Format. This is a platform independent format for printing and viewing with ACROBAT READER.

When you use a configurable text editor you can also run CONTEXT from that editor. More information on that topic can be found appendix G.



You have seen that CONTEXT commands are preceded by a \ (backslash). This means that \ has a special meaning to CONTEXT. Aside from \ there are other characters that need special attention when you want them to appear in verbatim mode or in text mode. Table 3.1 gives an overview of these special characters and what you have to type to produce them.

Other special characters have a meaning in typesetting mathematical expressions and some can be used in math mode only (see chapter 8).

Special character		Verbatim		Text	
Character	Name	Type	Generates	Type	Generates
#	hashtag	\type{#}	#	\#	#
$	dollar	\type{$}	$	\$	$
&	ampersand	\type{&}	&	\&	&
%	percent	\type{%}	%	\%	%
\	backslash	\type{\}	\	\backslash	\
{	right curly brace	\type+{+	{	\{	{
}	left curly brace	\type+}+	}	\}	}
|	vertical bar	\type{|}	|	|	|
_	underscore	\type{_}	_	_	_
~	tilde	\type{~}	~	\lettertilde	~
^	caret	\type{^}	^	\letterhat	^

Table 3.1 Special characters (1).

Special character	Verbatim		Text	
	Type	Generates	Type	Generates
+	\type{+}	+	$+$	+
-	\type{-}	-	$-$	−
=	\type{=}	=	$=$	=
<	\type{<}	<	$<$	<
>	\type{>}	>	$>$	>

Table 3.2 Special characters (2).

4 Defining a document

Every document is started with `\starttext` and closed with `\stoptext`. All textual input is placed between these two commands and CONTEXT will only process that information.

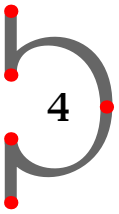
Setup information is placed in the set up area just before `\starttext`.

```
\setupbodyfont[12pt]                setuparea of document

\starttext
This is a one line document.        your text
```

```
\stoptext
```

The definition of a (very simple) book could look something like this:

```
\starttext

\startstandardmakeup
  \midaligned{From Hasselt to America}
  \midaligned{by}
  \midaligned{J. Jonker and C. van Marle}
\stopstandardmakeup

\title{Foreword}

\chapter{Introduction}

\chapter{The Rensselaer family}

\chapter{The Lansing family}

\chapter{The Cuyler family}

\chapter{Appendix: Photos}

\stoptext
```



CONTEXT comes with a predefined overall structure in which the document is divided into four main document divisions:[2]

1. front matter
2. body matter
3. appendices
4. back matter

The document divisions are defined with:

```
\startfrontmatter ... \stopfrontmatter
\startbodymatter  ... \stopbodymatter
\startappendices  ... \stopappendices
\startbackmatter  ... \stopbackmatter
```

The chapters in your book can be divided over these divisions.

```
\starttext

\startstandardmakeup
  \midaligned{From Hasselt to America}
  \midaligned{by}
  \midaligned{J. Jonker and C. van Marle}
\stopstandardmakeup

\startfrontmatter

    \title{Preface}
```

[2] Here we try to avoid the word *section*.

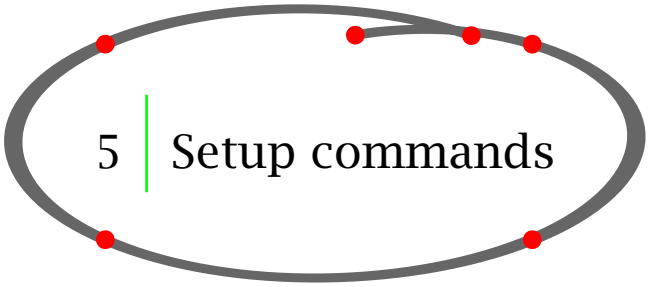
```
    \chapter{Introduction}
\stopfrontmatter
\startbodymatter
    \chapter{The Rensselaer family}
    \chapter{The Lansing family}
    \chapter{The Cuyler family}
\stopbodymatter
\startappendices
    \chapter{Photos}
\stopappendices
\stoptext
```

In the front matter as well as back matter the command `\chapter` produces an un-numbered header in the table of contents. The front matter is mostly used for the table of contents, the list of figures and tables, the preface, the acknowledgements etc. It often comes with a roman page numbering.

The appendices division is used for (indeed) appendices. Headers may be typeset in a different way; for example, `\chapter` may be numbered alphabetically.

The style of each document division can be set up with:

\setupsectionblock *[...,...]*[1] [..,..=..,..][2]
OPT



Global commands are placed in the setup area of your input file, before `\starttext`. In appendix A there is a complete overview of the available commands and their parameters.
The set up commands all have the same structure. They look something like:

\setupparagraphs *[...]*[1] *[...,...]*[2] [..,..=..,..][3]
OPT OPT

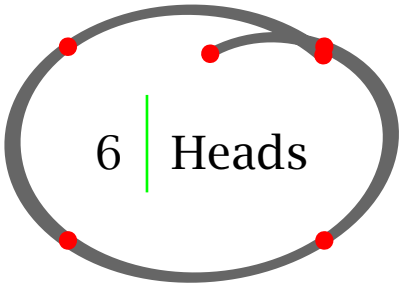
A set up command consists of a more or less logical name and a number of bracket pairs. Bracket pairs may be optional and in that case the `[]` are typeset slanted *[]*. In the definition the bracket pairs may contain:

```
\setupacommand[.1.][.2.][..,..=..,..]
```

The commas indicate that a list of parameters can be enclosed. In the options list following the definition, the `.1.` and `.2.` show the possible options that can be set in the first and second bracket pair respectively. The parameters and their possible values are placed in the third bracket pair.
The default options and parameter values are underlined.
Furthermore you will notice that some values are typeset in a slanted way: *section*, *name*, *dimension*, *number*, *command* and *text*. This indicates that you can set the value yourself.

section	a section name like chapter, section, subsection etc.
name	an identifier (logical name)
dimension	a dimension with a unit in `cm`, `pt`, `em`, `ex`, `sp` or `in`
number	an integer
command	a command
text	text

In the Quick Reference manual you can find a complete overview of the commands and their parameters.



The structure of a document is determined by its chapter and section titles. These titles are created with the commands shown in table 6.1:

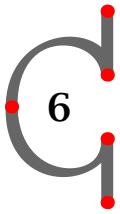
Numbered header	Unnumbered header
`\chapter`	`\title`
`\section`	`\subject`
`\subsection`	`\subsubject`
`\subsubsection`	`\subsubsubject`
...	...

Table 6.1 Headers.

missing: stp:x:chapter missing: stp:x:section missing: stp:x:subsection missing: stp:x:title missing: stp:x:subject missing: stp:x:subsubject

These commands will produce a numbered or unnumbered title in a predefined fontsize and fonttype with some vertical spacing before and after the header.
The title commands can take several arguments, like in:

```
\title[hasselt by night]{Hasselt by night}
```



and

```
\title{Hasselt by night}
```

The bracket pair is optional and used for internal references. If you want to refer to this chapter you type for example `\at{page}[hasselt by night]`.
For a more structured way to define chapters and sections you can use the more preferred `\start ... \stop` construction.

Numbered header	Un-numbered header
`\start ... \stopchapter`	`\start ... \stoptitle`
`\start ... \stopsection`	`\start ... \stopsubject`
`\start ... \stopsubsection`	`\start ... \stopsubsubject`
`\start ... \stopsubsubsection`	`\start ... \stopsubsubsubject`
...	...

Table 6.2 Structured headers.

In that case the definition looks like this:

```
\starttitle[reference="hasselt by night",title="Hasselt by night"}
   ...
\stoptitle
```

Of course the chapter and section titles can be set to your own preferences and you can even define your own sections. This is done with the `\setuphead` and `\definehead` command.

\definehead [..] *[...]* *[..,..=..,..]*
(1: OPT; 2: OPT; 3: OPT)

\setuphead *[...,...]* [..,..=..,..]
(1: OPT; 2)

```
\definehead
  [myhead]
  [section]

\setuphead
  [myhead]
  [numberstyle=bold,
```

```
    textstyle=bold,
    before=\hairline\blank,
    after=\nowhitespace\hairline]

\myhead[headlines]{Hasselt makes headlines}
```

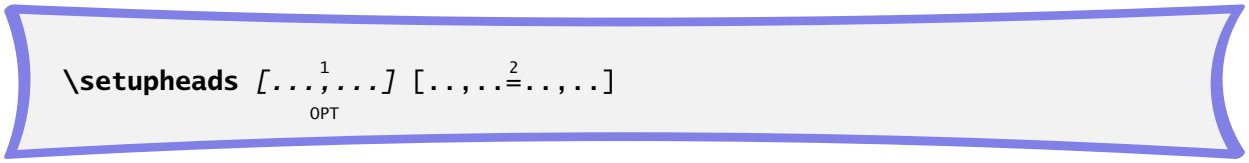
A new header \myhead is defined and it inherits the properties of \section. It would look something like this:

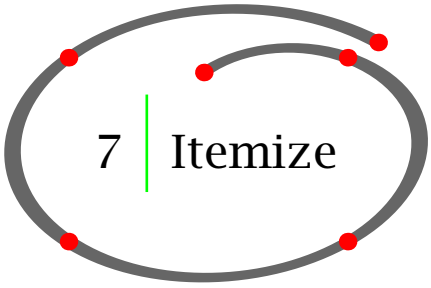
6.1 Hasselt makes headlines

There is one other command you should know now, and that is \setupheads. You can use this command to set up the numbering of the numbered chapters and sections. If you type:

```
\setupheads
  [alternative=inmargin,
   separator=--]
```

all numbers will appear in the margin. Section 1.1 would look like 1–1.
Commands like \setupheads are typed in the set up area of your input file.





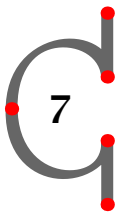
One way of structuring your information is by way of enumeration or summing up items. The itemize command looks like this:
missing: stp:x:startitemize
For example:

```
\startitemize[R,packed,broad]
\item Hasselt was founded in the 14th century.
\item Hasselt is known as a so called Hanze town.
\item Hasselt's name stems from a tree.
\stopitemize
```

Within the \start ... \stopitemize pair you start a new item with \item. The space after \item is required. In the example above R specifies Roman numbering and packed keeps line

spacing to a minimum. The parameter `broad` takes care of the spacing between item separator and item. The example would produce:

I. Hasselt was founded in the 14th century.
II. Hasselt is known as a so called Hanze town.
III. Hasselt's name stems from a tree.



Items can be defined in a more structured way:

```
\startitemize[R,packed,broad]
\startitem Hasselt was founded in the 14th century. \stopitem
\startitem Hasselt is known as a so called Hanze town. \stopitem
\startitem Hasselt's name stems from a tree. \stopitem
\stopitemize
```

The bracket pair contains information on item separators and local set up variables.

Argument	Item separator symbol
1	•
2	–
3	⋆
⋮	⋮
n	1 2 3 4 ···
a	a b c d ···
A	A B C D ···
r	i ii iii iv ···
R	I II III IV ···

Table 7.1 Item separators in itemize.

You can also define your own item separator by means of `\definesymbol`. For example if you try this:

```
\definesymbol[5][$\clubsuit$]

\startitemize[5,packed]
\item Hasselt was built on a riverdune.
\item Hasselt lies at the crossing of two rivers.
\stopitemize
```

You will get:

♣ Hasselt was built on a riverdune.
♣ Hasselt lies at the crossing of two rivers.

If you want to have a sort of head within an enumeration you should use `\head` instead of `\item`.

```
Hasselt lies in the province of Overijssel and there are a number
of customs that are typical of this province.

\startitemize
```

```
\head kraamschudden \hfill (child welcoming)

    When a child is born the neighbours come to visit the new
    parents. The women come to admire the baby and the men come to
    judge the baby (if it is a boy) on other aspects.
    The neighbours will bring a {\em krentenwegge} along. A
    krentenwegge is a loaf of currant bread of about 1 \unit{Meter}
    long. Of course the birth is celebrated with {\em jenever}.

\head nabuurschap (naberschop) \hfill (neighbourship)

    Smaller communities used to be very dependent on the
    cooperation among the members for their well being. Members of
    the {\em nabuurschap} helped each other in difficult times
    during harvest times, funerals or any hardship that fell upon
    the community.

\head Abraham \& Sarah  \hfill (identical)

    When people turn 50 in Hasselt it is said that they see Abraham
    or Sarah. The custom is to give these people a {\em speculaas}
    Abraham or a Sarah. Speculaas is a kind of hard spiced biscuit.

\stopitemize
```

The `\head` can be set up with `\setupitemize`. In case of a page breaking a `\head` will appear on a new page. (The `\unit{Meter}` command is explained in chapter 10.)
The example of old customs will look like this:
Hasselt lies in the province of Overijssel and there are a number of customs that are typical of this province.

- kraamschudden (child welcoming)

  When a child is born the neighbours come to visit the new parents. The women come to admire the baby and the men come to judge the baby (if it is a boy) on other aspects. The neighbours will bring a *krentenwegge* along. A krentenwegge is a loaf of currant bread of about 1 m long. Of course the birth is celebrated with *jenever*.

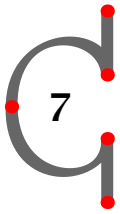
- nabuurschap (naberschop) (neighbourship)

  Smaller communities used to be very dependent on the cooperation among the members for their well being. Members of the *nabuurschap* helped each other in difficult times during harvest times, funerals or any hardship that fell upon the community.

- Abraham & Sarah (identical)

  When people turn 50 in Hasselt it is said that they see Abraham or Sarah. The custom is to give these people a *speculaas* Abraham or a Sarah. Speculaas is a kind of hard spiced biscuit.

The set up parameters of itemize are described in table 7.2.



Set up	Meaning
standard	standard (global) set up
packed	no vertical spacing between items
serried	no horizontal spacing between separator and text
joinedup	no vertical spacing before and after itemize
broad	horizontal spacing between separator and text
inmargin	place separator in margin
atmargin	place separator on margin
stopper	place full stop after separator
columns	put items in columns
intro	prevent page breaking after introduction line
continue	continue numbering or lettering

Table 7.2 Set up parameters in itemize.

You can use the set up parameters in `\startitemize`, but for reasons of consistency you can make them valid for the complete document with `\setupitemize`.
The parameter `columns` is used in conjunction with a (written) number. If you type this:

```
\startitemize[n,columns,four]
\item Achter 't Werk
.
.
.
\item Justitiebastion
\stopitemize
```

You will get:

1. Achter 't Werk
2. Baangracht
3. Brouwersgracht
4. Eikenlaan
5. Eiland
6. Gasthuisstraat
7. Heerengracht
8. Hofstraat
9. Hoogstraat
10. Julianakade
11. Justitiebastion
12. Kaai
13. Kalverstraat
14. Kastanjelaan
15. Keppelstraat

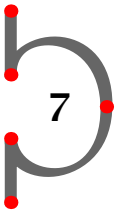
Sometimes you want to continue the enumeration after a short intermezzo. Then you type for example `\startitemize[continue]` and numbering will continue and all other preferences are kept.

16. Markt
17. Meestersteeg
18. Prinsengracht
19. Raamstraat
20. Ridderstraat
21. Rosmolenstraat
22. Royenplein
23. Van Nahuijsweg
24. Vicariehof
25. Vissteeg
26. Watersteeg
27. Wilhelminalaan
28. Ziekenhuisstraat

The parameter `broad` enlarges the horizontal space between item separator and itemtext.

missing: stp:x:setupitemize
An itemize within an itemize is automatically typeset in a correct way. For example if you type:

```
In the Netherlands the cities can determine the height of a number of
taxes. So the cost of living can differ from town to town. There are
differences of up to 50\% in taxes such as:

\setupitemize[2][width=5em]
\startitemize[n]

\item[estate tax] real estate tax

      The real estate tax is divided into two components:

      \startitemize[a,packed]
      \item the ownership tax
      \item the tenant tax
      \stopitemize

      If the real estate has no tenant the owner pays both components.

\item dog licence fee

      The owner of one or more dogs pays a fee. When a dog has died
      or been sold the owner has to inform city hall.

\stopitemize
```



then the horizontal space between item separator and text at the second level of itemizing is set with `\setupitemize[2][width=5em]`.
The example will look like this:
In the Netherlands the cities can determine the height of a number of taxes. So the cost of living can differ from town to town. There are differences of up to 50% in taxes such as:

1. real estate tax
   The real estate tax is divided into two components:

   a. the ownership tax
   b. the tenant tax

   If the real estate has no tenant the owner pays both components.

2. dog licence fee
   The owner of one or more dogs pays a fee. When a dog has died or been sold the owner has to inform city hall.

You can refer to an item if you give it a label (see `\item[estate tax]`). If you then type:

```
\in{In item}[estate tax] we discussed one of the income sources of Hasselt.
```

You'll get a reference to that item:
In item 1 we discussed one of the income sources of Hasselt.

8 Typesetting math

8

8.1 Introduction

TEX is *the* typesetting program for math. However, this is not the extensive chapter on typesetting math you might expect. We advise you to do some further reading on typesetting formulas in TEX. See for example:[3]

- *The TEXBook* by D.E. Knuth
- *The Beginners Book of TEX* by S. Levy and R. Seroul

8.2 Typesetting math

Normally different conventions are applied for typesetting normal text and math text. These conventions are 'known' by TEX and applied accordingly when generating a document. We can rely on TEX for delivering high quality math output.
A number of conventions for math are:

1. Characters are typeset in *math italic* (don't confuse this with the normal *italic characters* in a font).
2. Symbols like Greek characters (α, χ) and math symbols ($\leq$, $\geq$, $\in$) are used.
3. Spacing will differ from normal spacing.
4. Math expressions have a different alignment than that of the running text.
5. The sub and superscripts are downsized automatically, like in a_c^b.
6. Certain symbols have different appearances in the inline and display mode.

When typesetting math you have to work in the so called math mode in which math expressions can be defined by means of plain TEX–commands.
Math mode has two alternatives: text mode and display mode. Math in text mode is activated by `$` and `$`, while display mode is activated by `$$` and `$$`. In CONTEXT however, display mode is activated with the `\start ... \stopformula` command pair to have more grip on vertical spacing around the formula.

```
The municipality of Hasselt covers an area of 42,05 \unit{Square Kilo
Meter}. Now, if you consider a circular area of this size with the
market place of Hasselt as the center point $M$ you can calculate its
diameter with ${{1}\over{4}} \pi r^2$.
```

This will become:

[3] In this introduction on typesetting math we relied on the booklet *TEXniques* by Arthur Samuel.

The municipality of Hasselt covers an area of 42,05 km^2. Now, if you consider a circular area of this size with the market place of Hasselt as the center point M you can calculate its diameter with $\frac{1}{4}\pi r^2$.
The many {} (grouping) in $\frac{1}{4}\pi r^2$ are essential for separating operations in the expression. If you omit the outer curly braces like this: `${1}\over{4} \pi r^2$`, you would get a non desired result: $\frac{1}{4\pi r^2}$.
The letters and numbers are typeset in three different sizes: text size $a + b$, script size $a+b$ and scriptscript size $a+b$. These can be influenced by the commands `\scriptstyle` and `\scriptscriptstyle`.
Symbols like $\int$ and $\sum$ will have a different form in text and display mode. If we type `$\sum_{n=1}^{m}$` or `$\int_{-\infty}^{+\infty}$` we will get $\sum_{n=1}^{m}$ and $\int_{-\infty}^{+\infty}$. But when you type:

```
\startformula
  \sum_{n=1}^{m} \quad {\rm and} \quad \int_{-\infty}^{+\infty}
\stopformula
```

to get displaymode you get:

$$\sum_{n=1}^{m} \quad \text{and} \quad \int_{-\infty}^{+\infty}$$

With the commands `\nolimits` and `\limits` you can influence the appearances of `\sum` and `\int`:

```
\startformula
  \sum_{n=1}^{m}\nolimits
  \quad {\rm and} \quad
  \int_{-\infty}^{+\infty}\limits
\stopformula
```

which will result in:

$$\sum_{n=1}^{m} \quad \text{and} \quad \int_{-\infty}^{+\infty}$$

For typesetting fractions there is the command `\over`. In CONTEXT you can use the alternative `\frac`. For $\frac{a}{1+b} + c$ we type for instance `${\frac{a}{1+b}}+c$`.
Other commands to put one thing above the other, are:

`\atop`	`${a} \atop {b}$`	$\begin{matrix}a\\b\end{matrix}$
`\choose`	`${n+1} \choose {k}$`	$\binom{n+1}{k}$
`\brack`	`${m} \brack {n}$`	$\left[\begin{matrix}m\\n\end{matrix}\right]$
`\brace`	`${m} \brace {n-1}$`	$\left\{\begin{matrix}m\\n-1\end{matrix}\right\}$

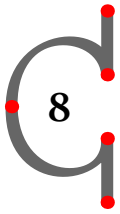
TEX can enlarge delimiters like ( ) and { } automatically if the left and right delimiter is preceeded by the commands `\left` and `\right` respectively. If you type:

```
\startformula
```

```
  1+\left(\frac{1}{1-x^{x-2}}\right)^3
\stopformula
```

you will get:

$$1+\left(\frac{1}{1-x^{x-2}}\right)^3$$



Sub and superscripts are invoked by '_' and '^'. They have effect on the next first character so grouping with { } is necessary in case of multi character sub and superscripts.
In certain situations the delimiters can be preceeded by `\bigl`, `\Bigl`, `\biggl` and `\Biggl` and their right counterparts. Even bigger delimiters can be produced by placing `\left` and `\right` in a `\vbox` construction. When we type a senseless expression like:

```
\startformula
  \left(\vbox to 16pt{}x^{2^{2^{2^{2}}}}\right)
\stopformula
```

we get:

$$\left(x^{2^{2^{2^2}}}\right)$$

In display mode the following delimiters will work in the automatic enlargement mechanism:

`\lfloor`	⌊	`\langle`	⟨	`\vert`	|	`\downarrow`	↓
`\rfloor`	⌋	`\rangle`	⟩	`\Vert`	‖	`\Downarrow`	⇓
`\lceil`	⌈	`/`	/	`\uparrow`	↑	`\updownarrow`	↕
`\rceil`	⌉	`\backslash`	\	`\Uparrow`	⇑	`\Updownarrow`	⇕

In display mode we should typeset only one fraction and otherwise switch to the `a/b` notation. To get:

$$a_0+\frac{a}{a_1+\frac{1}{a_2}}$$

we will not type:

```
\startformula
  a_0+{\frac{a}{a_1+\frac{1}{a_2}}}
\stopformula
```

but prefer:

```
\startformula
  a_0 + {\frac{a}{a_1 + 1/a_2}}
\stopformula
```

to obtain:

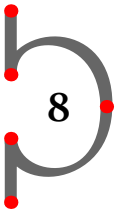
$$a_0+\frac{a}{a_1+1/a_2}$$

In addition we could also use the command `\displaystyle`. If we would type:

$$a_0 + \cfrac{a}{a_1 + \cfrac{1}{a_2}}$$

we will get:

$$a_0 + \cfrac{a}{a_1 + \cfrac{1}{a_2}}$$



Below we demonstrate the commands \matrix, \pmatrix, \ldots, \cdots and \cases without any further explanation.

```
\startformula
A=\left(\matrix{x-\lambda & 1          & 0          \cr
                0         & x-\lambda & 1          \cr
                0         & 0         & x-\lambda \cr}\right)
\stopformula
```

$$A = \left(\begin{matrix} x-\lambda & 1 & 0 \\ 0 & x-\lambda & 1 \\ 0 & 0 & x-\lambda \end{matrix} \right)$$

```
\startformula
A=\left|\matrix{x-\mu& 1     & 0     \cr
                0    & x-\mu & 1     \cr
                0    & 0     & x-\mu \cr}\right|
\stopformula
```

$$A = \left| \begin{matrix} x-\mu & 1 & 0 \\ 0 & x-\mu & 1 \\ 0 & 0 & x-\mu \end{matrix} \right|$$

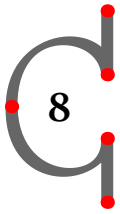
```
\startformula
A=\pmatrix{a_{11} & a_{12} & \ldots & a_{1n} \cr
           a_{21} & a_{22} & \ldots & a_{2n} \cr
           \vdots & \vdots & \ddots & \vdots \cr
           a_{m1} & a_{m2} & \ldots & a_{mn} \cr}
\stopformula
```

$$A = \begin{pmatrix} a_{11} & a_{12} & \ldots & a_{1n} \\ a_{21} & a_{22} & \ldots & a_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{m1} & a_{m2} & \ldots & a_{mn} \end{pmatrix}$$

```
\startformula
A=\pmatrix{a_{11} & a_{12} & \ldots & a_{1n} \cr
```

```
            a_{21} & a_{22} & \ldots & a_{2n} \cr
            \vdots & \vdots & \ddots & \vdots \cr
            a_{m1} & a_{m2} & \ldots & a_{mn} \cr}
\stopformula
```

$$A = \begin{pmatrix} a_{11} & a_{12} & \ldots & a_{1n} \\ a_{21} & a_{22} & \ldots & a_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{m1} & a_{m2} & \ldots & a_{mn} \end{pmatrix}$$




```
\startformula
|x|=\cases{ x, & if $x\geq0$; \cr
            -x, & otherwise    \cr}
\stopformula
```

$$|x| = \begin{cases} x, & \text{if } x \geq 0; \\ -x, & \text{otherwise} \end{cases}$$

To typeset normal text in a math expression we have to consider the following. First a space is not typeset in math mode so we have to enforce one with `\ ` (backslash). Second we have to indicate a font switch, because the text should not appear in *math italic* but in the actual font. So in CONTEXT we have to type:

```
\startformula
  x^3+{\tf lower\ order\ terms}
\stopformula
```

to get:

$$x^3 + \text{lower order terms}$$

The math functions like sin and tan that have to be typeset in the actual font are predefined functions in TEX:

```
\arccos  \cos   \csc  \exp  \ker     \limsup  \min  \sinh
\arcsin  \cosh  \deg  \gcd  \lg      \ln       \Pr   \sup
\arctan  \cot   \det  \hom  \lim     \log      \sec  \tan
\arg     \coth  \dim  \inf  \liminf  \max      \sin  \tanh
```

If we type the sinus or limit function:

```
\startformula
  \sin 2\theta=2\sin\theta\cos\theta
  \quad {\tf or} \quad
  \lim_{x\to0}{\frac{\sin x}{x}}=1
\stopformula
```

we get:

$$\sin 2\theta = 2\sin\theta\cos\theta \quad \text{or} \quad \lim_{x\to 0} \frac{\sin x}{x} = 1$$

Alignment in math expressions may need special attention. In multi line expressions we sometimes need alignment at the '=' sign. This is done by the command \eqalign. If we type:

```
\startformula
  \eqalign{
    ax^2+bx+c &= 0                                  \cr
    x         &= \frac{-b \pm \sqrt{b^2-4ac}}{2a} \cr}
\stopformula
```

we get:

$$\begin{aligned} ax^2 + bx + c &= 0 \\ x &= \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \end{aligned}$$

Sometimes alignment at more than one location is wanted. Watch the second line in the next example and see how it is defined:

```
\startformula
  \eqalign{
    ax+bx+\cdots+yx+zx &         = x(a +b+ \cdots \cr
                       &\phantom{= x(a~}+y+z)     \cr
                       &         = y               \cr}
\stopformula
```

This results in:

$$\begin{aligned} ax + bx + \cdots + yx + zx &= x(a + b + \cdots \\ &\quad + y + z) \\ &= y \end{aligned}$$

Next to the command \phantom there are \hphantom without height and depth and \vphantom without width.
You can rely on TEX for spacing within a math expression. In some situations, however you may want to influence spacing. This is done by:

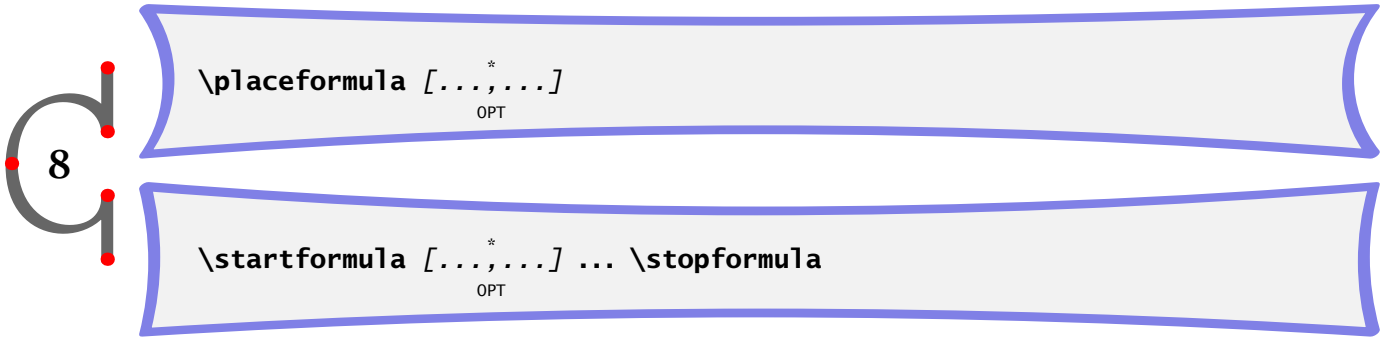
\! $-\frac{1}{6}$\quad
\, $\frac{1}{6}$\quad
\> $\frac{2}{9}$\quad
\; $\frac{5}{18}$\quad

These 'spaces' are related to \quad that stands for the width of the capital 'M'.
The use of the command \prime speaks for itself. For example if would want $y_1^{'} + y_2^{''}$ you should type `$y_1^\prime+y_2^{\prime\prime}$`.
An expression like $\sqrt[3]{x^2 + y^2}$ is obtained by `$\root 3 \of {x^2+y^2}$`.
At the end of this section we point to the command \mathstrut which we can use to enforce consistency, for example within the root symbol. With `$\sqrt{\mathstrut a}+\sqrt{\mathstrut d}+\sqrt{\mathstrut y}$` we will get $\sqrt{a} + \sqrt{d} + \sqrt{y}$ in stead of $\sqrt{a} + \sqrt{d} + \sqrt{y}$.

See appendix E for a complete overview of math commands.

8.3 Placing formulas

You can typeset numbered formulas with:



Two examples:

```
\placeformula[formula:aformula]
  \startformula
     y=x^2
  \stopformula

\placeformula
  \startformula
    \int_0^1 x^2 dx
  \stopformula
```

$$y = x^2 \tag{8.1}$$

$$\int_0^1 x^2 dx \tag{8.2}$$

The command \placeformula handles spacing around the formulas and the numbering. The bracket pair is optional and is used for referencing and to switch numbering on and off.

$$y = x^2 \tag{8.3}$$

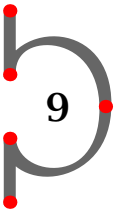
$$y = x^3 \tag{8.4}$$

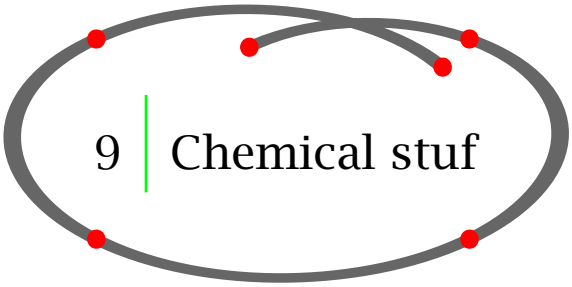
$$y = x^4 \tag{8.5}$$

Formula 8.4 was typed like this:

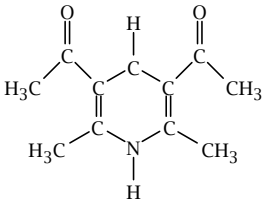
```
\placeformula[middle one]
  \startformula
     y=x^3
  \stopformula
```

The lable [middle one] is used for refering to this formula. Such a reference is made with \in{formula}[middle one].
If no numbering is required you type:
\placeformula[-]
Numbering of formulas is set up with \setupnumbering. In this manual numbering is set up with \setupnumbering[way=bychapter]. This means that the chapter number preceeds the formula number and numbering is reset with each new chapter. For reasons of consistency the tables, figures, intermezzi etc. are numbered in the same way. Therefore you use \setupnumbering in the set up area of your input file.
Formulas can be set up with:
missing: stp:x:setupformulae





Chemical structures may look very impressive.



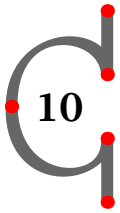
Compound A

CONTEXT relies on METAPOST to draw these kind of chemical structures. Although these chemical structures are defined with only two or three commands, it takes some practice to get the right results. This is how the input looks:

```
\startchemical[scale=small,width=fit,top=3000,bottom=3000]
  \chemical[SIX,SB2356,DB14,Z2346,SR3,RZ3,SR6,-RZ6,+RZ6]
           [C,N,C,C,H,H]
  \chemical[PB:Z1,ONE,Z0,MOV8,Z0,SB24,DB7,Z27,PE][C,C,CH_3,O]
  \chemical[PB:Z5,ONE,Z0,MOV6,Z0,SB24,DB7,Z47,PE][C,C,H_3C,O]
  \chemical[SR24,RZ24][CH_3,H_3C]
  \bottext{Compound A}
\stopchemical
```

Chemical reactions can be typeset within a paragraph or as a display formula with the `\inlinechemical` and `\startchemicalformula` commands:
One of the steps in the Hasselt canal water treatment is the removal of phosphate by means of a chemical reaction with iron:

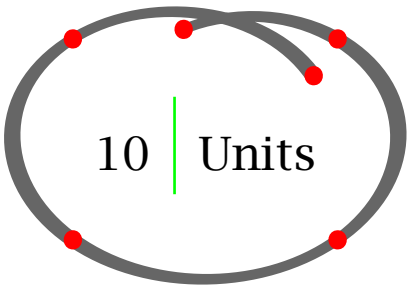
$$\underset{\text{iron hydroxide}}{Fe(OH)_3} + \underset{\text{phosphoric acid}}{H_3PO_4} \longrightarrow \underset{\text{iron phosphate}}{FePO_4} + \underset{\text{water}}{H_2O}$$



The $FePO_4$ is a solid and precipitates in water. It is filtered and re-used as a furtilizer resource. This is defined by:

```
\definefloat
  [chemicalformula]
  [chemicalformulas]

One of the steps in the Hasselt canal water treatment is the removal of
phosphate by means of a chemical reaction with iron:

\placechemicalformula[none][]{}
  {\startchemicalformula
    \chemical{Fe(OH)_3}{iron hydroxide}
    \chemical{PLUS}
    \chemical{H_3PO_4}{phosphoric acid}
    \chemical{GIVES}{\hphantom{whatever}}
    \chemical{FePO_4}{iron phosphate}
    \chemical{PLUS}
    \chemical{H_2O}{water}
  \stopchemicalformula}

The \inlinechemical{FePO_4} is a solid and precipitates in water. It
is filtered and re-used as a furtilizer resource.
```

The use of the chemical commands is described in the PPCHTeX Manual and the example manual Chemical Formulas in CONTEXT.



To force yourself to use dimensions and units consistently throughout your document you can use the `\unit` command. Let's give a few examples:

```
\unit{meter per square meter}
```

```
\unit{cubic meter per sec}
\unit{square milli meter per inch}
\unit{centi liter per sec}
\unit{meter inverse sec}
\unit{newton per square inch}
\unit{newton times meter per square sec}
```

It looks like a lot of typing but it does guarantee a consistent use of units. The command `\unit` also prevents linebreaking between number and unit. The examples above come out as:

m/m^2
m^3/s
$mm^2/inch$
cl/s
$m \cdot s^{-1}$
$N/inch^2$
$N \cdot m/s^2$

You can add your own units with:

\registerunit *[...]* [..,..=..,..]
OPT 1 2

and set them up with:

\setupunit *[...,...]* [..,..=..,..]
OPT 1 2

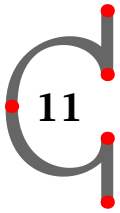
In the example below you can see some new units and the non-consistent use of km.

```
\registerunit[unit][inhab=inhabitants] \setupunittext[inhabitants=inh]
\registerunit[unit][north=north]       \setupunittext[north= N]
\registerunit[unit][east=east]         \setupunittext[east= E]

Hasselt is part of the municipality of Zwartewaterland
(coordinates \unit {52 degrees 35 arcminute north},
\unit {6 degrees 5 arcminute east}). Its area is about
\unit {88 square kilometer} (land \unit {83 square kilom}
and water \unit{5 square km}). As of 1st Augustus 2013 the
population is 22.201 that is \unit {268 inhab per square kilo
meter}).
```

This results in:
Hasselt is part of the municipality of Zwartewaterland (coordinates 52° 35´ N, 6° 5´ E). Its area is about 88 km^2 (land 83 km^2 and water 5 km^2). As of 1st Augustus 2013 the population is 22.201 that is 268 inh/km^2).

The \unit command also allows you to align rows of units in a column.
When you type:

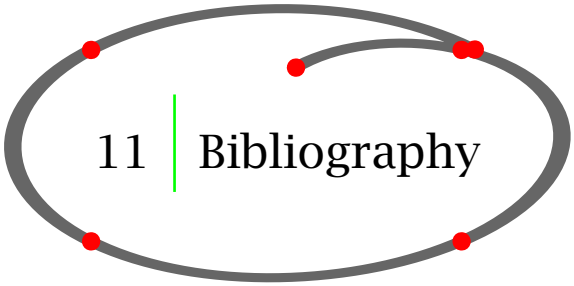
```
\bTABLE
\bTR \bTD \bf Street                \eTD \bTD \bf Length          \eTD \eTR
\bTR \bTD Ridderstraat              \eTD \bTD \unit{_,160 meter} \eTD \eTR
\bTR \bTD Prinsengracht             \eTD \bTD \unit{_,240 meter} \eTD \eTR
\bTR \bTD Kalverstraat              \eTD \bTD \unit{_,_60 meter} \eTD \eTR
\bTR \bTD H.A.W. van de Vechtlaan \eTD \bTD \unit{1,250 meter} \eTD \eTR
\bTR \bTD Meestersteeg              \eTD \bTD \unit{_,_45 meter} \eTD \eTR
\eTABLE
```



It will generate a well aligned second column:

Street	**Length**
Ridderstraat	160 m
Prinsengracht	240 m
Kalverstraat	60 m
H.A.W. van de Vechtlaan	1,250 m
Meestersteeg	45 m

Please refer to the manual *Units* for more information and details.



CONTEXT support the BIBTEX way of managing article and book references. The data is stored in a .bib file. A data entry in a BIBTEX data file could be:

```
@INBOOK{book01,
   author = "Jonker, J.",
   title = "From Hasselt to America",
   publisher = "Bookplan Publishers",
   year = "2012",
   chapter = "1.2",
}
```

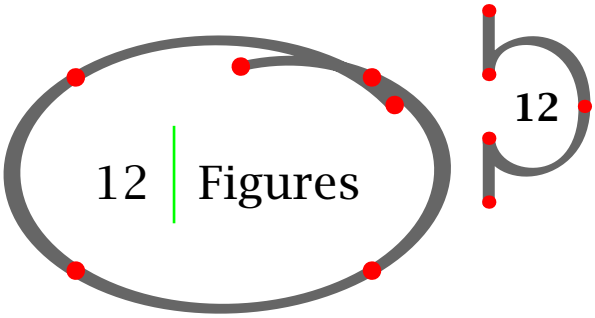
After loading the database with \setupbibtex[database=hasseltbook] the following command is available:

```
Please refer to \cite[book01] for more information on famous people
that were born in Hasselt.
```

Which would produce:
Please refer to Jonker (2012) for more information on famous people that were born in Hasselt.
In an appendix you can place the complete book list with:

```
\placepublications[criterium=text]
```

At this moment (2013 – 2014) the bibliography mechanism is being completely overhauled, so please visit the CONTEXT WIKI and the Pragma ADE website regularly for information.



Images can be placed in your document with the command `\externalfigure`.

```
\externalfigure
  [cow.pdf]
  [width=.1\textwidth,
   frame=on,
   framecolor=gray,
   frameoffset=3pt,
   rulethickness=3pt,
   framecorner=round]
```

Such an image will be placed on the location where you defined it  and can have some strange effects on the surrounding white space. By the way, the cow image is always available for CONTEXT users which is very convenient when you are testing the figure related commands. You can use the command `\placefigure` to influence the positioning of images in your document.

```
\placefigure
   [][fig:church]
   {Stephanus Church.}
   {\externalfigure[ma-cb-24][width=.4\textwidth]}
```

After processing this will come out as figure 12.1 at the first available location.
The command `\placefigure` handles numbering and vertical spacing before and after your figure. Furthermore this command initializes a float mechanism, which means that CONTEXT looks whether there is enough space for your figure on the page. If not, the figure will be placed at another location and the text carries on, while the figure floats in your document until the optimal location is found. You can influence this mechanism within the first bracket pair.

Figure 12.1 Stephanus Church.

The command `\placefigure` is a predefined example of:

```
\placefloat [1...] [...,2...] [...,3...] {4...} {5...}
                   OPT         OPT
```

A number of basic options is described in table 12.1.

Option	Meaning
here	put figure at this location if possible
force	force figure placement here
page	put figure on its own page
top	put the figure at the top of the page
bottom	put the figure at the botom of the page
left	place figure at the left margin
right	place figure at the right margin
margin	place figure in the margin
none	set no caption

Table 12.1 Options in `\placefigure`.

The second bracket pair is used for cross-referencing. You can refer to this particular figure by typing:

```
\in{figure}[fig:church]
```

The first brace pair is used for the caption. You can type any text you want. The figure labels are set up with `\setupcaptions` and the numbering is (re)set by `\setupnumbering` (see paragraph 40.5).
The second brace pair is used for defining the figure and addressing the file names of external figures.
In the next example you see how Hasselt is defined within the last brace pair to show you the function of `\placefigure{}{}`.

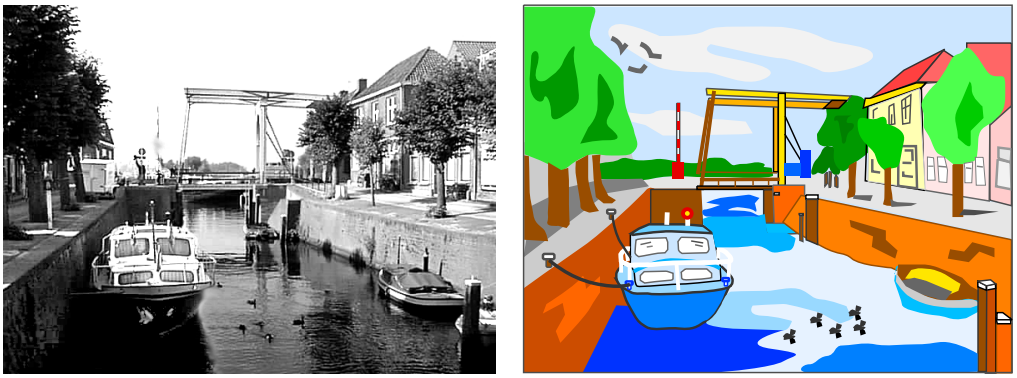
```
\placefigure
  {The boundaries of Hasselt.}
  {\framed{\tfd Hasselt}}
```

This will produce:

Hasselt

Figure 12.2 The boundaries of Hasselt.

However, your images are often created using programs like Illustrator and photos are — after scanning — improved in packages like PhotoShop. Then the images are available as files. CONTEXT supports image file types like `JPG`, `PNG` and (pages from) `PDF` files as well as METAPOST output (`MPS` files). Users normally can trust CONTEXT to find the best possible file type.
In figure 12.3 you see a photo and a graphic combined into one figure.



a bitmap picture a vector graphic

Figure 12.3 The Hasselt Canals.

You can produce this figure by typing something like:

```
\placefigure
  [here,force]
  [fig:canals]
  {The Hasselt Canals.}
  {\startcombination[2*1]
    {\externalfigure[ma-cb-03][width=.4\textwidth]}{a bitmap picture}
    {\externalfigure[ma-cb-00][width=.4\textwidth]}{a vector graphic}
   \stopcombination}
```

In this figure two pictures are combined with:

```
\startcombination [...] [..,..=..,..] ... \stopcombination
                   OPT 1     OPT 2
```

The \start ...\stopcombination pair is used for combining two pictures in one figure. You can type the number of pictures within the bracket pair. If you want to display one picture below the other you would have typed [1*2]. You can imagine what happens when you combine 6 pictures as [3*2] ([rows*columns]).

The examples shown above are enough for creating illustrated documents. Sometimes however you want a more integrated layout of the picture and the text. For that purpose you can use \start ...\stopfiguretext command pair.
The effect of:

```
\startfiguretext
  [left,none]
  [fig:citizens]
  {}
  {\externalfigure[ma-cb-18][width=.5\makeupwidth]}
   Hasselt has always had a varying number of citizens due to
   economic events. For example the Dedemsvaart was dug around
   1810. This canal runs through Hasselt and therefore trade
   flourished. This led to a population growth of almost 40\%
   within 10~years. Nowadays the Dedemsvaart has no commercial
   value anymore and the canals have become a tourist
   attraction. But reminders of these prosperous times can be
   found everywhere.
\stopfiguretext
```

is shown in the figure below.

Hasselt has always had a varying number of citizens due to economic events. For example the Dedemsvaart was dug around 1810. This canal runs through Hasselt and therefore trade flourished. This led to a population growth of almost 40% within 10 years. Nowadays the Dedemsvaart has no commercial value anymore and the canals have become a tourist attraction. But reminders of these prosperous times can be found everywhere.

As you have seen you in the examples above you can summon a figure with the command:

```
\externalfigure [...] [...] [..,..=..,..]
                 1     2     3
                OPT   OPT   OPT
```

The command \externalfigure has two bracket pairs. The first is used for the exact file name without extension, the second for file formats and dimensions. It is not difficult to guess what happens if you type:

```
\inmargin
  {\externalfigure
     [ma-cb-23]
     [width=.7\marginwidth]}
```


You can set up the layout of figures with:

```
\setupfloats [...,...] [..,..=..,..]
              1
             OPT
```

You can set up the numbering and the labels with:

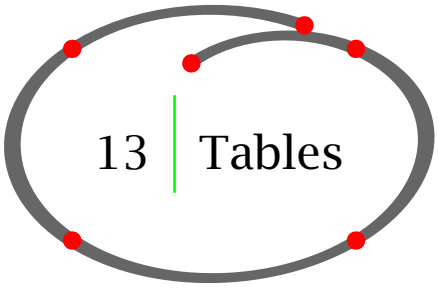
```
\setupcaptions [...,...] [..,..=..,..]
                1
               OPT
```

These commands are typed in the set up area of your input file and have a global effect on all floating blocks.

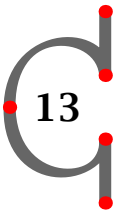
```
\setupfloat
  [figure]
  [default=right,
   spacebefore=none]

\setupcaptions
  [location=bottom,
   style=boldslanted]

\placefigure
  {A characteristic view on Hasselt.}
  {\externalfigure[ma-cb-12][width=6cm]}
```

For figure management there are commands like \setupexternalfigure.
Please refer to the CONTEXT WIKI for practical applications of these commands.
If you want to work with a XML based figure database please see the Figures manual.

Figure 12.4 ***A characteristic view on Hasselt.***



13 Tables



There are a number of ways to define a table:

- the `\start ... \stoptable` mechanism, based on the work of M. Wichura
- the `\bTABLE ... \eTABLE` mechanism (natural tables)
- the `\start ... \stopxtable` mechanism (extreme tables)

In the next sections we describe the principles of the three table mechanisms.

13.1 Simple tables

For defining the table you use:

\starttable [|$\overset{1}{..}$.|] *[..,..*$\underset{\text{OPT}}{\overset{2}{=}}$*..,..]* **...** **\stoptable**

The definition of a table could look something like this:

```
\placetable
  [here]
  [tab:ships]
  {Ships that moored at Hasselt.}
  {\starttable[|c|c|]
  \HL
  \NC \bf Year \NC \bf Number of ships \NC\SR
  \HL
  \NC 1645     \NC 450                 \NC\FR
  \NC 1671     \NC 480                 \NC\MR
  \NC 1676     \NC 500                 \NC\MR
  \NC 1695     \NC 930                 \NC\LR
  \HL
  \stoptable}
```

This table is typeset as table 13.1.
Although this table mechanism is still available and supported in CONTEXT it is better to use one of the other mechanisms.

Year	Number of ships
1645	450
1671	480
1676	500
1695	930

Table 13.1 Ships that moored at Hasselt.

13.2 Natural tables

The natural table mechanism (\bTABLE ... \eTABLE) is developed for more complex tables and has features of the general interface of CONTEXT.

```
\placetable
  [here,force]
  [tab:votedivision]
  {Division of votes over political parties.}
  {\bTABLE[align=middle,offset=4pt]
   \bTABLEhead
     \bTR[width=6cm] \bTD [nc=5] Elections City Council \eTD      \eTR
   \eTABLEhead
   \bTABLEbody
     \bTR \bTD[nr=2,align={right,lohi}] Party \eTD
          \bTD[nc=3,foregroundstyle=bold] Districts \eTD
          \bTD[nr=2,align={middle,lohi}] Total \eTD                \eTR
     \bTR \bTD 1   \eTD \bTD 2   \eTD \bTD 3   \eTD                \eTR
     \bTR \bTD[align=right] PvdA \eTD
          \bTD 351 \eTD \bTD 433 \eTD \bTD 459 \eTD \bTD 1243 \eTD \eTR
     \bTR \bTD[align=right] CDA  \eTD
          \bTD 346 \eTD \bTD 350 \eTD \bTD 285 \eTD \bTD ~981 \eTD \eTR
     \bTR \bTD[align=right] VVD  \eTD
          \bTD 140 \eTD
          \bTD[offset=2pt,background=color,
               backgroundcolor=red,foregroundcolor=white,
               foregroundstyle=bold,framecolor=blue,
               rulethickness=2pt] 113 \eTD
          \bTD 132 \eTD \bTD ~385 \eTD                            \eTR
     \bTR \bTD[align=right] SGP  \eTD
          \bTD 348 \eTD \bTD 261 \eTD \bTD 158 \eTD \bTD ~767 \eTD \eTR
     \bTR \bTD[align=right] GPV  \eTD
          \bTD 117 \eTD \bTD 192 \eTD \bTD 291 \eTD \bTD ~600 \eTD \eTR
  \eTABLEbody
  \eTABLE}
```

In the last column a ~ is used to simulate a four digit number. The ~ has the width of a digit. The setup of the table is placed between the square brackets [ ]. To keep the data in the table more readable you can set up the table with the \setupTABLE command.

Elections City Council				
Party	Districts			Total
	1	2	3	
PvdA	351	433	459	1243
CDA	346	350	285	981
VVD	140	113	132	385
SGP	348	261	158	767
GPV	117	192	291	600

Table 13.2 Division of votes over political parties.

\bTABLE *[..,..=..,..]* **...** **\eTABLE**
OPT *

```
\setupTABLE[row][align=middle,offset=4pt]
\setupTABLE[1][1][width=6cm]
\setupTABLE[1][2][align={right,lohi}]
\setupTABLE[5][2][align={right,lohi}]
\setupTABLE[2][2][foregroundstyle=bold]
\setupTABLE[1][4,5,6,7,8][align=right]
\setupTABLE[3][6][offset=2pt,background=color,
                  backgroundcolor=red,foregroundcolor=white,
                  foregroundstyle=bold,framecolor=blue,
                  rulethickness=2pt]

\bTABLE
  \bTABLEhead
    \bTR \bTD[nc=5] Elections City Council \eTD                                  \eTR
    \bTR \bTD[nr=2] Party  \eTD  \bTD[nc=3] Districts \eTD \bTD[nr=2] Total \eTD \eTR
    \bTR                         \bTD 1   \eTD \bTD 2 \eTD \bTD 3 \eTD          \eTR
  \eTABLEhead
  \bTABLEbody
    \bTR \bTD PvdA \eTD \bTD 351 \eTD \bTD 433 \eTD \bTD 459 \eTD \bTD 1243 \eTD \eTR
    \bTR \bTD CDA  \eTD \bTD 346 \eTD \bTD 350 \eTD \bTD 285 \eTD \bTD ~981 \eTD \eTR
    \bTR \bTD VVD  \eTD \bTD 140 \eTD \bTD 113 \eTD \bTD 132 \eTD \bTD ~385 \eTD \eTR
    \bTR \bTD SGP  \eTD \bTD 348 \eTD \bTD 261 \eTD \bTD 158 \eTD \bTD ~767 \eTD \eTR
    \bTR \bTD GPV  \eTD \bTD 117 \eTD \bTD 192 \eTD \bTD 291 \eTD \bTD ~600 \eTD \eTR
  \eTABLEbody
\eTABLE
```

The meaning of the CONTEXT commands are indicated in table 13.3.
You can find more information on this table mechanism on the CONTEXT WIKI and examples in the *Natural Tables* manual.

Command	Meaning
\bTABLE ... \eTABLE	begin end table
\bTR ... \eTR	begin end row
\bTD ... \eTD	begin end column
\bTABLEhead ... \eTABLEhead	begin end tablehead
\bTABLEbody ... \eTABLEbody	begin end tablebody
\bTABLEfoot ...\eTABLEfoot	begin end tablefoot
\setupTABLE	table setup

Table 13.3 Commands to define natural tables.

13.3 Extreme tables

For large tables that extend over a number of pages and where you want the table head repeated after each pagebreak CONTEXT has the *extreme table* mechanism.

\startxtable *[..,..=..,..]* **...** **\stopxtable**
OPT

```
\setupxtable[split=yes,header=repeat]
\setupxtable[offset=4pt]

\placetable
  []
  [tab:wealthdecline]
  {Decline of wealth through the ages.}
  {\startxtable
    \startxtablehead[align=middle,foregroundstyle=bold]
      \startxrow
        \startxcell[nx=6]
            Decline of wealth in Dutch florine (Dfl)
        \stopxcell
      \stopxrow
      \startxrow[foregroundstyle=bold]
        \startxcell[width=1.2cm] Year \stopxcell
        \startxcell 1.000--2.000      \stopxcell
        \startxcell 2.000--3.000      \stopxcell
        \startxcell 3.000--5.000      \stopxcell
        \startxcell 5.000--10.000     \stopxcell
        \startxcell   over 10.000     \stopxcell
      \stopxrow
    \stopxtablehead
    \startxtablenext
        \startxrow
          \startxcell[nx=6,align=middle,foregroundstyle=bold]
              Decline of wealth in Dutch florine (Dfl) / Continued
          \stopxcell
        \stopxrow
        \startxrow[foregroundstyle=bold]
```

```
        \startxcell Year          \stopxcell
        \startxcell 1.000--2.000  \stopxcell
        \startxcell 2.000--3.000  \stopxcell
        \startxcell 3.000--5.000  \stopxcell
        \startxcell 5.000--10.000 \stopxcell
        \startxcell   over 10.000 \stopxcell
      \stopxrow
    \stopxtablenext
    \startxtablebody[align=middle]
      \startxrow
        \startxcell 1675 \stopxcell
        \startxcell 22   \stopxcell
        \startxcell ~7   \stopxcell
        \startxcell ~5   \stopxcell
        \startxcell ~4   \stopxcell
        \startxcell ~5   \stopxcell
      \stopxrow
      \startxrow
        \startxcell 1724 \stopxcell
        \startxcell ~4   \stopxcell
        \startxcell ~4   \stopxcell
        \startxcell --   \stopxcell
        \startxcell ~4   \stopxcell
        \startxcell ~3   \stopxcell
      \stopxrow
      \startxrow
        \startxcell 1750 \stopxcell
        \startxcell 12   \stopxcell
        \startxcell ~3   \stopxcell
        \startxcell ~2   \stopxcell
        \startxcell ~2   \stopxcell
        \startxcell --   \stopxcell
      \stopxrow
      \startxrow
        \startxcell 1808 \stopxcell
        \startxcell ~9   \stopxcell
        \startxcell ~2   \stopxcell
        \startxcell --   \stopxcell
        \startxcell --   \stopxcell
        \startxcell --   \stopxcell
      \stopxrow
    \stopxtablebody
  \stopxtable}
```

With the `\setupxtable` it is indicated that the table is allowed to split at a pagebreak and that the head should contain the content of the `\start ... \stopxtablenext`.
The result of this definition is shown in table 13.4.
The meaning of the commands are explained table 13.5.
More information and examples can be found in the *Extreme Tables* manual.

Decline of wealth in Dutch florine (Dfl)					
Year	**1.000–2.000**	**2.000–3.000**	**3.000–5.000**	**5.000–10.000**	**over 10.000**
1675	22	7	5	4	5
1724	4	4	–	4	3
1750	12	3	2	2	–
1808	9	2	–	–	–

Table 13.4 Decline of wealth through the ages.

Command	Meaning
`\startxtable ... \stopxtable`	begin end table
`\startxrow ... \stopxrow`	begin end row
`\startxcell ... \stopxcell`	begin end column
`\startxtablehead ... \stopxtablehead`	begin end tablehead
`\startxtablebody ... \stopxtablebody`	begin end tablebody
`\startxtablefoot ... \stopxtablefoot`	begin end tablefoot
`\setupxtable`	table setup

Table 13.5 Commands to define extreme tables.

13.4 Placing tables

In all examples you see the command `\placetable`. This command has the same function as `placefigure`. It takes care of the vertical spacing and numbering. The float mechanism is invoked and the table will end up on the most optimal location in your document.

```
\placefloat [...] [...,...] [...,...] {...} {...}
            1      2 OPT      3 OPT    4      5
```

You can also set up the layout of tables with:

```
\setupfloats [...,...] [..,..=..,..]
             1 OPT     2
```

You can set up the numbering and the labels with:

```
\setupcaptions [...,...] [..,..=..,..]
               1 OPT     2
```

These commands are typed in the set up area of your input file and have a global effect on all floating blocks.

```
\setupfloats[location=left]
\setupcaptions[style=boldslanted,location={right,middle}]

\placetable[here][tab:opening hours]{Library opening hours.}
  {\bTABLE[offset=4pt]
  \bTR \bTD \bf Day   \eTD \bTD[nx=2,align=middle] \bf Opening hours    \eTD \eTR
  \bTR \bTD Monday    \eTD \bTD 14.00 -- 17.30 \eTD \bTD 18.30 -- 20.30 \eTD \eTR
  \bTR \bTD Tuesday   \eTD \bTD                \eTD \bTD                \eTD \eTR
  \bTR \bTD Wednesday \eTD \bTD 10.00 -- 12.00 \eTD \bTD 14.00 -- 17.30 \eTD \eTR
  \bTR \bTD Thursday  \eTD \bTD 14.00 -- 17.30 \eTD \bTD 18.30 -- 20.30 \eTD \eTR
  \bTR \bTD Friday    \eTD \bTD 14.00 -- 17.30 \eTD \bTD                \eTD \eTR
  \bTR \bTD Saturday  \eTD \bTD 10.00 -- 12.30 \eTD \bTD                \eTD \eTR
  \eTABLE}
```


The result is displayed in table 13.6.

Day	Opening hours	
Monday	14.00 – 17.30	18.30 – 20.30
Tuesday		
Wednesday	10.00 – 12.00	14.00 – 17.30
Thursday	14.00 – 17.30	18.30 – 20.30
Friday	14.00 – 17.30	
Saturday	10.00 – 12.30	

Table 13.6 ***Library opening hours.***

14 Tabulation / Paragraph formatting

Sometimes you want to typeset paragraphs in a specific formatted way. This is done with:

\starttabulate *[|..|] [..,..=..,..]* **... \stoptabulate**
(1: OPT; 2: OPT)

The tabulation mechanism is closely related to the table mechanism. You can use the tabulation mechanism in cases you want to typeset complete paragraphs within a cell. The tabulation mechanism also works fine at a page break.

A tabulate definition could look like this:

```
\starttabulate[|w(1.5cm)B|p(6.0cm)|p|]
\NC 1252
    \NC Hasselt obtains its city charter from bishop Hendrik
        van Vianden.
    \NC Hendrik van Vianden was pressed by other towns not
        to agree with the charter. It took Hasselt a long
        period of time to convince the Bishop. After
        supporting the Bishop in a small war against the
        Drents, the charter was released. \NC\NR
\NC 1350
    \NC Hasselt joins the Hanzepact to protect their
        international trade.
    \NC The Hanzepact was of great importance for merchants
        in Hasselt. In those days trading goods were taxed
        at every city, highway or rivercrossing. After
        joining the Hanzepact duty free routes all over
        Europe became available to Hasselt. However
        important the Hanzepact was, Hasselt always stayed a
        minor member of the pact. \NC\NR
\stoptabulate
```


In this case the first column is 1.5 cm wide and is typeset bold (B). The second column has a width of 6 cm and is typeset like a paragraph. The remaining horizontal space is used up by the last paragraph.
The example is typeset like this:

1252	Hasselt obtains its city charter from bishop Hendrik van Vianden.	Hendrik van Vianden was pressed by other towns not to agree with the charter. It took Hasselt a long period of time to convince the Bishop. After supporting the Bishop in a small war against the Drents, the charter was released.
1350	Hasselt joins the Hanzepact to protect their international trade.	The Hanzepact was of great importance for merchants in Hasselt. In those days trading goods were taxed at every city, highway or rivercrossing. After joining the Hanzepact duty free routes all over Europe became available to Hasselt. However important the Hanzepact was, Hasselt always stayed a minor member of the pact.

The tabulation entries are placed between the `\start ... \stoptabulate` pair. Between the bracket pair your can specify the tabulate format with the column separators | and the format keys (see table 14.1).

Key	Meaning	Key	Meaning
`l`	left align	`I`	*italic*
`c`	center	`R`	*roman*
`r`	right align	`S`	*slanted*
`in`	spacing left	`T`	`teletype`
`jn`	spacing right	`m`	in–line math
`kn`	spacing around	`M`	display math
`w(d)`	1 line, fixed width	`f\command`	font specification
`p(d)`	paragraph, fixed width	`b{..}`	place `..` before the entry
`p`	paragraph, maximum width	`a{..}`	place `..` after the entry
`B`	**boldface**	`h\command`	apply `\command` on the entry

Table 14.1 Formatting keys for tabulate.

In table 14.2 you find an overview of the tabulate structuring commands.

Command		Meaning
`\start ... \stoptabulate`		begin end tabulate
`\NC`	next column	next column
`\NR`	next row	next row
`\HL`	horizontal line	horizontal line
`\TB`	table blank	empty line
`\definetabulate`		define own tabulate
`\setuptabulate`		tabulate setup

Table 14.2 Commands to define tabulate.

Another example of paragraph formatting could look like this.

```
\definetabulate[ChemPar][|l|p|l|]

\startChemPar
\NC Limekilns
    \NC Hasselt has its own limekilns. These were build in 1504
        and produced quick lime up to 1956. Nowadays they are a
        tourist attraction.
    \NC \inlinechemical{CaCO_3,GIVES,CaO,+,CO_2} \NC\NR
\stopChemPar
```

And it would come out like this:

Limekilns	Hasselt has its own limekilns. These were build in 1504 and produced quick lime up to 1956. Nowadays they are a tourist attraction.	$CaCO_3 \longrightarrow CaO + CO_2$

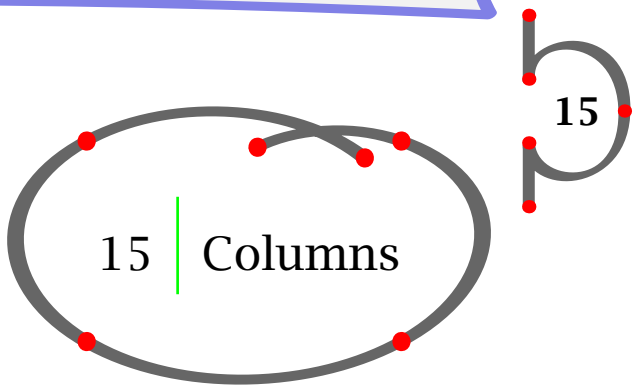
In chapter 9 your can find some more information on chemistry and CONTEXT.

Here we also introduced the command to define our own paragraph layout.

```
\definetabulate [...] [...] [/.../]
                      OPT     OPT
```

and we also have:

```
\setuptabulate [...] [...] [..,..=..,..]
                OPT   OPT
```



Simple sections of text can be typeset in columns. If you preceed a text fragment by `\startcolumns` and close the text fragment by `\stopcolumns` everything in between will be set in columns.

```
\startcolumns [..,..=..,..] ... \stopcolumns
                  OPT
```

Let's give an example:

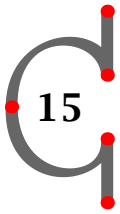
```
\startcolumns[n=3,tolerance=verytolerant]
  Hasselt is an old Hanseatic City, situated 12~km north of Zwolle
  at the river Zwartewater.

  ...

  Furthermore some events of special interest should be
  mentioned. Every year at the end of August Hasselt celebrates
  the \quote{Eui Festival} (hay festival).
\stopcolumns
```

The result will be a three column text.

Hasselt is an old Hanseatic City, situated 12 km north of Zwolle at the river Zwartewater.

The city has a long history since obtaining the city charter around 1252. Part and parcel of this history can be traced back to a large number

of monuments to be admired in the city center.
There you will find the St. Stephanus church, a late gothic church dating back to 1479 with a magnificent organ. The former Municipal Building is situated on The Market Place. Constituted between 1500 and 1550 it houses a large collection of weapons, amongst which one of the largest collection of black powder guns (haakhussen) in the whole world should be mentioned.
Furthermore there is a corn windmill 'The Swallow', dating back to 1748 as well as the 'Stenendijk', a unique embankment and the last shell limekiln in Europe still in full operation.
The city center with the townmoat adorned by lime-trees, the Van Stolkspark and the hustle and bustle at the docks are ideally suited for a stroll.
The area around Hasselt is also worth mentioning. In wintertime polder Mastenbroek harbours large numbers of geese. In summertime the hamlets Genne, Streukel and Cellemuiden form, together with the very rare lapwing flowers (Lat. Fritillaria meleagris) found on the banks of the river Zwatewater, the ideal surroundings for walking or cycling trips.
Hasselt also is a very important center for watersports. The lakes of northwest Overijssel, the river IJssel, the Overijsselse Vecht and the Randmeren are within easy reach from the yacht harbour `De Molenwaard'. Sailing, fishing, swimming and canoeing can be fully enjoyed in Hasselt.
Furthermore some events of special interest should be mentioned. Every year at the end of August Hasselt celebrates the 'Eui Festival' (hay festival).



If possible a new column can be enforced with `\column`. You can set up columns with:

```
\setupcolumns [..,..*=..,..]
```

In most cases you will obtain a better result by type setting the text on 'grid'. This is done by typing `grid=yes` in the command `\setuplayout`.
If you want to use columns within a framed text `\start ... \stopframedtext` there is the simple column mechanism.

```
\startframedtext[background=color,backgroundcolor=gray]
\startsimplecolumns
  In Hasselt's local newspaper there was a column on the
  local customs during New Years Eve.
  ...
  \midaligned{\inlinechemical{CaC_2,+,2H_2O,GIVES,C_2H_2(g),+,Ca(OH)_2}}
  ...
  Nowadays the heavy metal lid of the milk can is replaced by
  a football. This does not reduce the sound but it is much
  saver.
\stopsimplecolumns
```

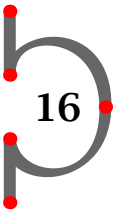
This will result in:

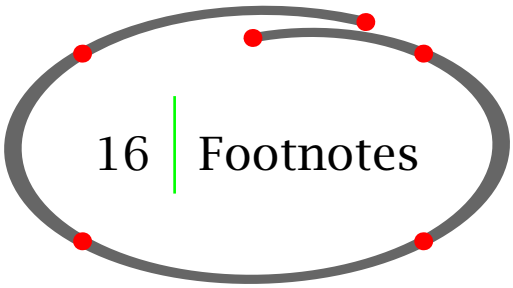
In Hasselt's local newspaper there was a column on the local customs during new years Eve. Next to the more general custom of eating Dutch doughnuts (oliebollen) and lighting fireworks there is the carbide shooting. What you need is an oldfashioned metal milk can, carbide, a little water and a lighter.
The carbide and water is mixed in the closed milk can and will produce C_2H_2 gas (acetylene), via:

$$CaC_2 + 2H_2O \longrightarrow C_2H_2\,(g) + Ca(OH)_2$$

The volatile acetylene gas in the milk can is ignited via a small opening in the can. The result is a very loud detonation and the lid flies off.
It will not surprise you that Hasselts youth has a designated shooting ground for carbide shooting. Nowadays the heavy metal lid of the milk can is replaced by a football. This does not reduce the sound but it is much saver!

There is an advanced column mechanism available that is described in the *Columns* manual.





If you want to annotate your text you can use `\footnote`. The command looks like this:
missing: stp:x:footnote
The bracket pair is optional and contains a logical name. The curly braces contain the text you want to display at the foot of the page.
The same footnote number can be called with its logical name.

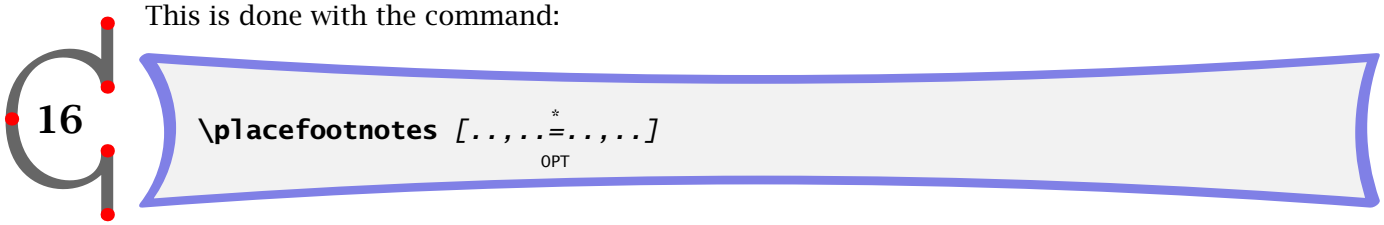
\note *[...]* [...]
OPT 1 2

If you have typed this text:

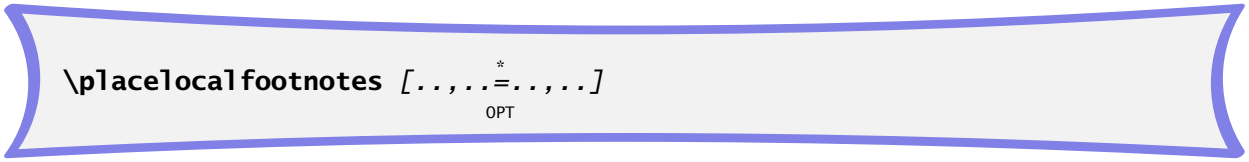
```
The Hanse was a late medieval commercial alliance of towns in the
regions of the North and the Baltic Sea. The association was formed
for the furtherance and protection of the commerce of its
members.\footnote[war]{This was the source of jealousy and fear among
other towns that caused a number of wars.} In the Hanse period there
was a lively trade in all sorts of articles such as wood, wool,
metal, cloth, salt, wine and beer.\note[war] The prosperous trade
caused an enormous growth of welfare in the Hanseatic
```

```
towns.\footnote{Hasselt is one of these towns.}
```

It would look like this:
The Hanse was a late medieval commercial alliance of towns in the regions of the North and the Baltic Sea. The association was formed for the furtherance and protection of the commerce of its members.[4] In the Hanse period there was a lively trade in all sorts of articles such as wood, wool, metal, cloth, salt, wine and beer.[4] The prosperous trade caused an enormous growth of welfare in the Hanseatic towns.[5]
The footnote numbering is done automatically. The command `\setupfootnotes` enables you to influence the display of footnotes:
missing: stp:x:setupfootnotes
Footnotes can be set at the bottom of a page but also at other locations, like the end of a chapter. This is done with the command:



The footnotes will be placed at the end of your document with `\setupfootnotes[location=text]` in combination with `\placefootnotes` at the desired location.
You can also couple footnotes to a table. In that case we speak of local footnotes. The commands are:



An example illustrates the use of local footnotes:

```
\placetable[][productivity]
  {Decline of Hasselt's productivity.\footnote{Source: {\em Uit
   de geschiedenis van Hasselt.}}}
  {\startlocalfootnotes
   \starttable[|l|c|c|c|c|]
   \HL
   \NC
   \NC Ovens
```

[4] This was the source of jealousy and fear among other towns that caused a number of wars.
[5] Hasselt is one of these towns.

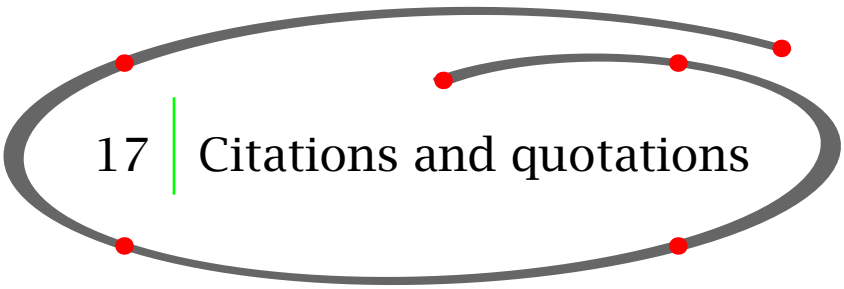
```
\NC Blacksmiths
\NC Breweries
\NC Tile works\footnote{The factories that produced roof tiles.} \NC\SR
\HL
\NC 1682 \NC 15 \NC 9 \NC 3 \NC 2 \NC\FR
\NC 1752 \NC ~6 \NC 4 \NC 0 \NC 0 \NC\LR
\HL
\NC \use5 \JustLeft{\placelocalfootnotes} \NC\FR
\stoptable
\stoplocalfootnotes}
```

This will result in table 16.1 with a local footnote. The footnote in the caption will appear at the bottom of the page.

	Ovens	Blacksmiths	Breweries	Tile works[1]
1682	15	9	3	2
1752	6	4	0	0

[1] The factories that produced roof tiles.

Table 16.1 Decline of Hasselt's productivity.[6]



The consistent use of quote and quotation marks in the running text is invoked by the use of `\quote` or `\quotation`. For longer text fragments you can use:
missing: stp:x:startquotation

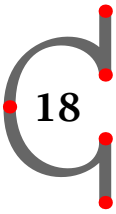
```
In the book \quote{Hasselt, beelden van een middeleeuwse stad} it says:
\startquotation
Het stadhuis wordt voor het eerst vermeld in 1431. Oorspronkelijk
is het een houten huis, dat wordt afgebroken om plaats te maken voor
een nieuw stadhuis van steen. Dit wordt echter halverwege de 16e eeuw
ook afgebroken en vervangen door een nog groter pand. Het nieuwe
stadhuis wordt weer in dezelfde fraaie stijl opgebouwd. De bestuurders
laten daarmee zien dat het is gebouwd in een tijd van grote welvaart.
```

[6] Source: *Uit de geschiedenis van Hasselt.*

```
\stopquotation
```

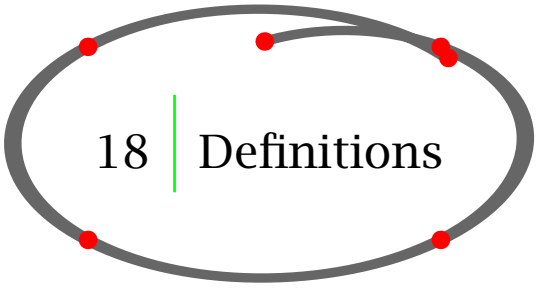
In the example below you can see that quotation is language sensitive:

```
\nl Hij zei tegen me: \quotation{In Hasselt noemen ze dat
    \quote{noaberschop} of zoiets.}

\en He told me: \quotation{In Hasselt they call this
    \quote{noaberschop} or something like that.}

\de Er sagte zu mir: \quotation{In Hasselt nennt man das
    \quote{noaberschop} oder so etwas.}

\fr Il a dit: \quotation{À Hasselt on c'appelle \quote{noaberschop}
    ou quelque chose comme ça.}
```



Note the automatic change of the quotation marks in case of a quote within a quote.
Hij zei tegen me: „In Hasselt noemen ze dat ‚noaberschop' of zoiets."
He told me: "In Hasselt they call this 'noaberschop' or something like that."
Er sagte zu mir: „In Hasselt nennt man das ‚noaberschop' oder so etwas."
Il a dit: « À Hasselt on c'appelle «noaberschop» ou quelque chose comme ça. »
You can alter the default settings with:

\setuplanguage *[..]*[1] [..,..=..,..]
OPT



If you want to display notions, concepts and ideas in a consistent manner you can use:

\definedescription [..]*[..]*[2] *[..,..=..,..]*[3]
OPT OPT

For example:

```
\definedescription
  [concept]
  [alternative=serried,headstyle=bold,width=broad]
```

```
\concept{Hasselter juffer} A sort of biscuit made of puff pastry and
covered with sugar. It tastes very sweet. \par
```

It would look like this:

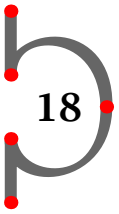
Hasselter juffer A sort of biscuit made of puff pastry and covered with sugar. It tastes very sweet.

But you can also choose other layouts:

Hasselter bitter
A very strong alcoholic drink (up to 40%) mixed with herbs to give it a special taste. It is sold in a stone flask and it should be served ijskoud *(as cold as ice).*

Euifeest *A harvest home to celebrate the end of a period of hard work. The festivities take place in the last week of August.*

If you want to avoid the `\par` or when you have more than one paragraph in the definition you can use the `\start...\stop` construct.




```
\definedescription
  [concept]
  [alternative=right,
   headstyle=bold,
   width=broad]

\startconcept{Euifeest} A harvest home to celebrate the end of a
period of hard work.
This event takes place at the end of August and lasts one week. The
city is completely illuminated and the streets are decorated. This
feast week ends with a {\em Braderie}.
\stopconcept
```

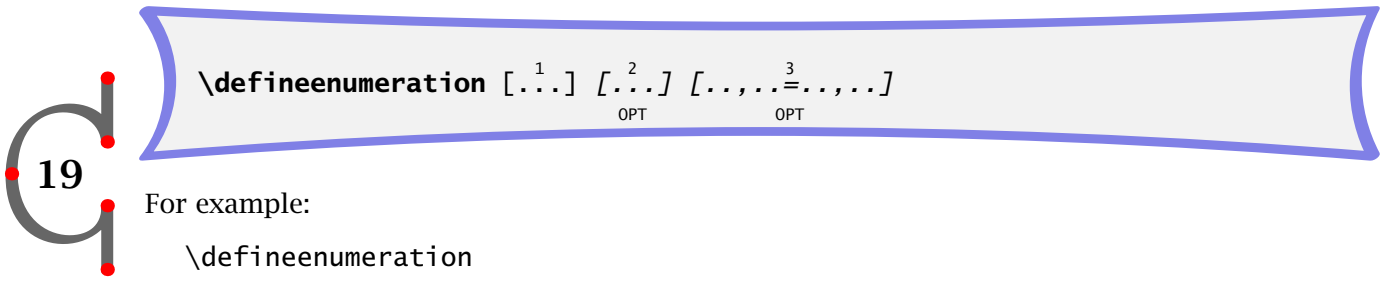
This would become:

Euifeest A harvest home to celebrate the end of a period of hard work. This event takes place at the end of August and lasts one week. The city is completely illuminated and the streets are decorated. This feast week ends with a *Braderie*.

Layout is set up within the second bracket pair of `\definedescription[][]`. But you can also use:
missing: stp:x:setupdescriptions

19 Numbered definitions

With \defineenumeration you can number text elements like remarks or questions. If you want to make numbered remarks in your document you use:



For example:

```
\defineenumeration
  [remark]
  [alternative=top,
   text=Remark,
   inbetween={\blank[none]},
   after=\blank]
```

Now the new commands \remark, \subremark, \resetremark and \nextremark are available and you can type remarks like this:

```
\remark In the early medieval times Hasselt was a place of
pilgrimage. The {\em Heilige Stede} (Holy Place) was torn down during
the Reformation. In 1930, after 300 years, the {\em Heilige Stede} was
reopened.

\subremark Nowadays the {\em Heilige Stede} is closed again but once
a year an open air service is held on the same spot. \par
```

This becomes:

Remark 1
In the early medieval times Hasselt was a place of pilgrimage. The *Heilige Stede* (Holy Place) was torn down during the Reformation. In 1930, after 300 years, the *Heilige Stede* was reopened.

Remark 1.1
Nowadays the *Heilige Stede* is closed again but once a year an open air service is held on the same spot.

You can reset numbering with \resetremark or \resetsubremark or increment a number with \nextremark or \nextsubremark. This is normally done automatically per chapter, section or whatever.
You can set up the layout of \defineenumeration with:

\setupenumerations [...,...] [..,..=..,..]
OPT 1 2

You can also vary the layout of remark and subremark in the example above with:

```
\setupenumeration[remark][headstyle=bold]
\setupenumeration[subremark][headstyle=slanted]
```

If a number becomes obsolete you can type:

```
\remark[-]
```

If the remark contains several paragraphs you should use the command pair \start ... \stopremark that becomes available after defining remark with \defineenumeration[remark].

```
\setupenumeration
   [remark]
   [alternative=hanging,
    width=broad]

\startremark
In the early medieval times Hasselt was a place of pilgrimage. The
{\em Heilige Stede} (Holy Place) was torn down during the
Reformation.

After 300 years in 1930 the {\em Heilige Stede} was reopened.
Nowadays the {\em Heilige Stede} is closed again but once a year an
open air service is held on the same spot.
\stopremark
```

So the example above would look like this:

Remark 2 In the early medieval times Hasselt was a place of pilgrimage. The *Heilige Stede* (Holy Place) was torn down during the Reformation.
After 300 years in 1930 the *Heilige Stede* was reopened. Nowadays the *Heilige Stede* is closed again but once a year an open air service is held on the same spot.

20 | Outlined text

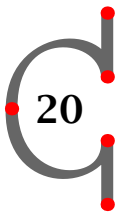
You can outline a text with \framed. The command looks like this:

\framed *[..,..=..,..]* {...}
OPT 1 2

The bracket pair is optional and contains the set up parameters. The curly braces enclose the text. To be honest, the outlined text in the first paragraph was done with \inframed. This command takes care of the interline spacing.
Some other examples of \framed and its set up parameters are shown below.

```
\framed
  [height=fit,
   width=.5\textwidth]
  {Hasselt}
```

Hasselt




```
\framed
  [height=3em,
   width=.5\textwidth]
  {Hasselt now has more space}
```

Hasselt now has more space

```
\framed
  [height=3em,
   width=.5\textwidth,
   foregroundcolor=red,
   framecolor=blue]
  {Hasselt now has some color}
```

Hasselt now has some color

```
\framed
  [height=3em,
   width=.5\textwidth,
   foregroundcolor=red,
   framecolor=blue,
   rulethickness=2pt]
  {Hasselt now has more frame}
```

Hasselt now has more frame

```
\framed
  [height=3em,
   width=.5\textwidth,
   foregroundcolor=red,
   framecolor=blue,
   rulethickness=2pt,
   background=color,
   backgroundcolor=green]
  {Hasselt now has a colorful background}
```

Hasselt now has a colorful background

```
\framed
  [height=3em,
   width=.5\textwidth,
   foregroundcolor=red,
```

Hasselt now has another style

```
    framecolor=blue,
    rulethickness=2pt,
    background=color,
    backgroundcolor=green,
    foregroundstyle=bold]
  {Hasselt now has another style}

\framed
  [height=3em,
   width=.5\textwidth,
   foregroundcolor=red,
   framecolor=blue,
   rulethickness=2pt,
   background=linear shade,
   foregroundstyle=bold]
  {Hasselt now has a little shade}
```

Hasselt now has a little shade

The shady background was defined with:

```
\definecolor[a][black]
\definecolor[b][white]

\startuniqueMPgraphic{LinearShade}
  fill OverlayBox
    withshademethod "linear" withcolor \MPcolor{a} shadedinto \MPcolor{b}
;
\stopuniqueMPgraphic

\defineoverlay
  [linear shade]
  [\uniqueMPgraphic{LinearShade}]
```

The \framed command is very sophisticated and is used in many macros. The command to set up frames is:

\setupframed *[...,...]* [..,..=..,..]
OPT 1 2

21 Outlined paragraphs

Complete paragraphs can be outlined with:
missing: stp:x:startframedtext
Let's give an example:

```
\definefloat[intermezzo]
\setupframedtexts
    [width=.8\makeupwidth,
     background=color,
     backgroundcolor=gray,
     corner=round,
     framecolor=blue,
     rulethickness=2pt]

\placeintermezzo[here][block:bridge]{An intermezzo.}
\startframedtext
  It was essential for Hasselt to have a bridge across the Zwarte
  Water river. The bishop of Utrecht gave Hasselt his consent in
  1486.
  \blank
  Other cities in the neighbourhood of Hasselt were afraid of the
  toll money to be paid when crossing this bridge so they
  prevented the construction for many years.
\stopframedtext
```

This example also illustrates the command `\definefloat`. You can find more information on this command in paragraph 40.5. The `\blank` is necessary to enforce a blank line.

It was essential for Hasselt to have a bridge across the Zwarte Water river. The bishop of Utrecht gave Hasselt his consent in 1486.

Other cities in the neighbourhood of Hasselt were afraid of the toll money to be paid when crossing this bridge so they prevented the construction for many years.

Intermezzo 21.1 An intermezzo.

The outlining can be set up with:

\setupframedtexts [...,...] [..,..=..,..]
OPT 1 2

22 Margin texts

It is very easy to put text in the margin. You just use \inmargin.
missing: stp:x:inmargin
You may remember one of the earlier examples:

```
\inmargin
  {\externalfigure
     [ma-cb-23]
     [width=.6\marginwidth]}
```

This would result in a figure in the margin. You can imagine that it looks quite nice in some documents. But be careful. The margin is rather small so the figure could become very marginal. A few other examples are shown in the text below.

```
The Ridderstraat (Street of knights) \inmargin{Street of\\Knights}
is an obvious name. In the 14th and 15th centuries, nobility and
prominent citizens lived in this street. Some of their big houses
were later turned into poorhouses \inright{poorhouse}and old
peoples homes.

Up until \inleft[low]{\tfc 1940}1940 there was a synagog in the
Ridderstraat. Some 40 Jews gathered there to celebrate their
sabbath. During the war all Jews were deported to Westerbork and
then to the extermination camps in Germany and Poland. None of
the Jewish families returned. The synagog was knocked down in
1958.
```

The commands \inmargin, \inleft and \inright all have the same function. In a two sided document \inmargin puts the margin text in the correct margin. The \\ is used for line breaking. The example above would look like this:

Street of Knights

The Ridderstraat (Street of knights) is an obvious name. In the 14th and 15th centuries, nobility and prominent citizens lived in this street. Some of their big houses were later turned into poorhouses and old peoples homes.

poorhouse

1940 Up until 1940 there was a synagog in the Ridderstraat. Some 40 Jews gathered there to celebrate their sabbath. During the war all Jews were deported to Westerbork and then to the extermination camps in Germany and Poland. None of the Jewish families returned. The synagog was knocked down in 1958.

You can set up the margin text with:
missing: stp:x:setupinmargin
Other commands that you can use for forcing text into the margin are listed in table 22.1.

Command	Meaning
`\ininner`	text in inner margin
`\inouter`	text in outer margin
`\inright`	text in right margin
`\inleft`	text in left margin
`\inmargin`	text in the margin
`\inothermargin`	text in other margin
`\margintext`	text in the margin

Table 22.1 Overview of margin commands.

If you want to place more extensive text blocks in the margin there is the command:
missing: stp:x:marginblock
and the accompanying command:
missing: stp:x:setupmarginblocks

23 Page breaking and page numbering

23.1 Page break

A page can be enforced or blocked by:

```
\page [*,...]
      OPT
```

The options can be stated within the brackets. The options and their meaning are presented in table 23.1.

Option	Meaning
yes	enforce a page
makeup	enforce a page without filling
no	no page
preference	prefer a new page here
bigpreference	great preference for a new page here
left	next page is a left handside page
right	next page is a right handside page
disable	following commands have no effect
last	add pages till even number is reached
quadruple	add pages till a multiple of four is reached
even	next page is even
odd	next page in odd
blank	no page number
empty	insert an empty page
reset	following commands do have effect
start	from now on page commands have effect
stop	from now on page commands have no effect

Table 23.1 Page options.

23.2 Page numbering

Numbering pages is done automatically by CONTEXT. However, numbering the pages the way you want it may take some effort.
A rather simple `\start ... \stoptext` document will be numbered from 1..*n* (where *n* is the last page). If you want your document to number its pages alphabetical you can type:

```
\setupuserpagenumber
    [numberconversion=character]
```

in the setup area of your file.
You can enforce a page number with:

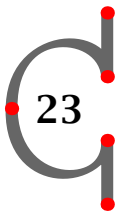
```
\setupuserpagenumber[number=25]
```

\setupuserpagenumber [..,..*=..,..]

The options of the `\setupuserpagenumber` command are given in table 23.2.

Option	Meaning
way	how to number the document
prefix	use pagenumber prefix
prefixset	use defined prefixset
prefixseparatorset	use defined separator
state	start – stop page numbering
number	define page number
numberconversion	convert page number
numberconversionset	used defined conversion set

Table 23.2 Page numbering: numbering options.



The prefixset, prefixseparatorset and the numberconversionset options are defined with the \defineprefixset, \defineseparatorset and \defineconversionset respectively. This manual uses the CONTEXT standard document section blocks: frontpart, bodymatter and appendices. These section blocks are numbered with roman characters, numeral digits and characters respectively.

```
\defineconversionset
  [frontpart:pagenumber][][romannumerals]

\defineconversionset
  [bodypart:pagenumber] [][numbers]

\defineconversionset
  [appendix:pagenumber] [][Characters]
```

At the start of each section block the number is reset to i, 1 and A respectively.
The same effect would have been obntained with:

```
\startsectionblockenvironment[frontpart]
  \setupuserpagenumber[numberconversion=romannumerals]
\stopsectionblockenvironment
```

Page numbering and the location of the page numbers can be set up with:

```
\setuppagenumbering [..,..=..,..]
```

The options of this command are shown in table 23.3:
Note that this is also the command that indicates that your document is single or double sided which has an effect on the left-right page layout.

```
\setuppagenumbering
  [alternative=doublesided]
```

In this manual page numbering is set up with:

Option	Meaning
alternative	page layout: single or double sided
location	location of page number on page
width	width of pagen umber
left	text left of page number
right	text right of page number
page	...
state	start – stop page numbering
command	invoke command
style	set character style
color	set color

Table 23.3 Page numbering: layout options.

```
\setuppagenumbering
  [location={footer,middle},
   command=\NummerCommando]
```

The \NummerCommando uses METAPOST to draw a unique random image around each page number.
You can recal a page number with \userpagenumber. If you set up your headertext with:

```
\setupheadertexts
  [Page \userpagenumber\ of \lastuserpagenumber]
```

You would get a header with the actual page number and the total of pages (in that section block).
The actual page number and the real page number may differ since there may be pages or sections that in your document that are not numbered. If you feel the need to display the real page number there is the command \realpagenumber.
Please refer to the CONTEXT WIKI for more details.

24 Page headers and footers

In some cases you want to give your document a page header and footer. The commands to do this are:

```
\setupfootertexts [1 OPT] [2 OPT] [3 OPT] [4 OPT] [5 OPT]
```

```
\setupheadertexts [1 OPT] [2 OPT] [3 OPT] [4 OPT] [5 OPT]
```

The first bracket pair is used for the location of the footer or header (`text`, `edge` etc). Footer and header are placed within the second and third bracket pairs. In a double sided document a fourth and fifth bracket pair is used for footer and header on the left-hand side page and the right-hand side page. In most cases you can omit these last two bracket pairs.

```
\setupfootertexts[Manual][section]
```

In this case the text *Manual* will appear in the left-hand side corner and the title of the actual section on the right-hand side of the page. This footer will change with the beginning of a new section.

You can set up the layout of the header and footer with:

```
\setupheader [1 OPT] [..,..=2..,..]
```

```
\setupfooter [1 OPT] [..,..=2..,..]
```

If you want to leave out the page header and footer you can type:

```
\noheaderandfooterlines
```

25 Table of contents (lists)

A table of contents contains chapter numbers, chapter titles and page numbers and can be extended with sections, sub sections, etc. A table of contents is generated automatically by typing:

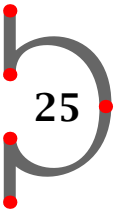
```
\placecontent
```

Which table of contents is produced depends on the location of this command in your document. At the start of the document it will generate a list of chapters, sections etc. But at the top of a chapter:

```
\chapter{Hasselt in Summer}

\placecontent

\section{Hasselt in July}

\section{Hasselt in August}
```

it will only produce a list of (sub) section titles with the corresponding section numbers and page numbers.
The predefined command `\placecontent` is available because it was defined with:

\definecombinedlist [1..] [...,2...] [..,..=3..,..] OPT



This command and `\definelist` allows you to define your own lists necessary for accessing your documents.
The use of this command and its related commands is illustrated for the default available table of contents.

```
\definelist[chapter]
\setuplist
   [chapter]
   [before=\blank,
    after=\blank,
    style=bold]

\definelist[section]
\setuplist
   [section]
   [alternative=d]
```

Now there are two lists of chapters and sections and these will be combined in a table of contents with the command `\definecombinedlist`.

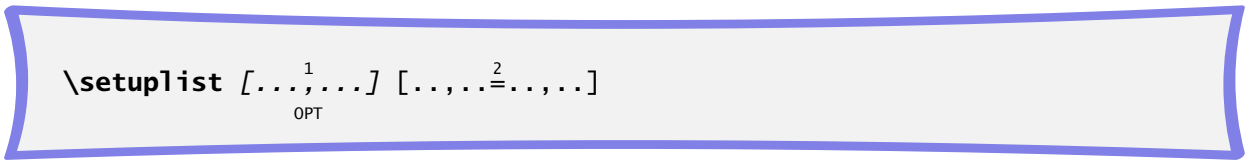
```
\definecombinedlist
   [content]
   [chapter,section]
   [level=subsection]
```

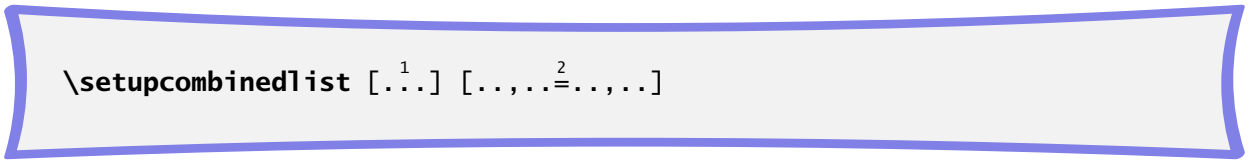
Now two commands are available: `\placecontent` and `\completecontent`. With the second command the title of the table of contents will be added to the table of contents.
The layout of lists can be varied with the parameter `alternative`.

Alternative	Display
a	number – title – page number
b	number – title – spaces – page number
c	number – title – dots – page number
d	number – title – page number (continuing)
e	reserved for interactive purposes
f	reserved for interactive purposes
g	reserved for interactive purposes

Table 25.1 Alternatives for displaying lists.

Lists are set up with:

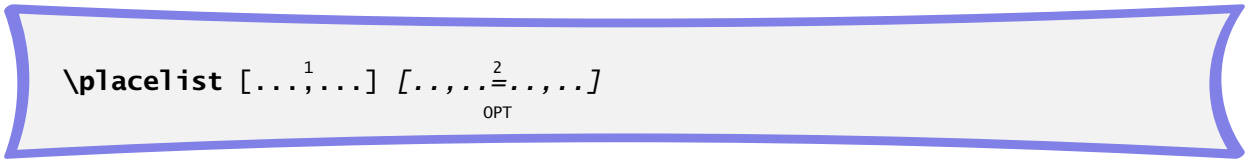




If you want to change the layout of the generated table of contents you'll have to remember that it is a (combined) list and that we can set the partial lists separately.

```
\setuplist
  [section]
  [textstyle=bold,
   pagestyle=bold,
   numberstyle=bold]
```

This will result in a bold page number, section title and section number.
Lists are generated and placed with:



So if you want a list of sections at the beginning of a new chapter, you type:

```
\placelist[section]
```

only the sections will be displayed.
A long list or a long table of contents will use up more than one page. To be able to force page breaking you can type:

```
\placecontent[extras={8.2=page}]
```

A page break will then occur after section 8.2.
In some cases you want to be able to write your own text in an automatically generated list. This is done with:

```
\writetolist [...] [..,..=..,..] {...} {...}
```
(1: ...; 2: OPT; 3: ...; 4: ...)

```
\writebetweenlist [...] [..,..=..,..] {...}
```
(1: ...; 2: OPT; 3: ...)

For example if you want to make a remark in your table of contents after a section titled *Hotels in Hasselt* you can type:

```
\section{Hotels in Hasselt}
\writebetweenlist[section]{\blank}
\writetolist[section][location=here]{}{Section under construction}
\writebetweenlist[section]{\blank}
```


26 Registers

It is possible to generate one or more registers. By default the command `\index` is available. If you want to add a word to the index you type:

```
\index{town hall}
```

The word *town hall* will appear as an index entry in the sorted register. Sometimes the index word does not appear in normal alphabetic order. For example, entries such as symbols have to provide extra sorting information in order to produce a correct alphabetical list:

```
\index[minus]{$-$}
```

Sometimes you have sub- or sub sub entries. These can be defined as follows:

```
\index{town hall+location}
\index{town hall+architecture}
```

You can generate your register with the command:

```
\placeindex
```

or

```
\completeindex
```

The command \index is a predefined CONTEXT command, but of course you can also define your own registers.

```
\defineregister [...] [...] [...=...,...]
                    OPT     OPT
```

For example if you want to make a new register based on the streets in Hasselt you could type:

```
\defineregister[street]
```

Now a new register command \street is available. Now \street{Ridderstraat} is a new index entry. To produce a list of entries you could now use:

```
\placeregister[street]
\placestreet
\completestreet
```


You can alter the layout of the registers with:

```
\setupregister [...] [...,...=...,...]
                OPT
```

27 Synonyms

In many documents people want to use specific words consistently throughout the document. To enforce consistency the command below is available.

```
\definesynonyms [...] [...] [...] [...]
                              OPT   OPT
```

The first bracket pair contains the singular form of the synonym, and the second contains the plural form. The third bracket pair contains a command.

For example the command \abbreviation is defined by:

```
\definesynonyms[abbreviation][abbreviations][\infull]
\setupsynonyms[style=cap]
```

Now the command \abbreviation is available and can be used to state your abbreviations:

```
\abbreviation{ANWB}{Dutch Automobile Association}
\abbreviation{VVV}{Bureau of Tourist Information}
\abbreviation{NS}{Dutch Railways}
```

If you would type:

```
The Dutch \VVV\ (\infull{VVV}) can provide you with the tourist
information on Hasselt.
```

You would obtain something like this:
The Dutch VVV (BUREAU OF TOURIST INFORMATION) can provide you with the tourist information on Hasselt.
The list of synonyms or abbreviations is best defined in the set up area of your input file for maintenance purposes. You can also store this kind of information in an external file, and load the file (e.g. abbrev.tex) with:

```
\input abbrev.tex
```

If you want to put a list of the abbreviations used in your document you can type:

```
\placelistofabbreviations
```

or

```
\completelistofabbreviations
```

A complete and sorted list with used abbreviations and their meaning is produced.
The typesetting of synonymns can be influenced with:

```
\setupsynonyms
```

28

28 Sorted lists

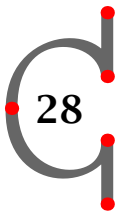
If you want to create a sorted list you can use:

\definesorting [...] [...] *[...]*
[1] [2] [3] OPT

For example:

```
\define[1]\street{#1\Street{#1}}
\definesorting[Street][Streets]
\setupsorting[Street][criterium=all]

When you walk in the \street{Eikenlaan} you will cross the
\street{Vechtlaan} and \street{Gasthuisstraat}. Go left into the
\street{Gasthuisstraat} and take another left on the
\street{Heerengracht}. You walk along the canal to the
\street{Ridderstraat}, there you turn right. Cross the canal and
turn left to the \street{Julianakade}. There you can enjoy the
view over the Zwartewater.

So the streets you visited are:

\placelistofStreets
```

This will become:



When you walk in the Eikenlaan you will cross the Vechtlaan and Gasthuisstraat. Go left into the Gasthuisstraat and take another left on the Heerengracht. You walk along the canal to the Ridderstraat, there you turn right. Cross the canal and turn left to the Julianakade. There you can enjoy the view over the Zwartewater.
So the streets you visited are:
Eikenlaan
Gasthuisstraat
Heerengracht
Julianakade
Ridderstraat
Vechtlaan
Note that the Gasthuisstraat appears only once in the list.
The predefined `\logo` command is used for the consistent use of text logos.
When you define:

```
\logo [HSTEX]    {Hassel\TeX}
```

You can use that logo througout your text.

```
How would you call a \TEX\ based macropackage when you work
in Hasselt? \HSTEX?
```

How would you call a TEX based macropackage when you work in Hasselt? HASSELTEX?

29 Refering to text elements

To disclose your document for your readers you can use the table of contents and the register. However, it is not uncommon to refer to specific text elements like formulas, tables, images and sections to enhance readability.
For refering from one location in a document to another you can use the command:

```
\in {...}[1] {...}[2] [...][3]
      OPT     OPT
```

The curly braces contain text and the brackets contain a logical label. If you have written a chapter header like this:

```
\startchapter[title=Hotels in Hasselt,reference=hotel]
  ...
\stopchapter
```

then you can refer to this chapter with:

```
\in{chapter}[hotel]
```

After processing the chapter number is available and the reference could look something like: *chapter 23*. You can use `\in` for any references to text elements like chapters, sections, figures, tables, formulas etc.
Another example:

```
There are a number of things you can do in Hasselt:

\startitemize[n,packed]
\item swimming
\item sailing
\item[hiking] hiking
\item biking
\stopitemize

An activity like \in{activity}[hiking] described on \at{page}[hiking]
is very tiring.
```

This would look like this:
There are a number of things you can do in Hasselt:

1. swimming
2. sailing

3. hiking
4. biking

An activity like activity 3 described on page 68 is very tiring.
As you can see, it is also possible to refer to pages. This is done with:

```
\at {...} {...} [...]
      OPT     OPT
```

For example with:

```
\at{page}[hiking]
```

This command can be used in combination with:

```
\pagereference [...,...]
```

and

```
\textreference [...,...] {...}
```

If you want to refer to the chapter *Hotels in Hasselt* you could type:

```
Look in \in{chapter}[hotel] on \at{page}[hotel] for a complete
overview of accomodations in \pagereference[accomodation]Hasselt.
```

A chapter number and a page number will be generated when processing the input file. On another spot in the document you can refer to `accomodation` with `\at{page}[accomodation]`. You can also define a set of labels separated by commas.

```
\placefigure
  [here]
  [fig:canals,fig:boats]
  {A characteristic picture of Hasselt.}
  {\externalfigure[ma-cb-08][width=10cm]}

There are many canals in Hasselt (see \in{figure}[fig:canals]).
.
.
.
Boats can be moored in the canals of Hasselt (see
\in{figure}[fig:boats]).
```

This might look like this:

Figure 29.1 A characteristic picture of Hasselt.

There are many canals in Hasselt (see figure 29.1). . . . Boats can be moored in the canals of Hasselt (see figure 29.1).
You can also refer to a title of a chapter or section or even a caption of an image. This is done with:

```
\about [*...]
```

This:

```
The caption of \in{figure}[fig:canals] is {\em \about[fig:canals]}.
```

Becomes:
The caption of figure 29.1 is *"A characteristic picture of Hasselt."*.
With the command:

```
\setupinteraction[state=start]
```

all references become active links. See chapter 32 for more information on this subject.

30 Color

Text, frames or backgrounds can be set in color with:

```
\color [...] {...}
```

Default the basic colors are available. Basic colors are for example red, white and blue. A color like orange can be defined with:

```
\definecolor [...] [..,..=..,..]
```

You can define orange like this:

```
\definecolor [darkorange]    [c=0.0,m=0.60,y=1.00,k=0.0]
\definecolor [middleorange] [.5(darkorange)]
```

It is of good practice to check (combinations of) colors on a larger surface:

```
\blackrule[width=\hsize,height=1cm,color=red,after=]
\blackrule[width=\hsize,height=1cm,color=white,after=]
\blackrule[width=\hsize,height=1cm,color=blue,after=]
\blackrule[width=\hsize,height=1cm,color=darkorange]
```

so you can see if they fit together:

A color can be invoked in a number of ways:

```
\startcolor[red]
On {\darkorange Kingsday} {\blue Hasselt} turns into a
\color[darkorange]{colorfull} city.
\stopcolor
```

On Kingsday Hasselt turns into a colorfull city.

More information on the use of color models, transparency and palets can be found on the CONTEXT WIKI and in the *Color Separation* manual.

31 Alignment

Horizontal and vertical alignment can be set up with:

```
\setupalign [...,...]
```

Single lines can be aligned with:

```
\rightaligned{}
\leftaligned{}
\midaligned{}
```

An example can illustrate the alignment behavior:

```
\leftaligned  {Hasselt was built on a sandhill.}
\midaligned   {Hasselt was built on the crossing of two rivers.}
\rightaligned {Hasselt's name stems from hazelwood.}
```

After processing this would look like:

Hasselt was built on a sandhill.

Hasselt was built on the crossing of two rivers.

Hasselt's name stems from hazelwood.

Alignment of a paragraph is done with:

```
\startalignment [...,...] ... \stopalignment
```

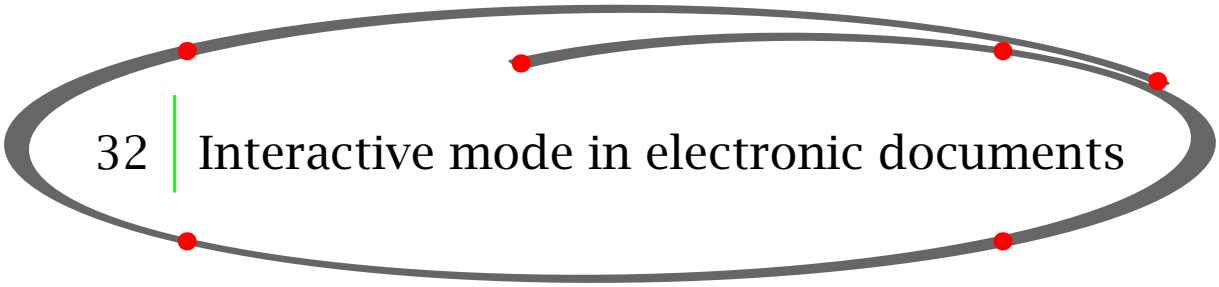
```
\startalignment[flushright,nothyphenated]
  For Hasselt the 15th and 16th century were relatively unstable times.
  There were uprises and disputes with neighbouring cities. To be
  able to defend themselves the city council ordered a number of
  arquebuses (very primitive firearms). Fourteen of these have survived
  and now form one of the greatest arquebus collections in Europe.
\stopalignment
```

This will become a rightaligned paragraph without hyphenations:

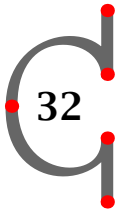
For Hasselt the 15th and 16th century were relatively unstable times. There were uprises and disputes with neighbouring cities. To be able to defend themselves the

city council ordered a number of arquebuses (very primitive firearms). Fourteen of these have survived and now form one of the greatest arquebus collections in Europe.
In case of alignment you can specify a tolerance and the direction (vertical or horizontal). Normally the tolerance is `verystrict`. In colums you could specify `verytolerant`. The tolerance in this manual is:

```
\setuptolerance[horizontal,verystrict]
```



32 Interactive mode in electronic documents



32.1 Introduction

Documents that are electronically available for consulting and displaying on a computer screen are called interactive documents.
Interaction means that you can click on active areas and jump to the indicated locations. For example if you consult a register you can click on a (active) page number and you will jump to the corresponding page.
Interaction relates to:

- active chapter numbers in the table of content
- active page numbers in registers
- active page numbers, chapter numbers and figure numbers in internal references to pages, chapters, figures etc. in the running text
- active titles, page numbers, and chapter numbers in external references to other interactive documents
- active menus as navigation tools
- references to webpages and programs

Interactivity depends on the program you use to view the interactive document. We assume here that you will use ACROBAT READER for viewing.
CONTEXT is a very powerful system for producing electronic or interactive PDF documents. However, only a few standard features are described in this chapter. As the authors of this manual are planning to make all CONTEXT related manuals electronically (sources included) available, reverse engineering is one of the options to become more acquainted with the possibilities of CONTEXT.
Good examples of interactive documents are CONTEXT presentations (see chapter 42). For more complex interactive PDF documents with forms you should read the Widgets manual.

32.2 Interactive mode

The interactive mode is activated by:

```
\setupinteraction [...,...] [..,..=..,..]
                   OPT
```

For example:

```
\setupinteraction
  [state=start,
   color=green,
   style=bold]
```

The hyper links are now generated automatically and the active words are displayed in bold green.
The interactive document is considerably bigger (in MB's) than its paper cousin because hyperlinks consume space. You will also notice that processing time becomes longer. Therefore it is advisable to de-activate the interactive mode as long as your document is under construction.

32.3 Interaction within a document

Earlier you have seen how to make a reference with \in and \at. You may have wondered why you had to type \in{chapter}[chap:introduction]. In the first place *chapter* and its corresponding chapter number will not be separated at line breaking. In the second place the word *chapter* and its number are typeset differently in the interactive mode. This gives the user a larger clickable area.

32.4 Interaction between documents

It is possible to link one document to another. First you have to state that you want to refer to another document. This is done by:

```
\useexternaldocument [...] [...] [...]
                                  OPT
```

The first bracket pair must contain a logical name of the document, the second pair the file name of the other document and the third pair is used for the title of the document.
For refering to these other documents you can use:

```
\from [...]
```

The curly braces contain text and the brackets contain the reference.
Look at the example below.

```
\useexternaldocument
   [hia][hasseltbook][Festivities in Hasselt]

Most tourist attractions are described in \from[hia].\crlf
A description of the \about[hia::euifeest] is found in \from[hia].\crlf
The eui||feest is described on \at{page}[hia::euifeest] in \from[hia].\crlf
See for more information \in{chapter}[hia::euifeest] in \from[hia].
```

The `\useexternaldocument` is usually typed in the set up area of your input file.
After processing your input file and the file `hasseltbook.tex`, you will have two PDF documents.
The references come out like this:
Most tourist attractions are described in **Festivities in Hasselt**.
A description of the “” is found in **Festivities in Hasselt**.
The eui–feest is described on **page** in **Festivities in Hasselt**.
See for more information **chapter** in **Festivities in Hasselt**.
For more information on cross referencing look at CONTEXT Magazine 1103.

32.5 Interaction with the world wide web

In interactive mode there is one other command that has little meaning in the paper version.

\goto {...[1]} [...[2]]

The curly braces contain text, the brackets contain a reference (logical name or a location).

```
In \goto {Hasselt} [ url(http://www.stadindex.nl/plattegrond/hasselt) ]
all streets are build in a circular way.
```

In the interactive document Hasselt will be green and active. When you click the text you will jump to a map of Hasselt.
For a consistent definition of the urls there is the command:

\useURL [...[1]] [...[2]] *[...[3]]* *[...[4]]*
OPT OPT

The adress is defined with:

```
\useURL
  [loc:cityplan]                                % id
  [http://www.stadindex.nl/plattegrond/hasselt] % adress
  []                                            % document
  []                                            % text
```

The webadress is recalled by its logical name: `\goto{Hasselt} [ url(loc:cityplan) ]`.
It is of good practice to define and maintain the urls in a separate file.

32.6 Buttons

The command to define a button is:

```
\button [..,..=..,..] {...} [...]
```

The first bracket pair contains the setup keys, the curly brackets contain the button text and the last bracket pair the destination.

```
\useexternalsoundtrack
  [stranger][wayfaring_stranger.mp3]

\button{Website Hasselt} [ url(http://www.hasselt.nl) ]
\button{MSWord Document} [ program(hasselt.doc) ]
\button{Sound Clip}      [ StartSound{stranger} ]
```

The first example results in a jump to a webpage, the second opens the file `hasselt.doc` in MS WORD and the third plays a tune. Note the use of the `\useexternalsoundtrack` command.

32.7 Menus

You can define a menu with:

```
\startinteractionmenu [...] ... \stopinteractionmenu
```

And set it up with:

```
\setupinteractionmenu [...,...] [..,..=..,..]
```

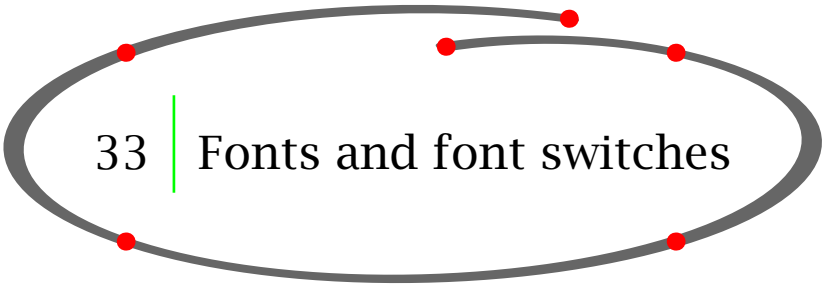
The first bracket pair is used for its name and the second pair for setting up the menu.
A menu can be used in an interactive document. Below you can find a simple example that you can copy to do some experimenting:

```
\setuppapersize
  [S6][S6]

\setuplayout
  [header=0cm,          topspace=.5cm, backspace=2cm,
```

```
   margindistance=.5cm, margin=1cm,    rightmargin=0cm,
   edgedistance=.5cm,   rightedge=2cm, width=fit,
   height=13.8cm,       footer=1cm,    bottom=1cm]

\setupinteraction
  [state=start,         menu=on]

\setupinteractionmenu
  [bottom]
  [background=color,    backgroundcolor=gray, frame=off]

\startinteractionmenu[bottom]
\hfill
\startbut [content]       contents      \stopbut \quad
\startbut [index]         index         \stopbut \quad
\startbut [PreviousJump]  last location \stopbut \quad
\startbut [NextPage]      next page     \stopbut \quad
\startbut [CloseDocument] exit          \stopbut \quad
\stopinteractionmenu

\starttext

\startstandardmakeup
  \midaligned{\tfd Festivities in Hasselt}
\stopstandardmakeup

\completecontent

\startchapter[title=Introduction]
  An introduction.
\stopchapter

\startchapter[title=Kingsday]
  Something about Kingsday in Hasselt.\index{Kingsday}
\stopchapter

\startchapter[title=Hassailt]
  Something about Hassailt.\index{Hassailt}
\stopchapter

\startchapter[title=Euifeest,reference=euifeest]
  Something about the Euifeest.\index{Euifeest}
\stopchapter

\completeindex

\stoptext
```

The definition of the `\startinteractionmenu` will produce a menu at the bottom of every screen. The menu buttons contain the text *contents*, *index*, *last location*, *next page* and *exit* with respectively the following functions: jump to the table of contents, jump to the index, goto the last location in the document, goto next page and close the document. The labels to

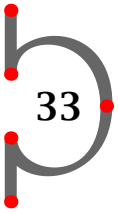
obvious destinations like `content` and `index` are predefined. Other predefined destinations are `FirstPage`, `LastPage`, `NextPage` and `PreviousPage`.
An action like `CloseDocument` is necessary to make an electronic document self containing. Other predefined actions you can use are `PrintDocument`, `SearchDocument` and `PreviousJump`. The meaning of these actions is obvious.



33 Fonts and font switches

33.1 Introduction

The default font in CONTEXT is the *Computer Modern Roman* (`cmr`). In CONTEXT the following fonts are available.



Name	Logical name	Also known as
Computer Modern Roman	cmr	Computer Modern Roman
Termes	termes	Times New Roman
Adventor	adventor	Avant Garde
Bonum	bonum	Bookman
Chorus	chorus	Zapf Chancery
Cursor	cursor	Courier
Heros	heros	Helvetica
Pagella	pagella	Palatino
Schola	schola	Century Schoolbook
Dejavu	dejavu	
Iwona	iwona	
Gentium	gentium	
Cambria	cambria	
Antykwa	antykwa	
Utopia	utopia	
LucidaBright	lucidanova	

Table 33.1 Fonts in CONTEXT.

For further reading we refer to the *Fonts in CONTEXT* manual where you can find information on how to install your own font.

33.2 Fontstyle and size

You can select the font family, style and size for a document with:

```
\setupbodyfont [...,...]
               OPT *
```

If you typed `\setupbodyfont[chorus,9pt]` *in the setup area of the input file your text would look something like this.* For changes in mid-document and on section level you should use:

```
\switchtobodyfont [...,...]
                  *
```

```
On November 10th (one day before Saint Martinsday) the youth of
Hasselt go from door to door to sing a special song and they
accompany themselves on a {\em foekepot}. They won't leave
before you give them some money or sweets. The song goes like this:

\startnarrower
\switchtobodyfont[heros,small]
\startlines
Foekepotterij, foekepotterij,
Geef mij een centje dan ga'k voorbij.
Geef mij een alfje dan blijf ik staan,
'k Zal nog liever naar m'n arrenmoeder gaan.
Hier woont zo'n rieke man, die zo vulle gèven kan.
Gèf wat, old wat, gèf die arme stumpers wat,
'k Eb zo lange met de foekepot elopen.
'k Eb gien geld om brood te kopen.
Foekepotterij, foekepotterij,
Geef mij een centje dan ga'k voorbij.
\stoplines
\stopnarrower
```

Notice that `\start...\stopnarrower` is also used as a begin and end of the fontswitch. The function of `\start...\stoplines` in this example is obvious.

On November 10th (one day before Saint Martinsday) the youth of Hasselt go from door to door to sing a special song and they accompany themselves on a *foekepot*. They won't leave before you give them some money or sweets. The song goes like this:

Foekepotterij, foekepotterij,
Geef mij een centje dan ga'k voorbij.
Geef mij een alfje dan blijf ik staan,
'k Zal nog liever naar m'n arrenmoeder gaan.
Hier woont zo'n rieke man, die zo vulle gèven kan.
Gèf wat, old wat, gèf die arme stumpers wat,

'k Eb zo lange met de foekepot elopen.
'k Eb gien geld om brood te kopen.
Foekepotterij, foekepotterij,
Geef mij een centje dan ga'k voorbij.

If you want an overview of the available font family you can type:

```
\showbodyfont[pagella]
```

[pagella]													\mr : *Ag*
	\tf	\sc	\sl	\it	\bf	\bs	\bi	\tfx	\tfxx	\tfa	\tfb	\tfc	\tfd
\rm	Ag	Ag	*Ag*	*Ag*	**Ag**	***Ag***	***Ag***	Ag	Ag	Ag	Ag	Ag	Ag
\ss	Ag	Ag	*Ag*	*Ag*	**Ag**	***Ag***	***Ag***	Ag	Ag	Ag	Ag	Ag	Ag
\tt	Ag	Ag	*Ag*	*Ag*	**Ag**	***Ag***	***Ag***	Ag	Ag	Ag	Ag	Ag	Ag

33.3 Style and size switch in commands

In a number of commands one of the parameters is `style` to indicate the desired typestyle. For example:

```
\setuphead[chapter][style=\tfd]
```

In this case the character size for chapters is indicated with a command `\tfd`. But instead of a command you could use the predefined options that are related to the actual typeface:

```
normal  bold  slanted  boldslanted  type  mediaeval
small  smallbold  smallslanted  smallboldslanted smalltype
capital cap
```

33.4 Local font style and size

In the running text (local) you can change the *typestyle* into roman, sans serif and teletype with `\rm`, `\ss` and `\tt`.
You can change the *typeface* like italic and boldface with `\sl` and `\bf`.
The *typesize* is changed with `\switchtobodyfont`.
The actual style is indicated with `\tf`. If you want to change into a somewhat greater size you can type `\tfa`, `\tfb`, `\tfc` and `\tfd`. An addition of `a`, `b`, `c` and `d` to `\sl`, `\it` and `\bf` is also allowed.

```
{\tfc Mintage}

In the period from {\tt 1404} till {\tt 1585} Hasselt had its own
{\sl right of coinage}. This right was challenged by other cities,
but the {\switchtobodyfont[7pt] bishops of Utrecht} did not honour
these {\slb protests}.
```

The curly braces indicate begin and end of style or size switches.

Mintage

In the period from 1404 till 1585 Hasselt had its own *right of coinage*. This right was challenged by other cities, but the bishops of Utrecht did not honour these *protests*.

33.5 Redefining fontsize

For special purposes you can define your own size of the bodyfont.

```
\definebodyfont [...,...] [...,...] [...,...] [..,..=..,..]
                  OPT                 OPT
```

A definition could look like this:

```
\definebodyfont[10pt][rm][tfe=Regular at 36pt]
{\tfe Hasselt!}
```

Now \tfe will produce 36pt characters saying: Hasselt!

33.6 Small caps

Abbreviations like PDF () are printed in pseudo small caps. A small capital is somewhat smaller than the capital of the actual typeface. Pseudo small caps are produced with:
missing: stp:x:cap
If you compare \cap{hasselt} and \sc hasselt: HASSELT and HASSELT you can see the difference. The command \sc shows the real small caps. The reason for using pseudo small caps instead of real small caps is just a matter of taste.

33.7 Emphasized

To emphasize words consistently throughout your document you use:

```
\em
```

Empasized words appear in a slanted style.

```
If you walk through Hasselt you should {\bf \em watch out} for
{\em Amsterdammers}. An {\em Amsterdammer} is {\bf \em not} a
person from Amsterdam but a little stone pillar used to separate
sidewalk and road. A pedestrian should be protected by these
{\em Amsterdammers} against cars but more often people get hurt
from tripping over them.
```

This becomes:
If you walk through Hasselt you should ***watch out*** for *Amsterdammers*. An *Amsterdammer* is ***not*** a person from Amsterdam but a little stone pillar used to separate sidewalk and road. A pedestrian should be protected by these *Amsterdammers* against cars but more often people get hurt from tripping over them.

An emphasize within an emphasize is normal *again and a boldface emphasize looks like* ***this or this***.

33.8 Teletype / verbatim

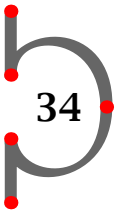
If you want to display typed text and want to keep your line breaking exactly as it is you use:
missing: stp:x:starttyping
In the text you can use:

```
\type [..,..=..,..] {...}
          OPT
```

The curly braces enclose the text you want in teletype. You have to be careful with `\type` because the line breaking mechanism does not work anymore.
You can set up the 'typing' with:

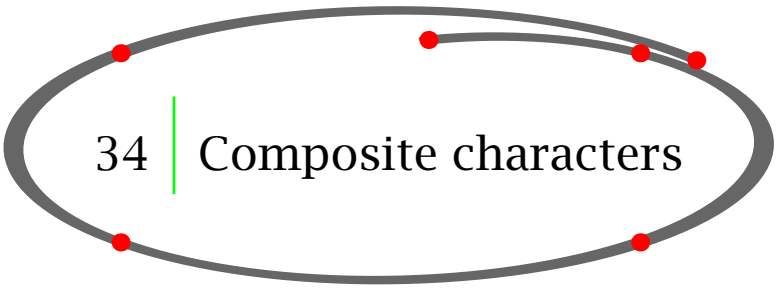
```
\setuptyping [...,...] [..,..=..,..]
                OPT
```

```
\setuptype [...,...] [..,..=..,..]
              OPT
```



33.9 Encodings

In CONTEXT MKIV font ecoding is no issue (anymore).



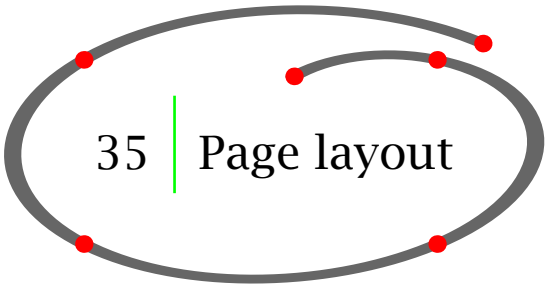
In chapter 3 you have already seen that you have to type more than one token to obtain special characters like # $ % & _ { and }.
Characters with accents for example can be composed or coded with specific CONTEXT commands in order to display them on paper. In case you have a text editor that can display utf8 you can type the composed characters directly.

It is not within the scope of this manual to go into accented characters in math mode. See the TEXBook by Donald E. Knuth on that subject.
Table 34.1 shows a few examples and the way you can code composed characters.

Character	Composed	CONTEXT command	UTF8
ü	\"u	\uacute	ü
é	\'e	\egrave	é
â	\^a	\acircumflex	â
ä	\"a	\aacute	ä
à	\`a	\agrave	à
å	\aa	\aring	å
ç	\c{c}	\ccedilla	ç
ï	\"{\i}	\idiaeresis	ï
î	\^{\i}	\icircumflex	î
Ä	\"A	\Adiaeresis	Ä
Å	\AA	\Aring	Å
É	\'E	\Egrave	É
æ	\ae	\aeligature	æ
Æ	\AE	\AEligature	Æ
ÿ	\"y	\ydiaeresis	ÿ

Table 34.1 Composed characters.

The character you want to display should be in the font.



35.1 Introduction

The *Layouts in CONTEXT* manual by Willy Egger contains the necessary background information on page layout and design. Below you will find only the basic information necessary for defining rather simple layouts for paper and screen documents.
For more information (examples and usage) on the `\setuplayout` command please refer to the CONTEXT WIKI.

35.2 Designing the pagelayout

To be able to design a page layout you have to familiarize yourself with the pagemodel of CONTEXT. Figure 35.1 shows the areas on a page that you can use in your design.

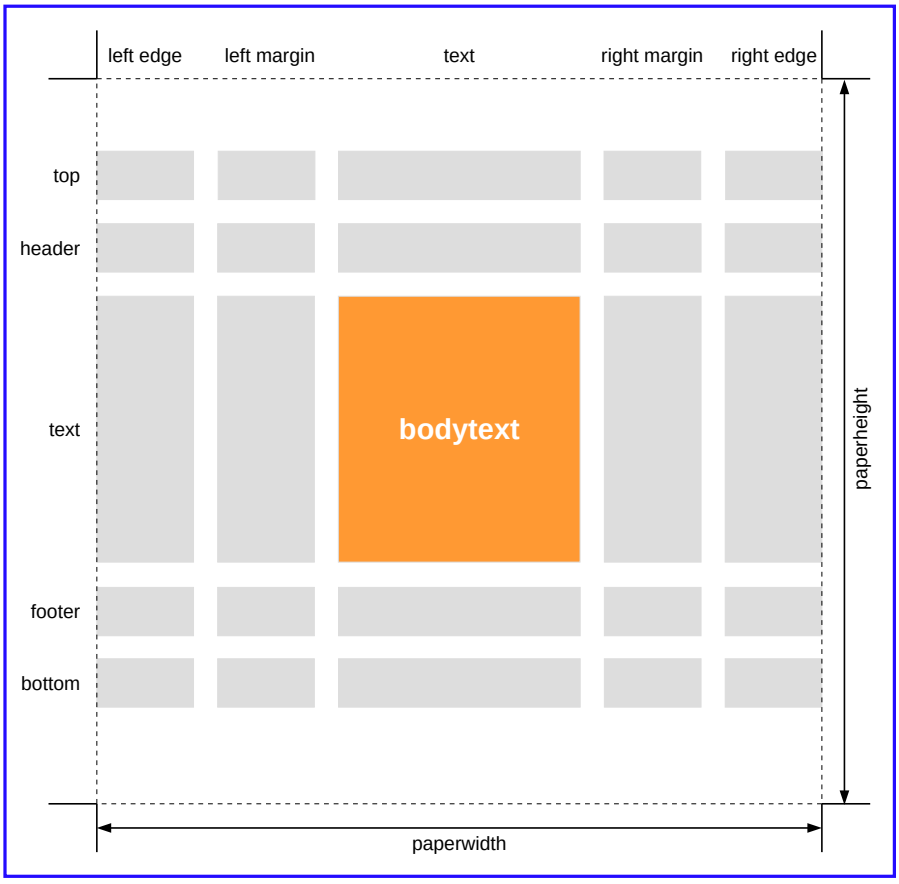
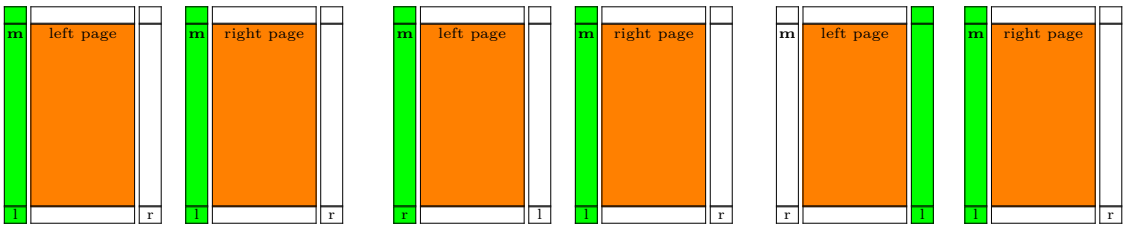


Figure 35.1 The page areas.

The orange bodytext area contains the running text. The top, bottom, and edge area are useful for buttons in screen documents.
Please keep in mind that in CONTEXT you are defining/designing a right-hand page. Only after you have setup `\setuppagenumbering[alternative=doublesided]` the left page is available (mirrored right page).



singlesided single-double doublesided

Figure 35.2 Page alternatives.

Note in figure 35.2 that:

- the margintext (`\inmargin{m}`) is always in the left margin
- the footertext in the margin (`\setupfootertexts[margin][l][r][r][l]`) adapts automatically
- the page is completely mirrored when `alternative=doublesided`

When designing a page ask yourself a few questions:

- do I want margin texts or margin figures
- will I use the margin for the section numbering
- do I have footer and/or header texts
- do I want a double sided layout (right–left page mirrored)
- do I use ornaments (like tabs) on the page
- do I have navigational buttons (screen documents)

35.3 Defining the papersize / screensize

Before you can set up your page layout you have to have an idea about the paper dimensions. The cutmarks connected by the dashed lines in figure 35.1 indicate the papersize. In CONTEXT you set up your papersize with:
missing: stp:x:`\setuppapersize`
Most common predefined papersizes in CONTEXT are A0..A10 and B1..B10 for paper and S3..S8 for screen documents.
Mostly you will use the default setup:

```
\setuppapersize
  [A4][A4]
```

But you can also define your own paper size for specific products:

```
\definelayout
  [postcard]
  [width=15cm,
   height=10cm]
```

35.4 Defining the page layout

The page layout is defined by:

`\setuplayout` *[...]*$_{\text{OPT}}^{1}$ `[..,..=..,..]`^{2}

This command is typed in the set up area of your input file.

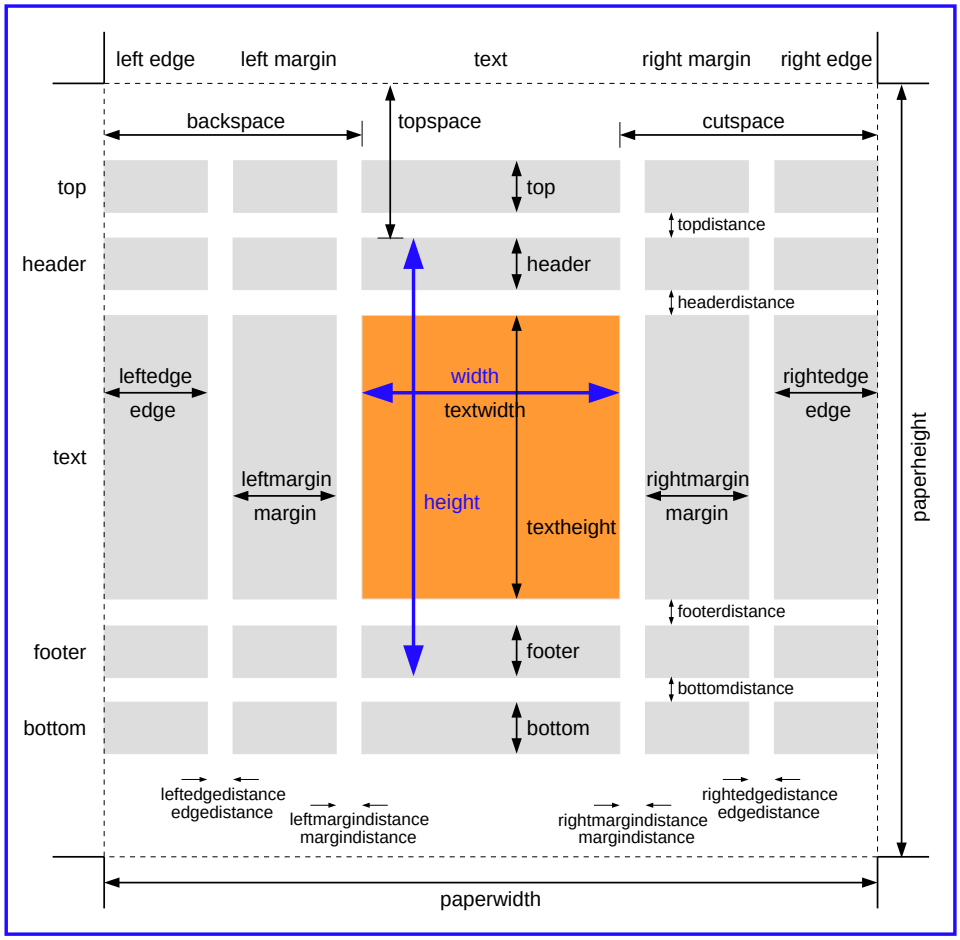


Figure 35.3 The page parameters.

The layout of this manual was set with:

```
\setuplayout
  [backspace=3cm,
   margin=2cm,
   margindistance=.5cm,
   width=15cm,
   topspace=2cm,
   header=2cm,
   footer=2cm,
   height=25.7cm]
```

If you want to look at your page layout you can type the command `\showframe` and process one page or the whole file. The areas are shown in a number of frames.
The command `\showsetups` shows the values of the parameters. A combination of both commands is `\showlayout`.
The values of the layout parameters are available as commands. This enables you to work more accurately when defining measures of columns, figures and tables. A few of these parameters are explained in table 35.1.

Commands	Meaning
\makeupwidth	width of the typing area
\makeupheight	height of the typing area
\textwidth	width of the text area
\textheight	height of the text area

Table 35.1 A few parameters as commands.

If you want to define the width of a column or the height of a figure you can do it relative to the \makeupwidth or \makeupheight. Changes in this width or height will alter columns and figures proportionally.

```
\placefigure
  [here]
  [fig:stepgable]
  {A stepgable.}
  {\externalfigure[ma-cb-19][width=.6\textwidth]}
```

After processing this would become:

Figure 35.4 A stepgable.

The other available values are (shown with \showsetups):

\paperheight	845.0468pt	29.7000cm	\topdistance	0.0000pt	0.0000cm
\paperwidth	597.5079pt	21.0000cm	\headerheight	28.4527pt	1.0000cm
\printpaperheight	845.0468pt	29.7000cm	\headerdistance	14.2264pt	0.5000cm
\printpaperwidth	597.5079pt	21.0000cm	\textheight	660.1040pt	23.2000cm
\topspace	42.6791pt	1.5000cm	\footerdistance	14.2264pt	0.5000cm
\backspace	64.0187pt	2.2500cm	\footerheight	42.6791pt	1.5000cm
\makeupheight	759.6886pt	26.7000cm	\bottomdistance	0.0000pt	0.0000cm
\makeupwidth	462.3573pt	16.2500cm	\bottomheight	0.0000pt	0.0000cm
\topheight	0.0000pt	0.0000cm	\leftedgewidth	0.0000pt	0.0000cm

\leftedgedistance	0.0000pt	0.0000cm	\bodyfontsize	8.0000pt	0.2812cm
\leftmarginwidth	56.9055pt	2.0000cm	\lineheight	11.8720pt	0.4173cm
\leftmarginindistance	14.2264pt	0.5000cm			
\textwidth	213.1787pt	7.4924cm			
\rightmarginindistance	14.2264pt	0.5000cm	\strutheightfactor	.72	
\rightmarginwidth	56.9055pt	2.0000cm	\strutdepthfactor	.28	
\rightedgedistance	0.0000pt	0.0000cm	\topskipfactor	1.0	
\rightedgewidth	0.0000pt	0.0000cm	\maxdepthfactor	0.4	

The parameter values have a global effect and are default throughout the document. Nevertheless you might want to make slight changes in the page design for a number of pages.

```
\adaptlayout[21,38][height=+.5cm]
```

In this case page 21 and 38 have a height of .5 cm + `textheight`.
It is advisable not to use these local changes too often. It is always better to alter the text than to change the page layout.

36 Backgrounds in page areas

The page background can be set, with:

```
\setupbackgrounds [...,...] [...,...] [..,..=..,..]
                    1       2 OPT       3
```

The first two bracket pairs are used to define the page areas. The last bracket pair is used for set up.
If you want to have backgrounds in the gray areas of the page layout of figure 36.1 you type:

```
\setupbackgrounds
  [header,text,footer]
  [leftmargin,text,rightmargin]
  [background=screen]
```

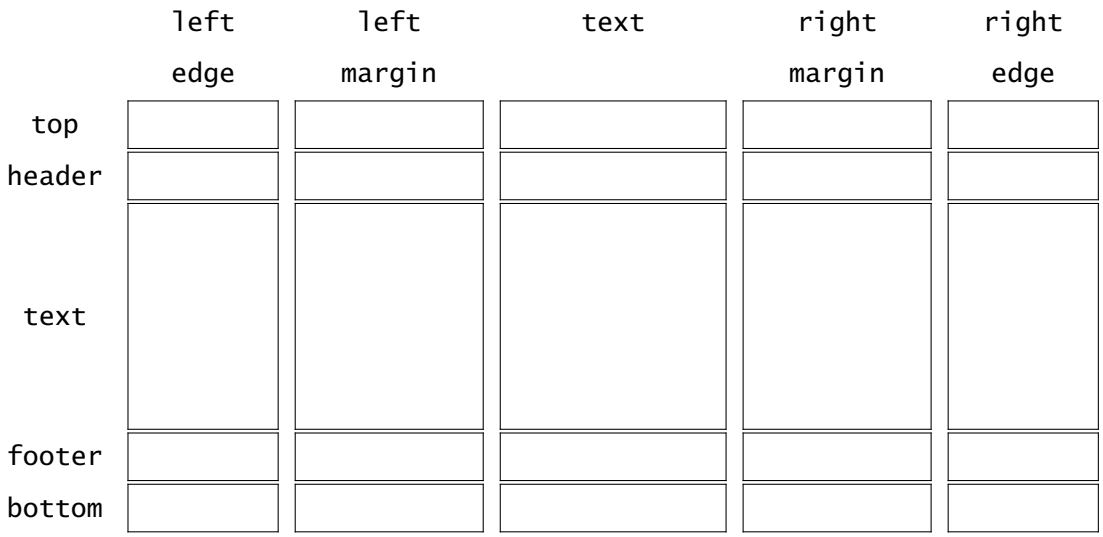


Figure 36.1 The page areas defined in \setupbackgrounds.

37 Background in paragraphs

37

To emphasize a paragraph you can use backgrounds. A background is set with the command pair:

\starttextbackground [$^{1}_{\text{OPT}}$] *[..,..^{2}=..,..]* **...** **\stoptextbackground**

An example can illustrate the use:

```
\setuptextbackground
  [corner=round,frame=on,
   location=paragraph,
   leftoffset=.5\bodyfontsize,
   rightoffset=.5\bodyfontsize,
   bottomoffset=5pt]

\starttextbackground
Hasselt has produced a number of well known people. Only recently
it turned out that Kilian van Rensselaer played a prominent role
in the foundation of the State of New York.
\stoptextbackground
```

This would be displayed as:

Hasselt has produced a number of well known people. Only recently it turned out that Kilian van Rensselaer played a prominent role in the foundation of the State of New York.

Backgrounds can span multiple pages.
You can vary the display of the backgrounds with:

```
\setuptextbackground [...,...] [..,..=..,..]
                      OPT
```

You can even define your own text backgrounds with:

```
\definetextbackground [...] [...] [..,..=..,..]
                       OPT         OPT
```

38 Paragraph spacing

38.1 Introduction

In TEX and CONTEXT the most important unit of text is the paragraph. You can start a new paragraph by:

- an empty line
- the TEX command \par

In your ASCII input file you should use empty lines as paragraph separators. This will lead to a readable, clearly structured and well organized file and will prevent mistakes.
In situations where a command has to be closed explicitly you should use \par.

```
During one of the wars Hasselt lay under siege. After some
time the city was famine stricken, everything edible was
eaten. Except for one cow. The cow was kept alive and
treated very well. \par
Once a day the citizens of Hasselt took the cow for a walk
on the ramparts. The besiegers saw the well fed cow and
became very discouraged. They broke up their camps and
Hasselt was saved. \par
```

```
In the Hoogstraat in Hasselt there is a stone tablet with a
representation of the cow that commemorates the siege and
the shrewdness of the citizens of Hasselt.
```

This could also be typed without \pars and a few empty lines.

```
During one of the wars Hasselt lay under siege. After some
time the city was famine stricken, everything edible was
eaten. Except for one cow. The cow was kept alive and
treated very well.

Once a day the citizens of Hasselt took the cow for a walk
on the ramparts. The besiegers saw the well fed cow and
became very discouraged. They broke up their camps and
Hasselt was saved.

In the Hoogstraat in Hasselt there is a stone tablet with a
representation of the cow that commemorates the siege and
the wisdom of the citizens of Hasselt.
```

38.2 Inter paragraph spacing

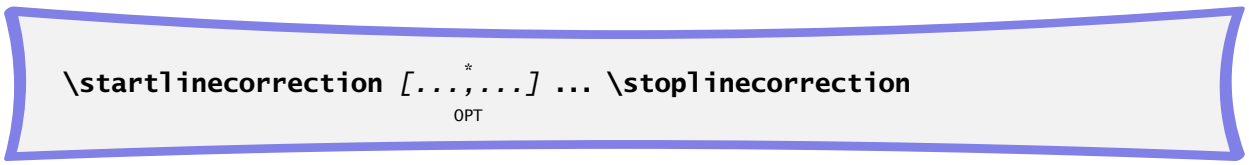
The vertical spacing between paragraphs can be specified by:

This document is produced with \setupwhitespace[medium].
When inter paragraph spacing is specified there are two commands available that are seldom needed:

```
\nowhitespace
\whitespace
```

When a paragraph consists of a horizontal line or a framed text like this:
Ridderstraat 27, 8061GH Hasselt

Sometimes spacing is suboptimal. For that purpose you could carry out a correction with:



So if you would type:

```
\startlinecorrection
\framed{Ridderstraat 27, 8061GH Hasselt}
\stoplinecorrection
```

you will get a better output. Only use these commands if really needed!

Ridderstraat 27, 8061GH Hasselt

Another command to deal with vertical spacing is:

\blank *[...,...]*
OPT *

The bracket pair is optional and within the bracket pair you can type the amount of spacing. Keywords like `small`, `medium` and `big` are related to the fontsize.

```
In official writings Hasselt always has the affix Ov. This is an
abbrevation for the province of {\em Overijssel}.
\blank[2*big]
The funny thing is that there is no other Hasselt in the Netherlands.
So it is redundant.
\blank
The affix is a leftover from the times that the Netherlands and
Belgium were one country under the reign of King Philip II of Spain.
\blank[2*big]
Hasselt in Belgium lies in the province of Limburg. One wonders if
the Belgian people write Hasselt (Li) on their letters.
```

The command `\blank` without the bracket pair is the default space.
The example would become:

In official writings Hasselt always has the affix Ov. This is an abbrevation for the province of *Overijssel*.

The funny thing is that there is no other Hasselt in the Netherlands. So it is redundant.

The affix is a leftover from the times that the Netherlands and Belgium were one country under the reign of King Philip II of Spain.

Hasselt in Belgium lies in the province of Limburg. One wonders if the Belgian people write Hasselt (Li) on their letters.
The default spacing can be set up with:

\setupblank *[...,...]*
OPT *

If you want to surpress vertical spacing you can use:

\startpacked *[...]* **...** **\stoppacked**
OPT

In this manual the whitespace is set at medium. In the next situation this set up is ignored and the lines are packed.

```
\startpacked
Hasselt (Ov) lies in Overijssel.

Hasselt (Li) lies in Limburg.

Watch out: we talk about Limburg in Belgium. There is
also a Dutch Limburg.
\stoppacked
```

This will become:
Hasselt (Ov) lies in Overijssel.
Hasselt (Li) lies in Limburg.
Watch out: we talk about Limburg in Belgium. There is also a Dutch Limburg.
It is not hard to imagine why there is also:

\startunpacked ... \stopunpacked

You can force vertical space with \godown. The distance is specified within the brackets.

\godown [...]

Try not to use this command. It is always better use the \setup... commands to setup your spacing model.

38.3 Whitespace before and after text components

Most text components that are coded with CONTEXT have a \setup... command with which you can define the whitespace before and after that component.

```
\setupitemize
    [before=,after=]

\setuphead
    [chapter]
    [before=,after=]

\setupframedtexts
```

```
[before=,after=]
```

The use of the `\setup...` commands prevents you from having to code whitespaces throughout your TEX document. This would lead to unreadable sources and inconsistent use of whitepaces.

38.4 Skipping space

You can introduce horizontal and vertical space with `\hskip` and `\vskip` commands.
Try to avoid these commands in your text. It will probably lead to inconsistent spacing.

38.5 Indentation

You can set up the amount of the indentation with:

\setupindenting *[...,...]*
OPT *

A reasonable indentation is achieved by:

```
\setupindenting[yes,]
```

This will lead to indented paragraphs. By default, indentation after white space (as issued by `\blank`) is suppressed.
You can locally influence the indentation state by using:
missing: stp:x:indenting
When for instance you say `never`, from that moment on indentation will be surpressed. Saying `none`, only influences the next paragraph.
If you choose to use indentations, and at a certain place you explicitly *do not* want to indent, you can also say:

```
\noindenting
```

In some `\setup...` commands you can set the parameter `indent=yes`. This means that the paragraph that follows the textcomponent will indent:

```
\setupitemize[indentnext=yes]
```

39 Defining commands / macros

CONTEXT is a set of macros based on TEX. TEX is a programming language as well as a typographical system. This means that you can do the programming yourself if you need that kind of flexability.

You can define a new command with:

```
\define [...] \... {...}
        OPT
```

The next example will explain its meaning.
You may have a well illustrated document and you are tired of typing:

```
\placefigure
  [here,force]
  [fig:logical name]
  {Caption.}
  {\externalfigure[filename][width=5cm]}
```

You could define your own command with a few variables like:

- logical name
- caption
- file name

Your command definition and call could look something like this:

```
\define[3]\myputfigure
  {\placefigure
     [here,force][fig:#1]
     {#2}{\externalfigure[#3][width=5cm]}}

\myputfigure{lion}{The Dutch lion is a sentry.}{ma-cb-13}
```


From then on the `\myputfigure` is available. Between brackets `[3]` indicates that you want to use three variables `#1`, `#2` and `#3`. In the command call `\myputfigure` you have to place these variables between curly braces. The result is shown in figure 39.1.

Figure 39.1 The Dutch lion is a sentry.

Very sophisticated commands can be programmed, but this is left to your own inventiveness. In addition to defining commands you can also define `\start...\stop` command pairs.

\definestartstop [...] [...] [..,..=..,..]
(1: OPT, 2: OPT, 3: OPT)

For example:

```
\definestartstop
   [attention]
   [before=\blank\startmarginrule,
    after=\stopmarginrule\blank]

\startattention
{\em Hasselter Juffers} are sweet cookies but the name is no
coincidence. On July 21 in 1233 the {\em Zwartewaterklooster}
(Blackwater Monastery) was founded. The monastery was meant
for unmarried girls and women belonging to the nobility of
Hasselt. These girls and women were called {\em juffers}.
\stopattention
```

This will result in:

Hasselter Juffers are sweet cookies but the name is no coincidence. On July 21 in 1233 the *Zwartewaterklooster* (Blackwater Monastery) was founded. The monastery was meant for unmarried girls and women belonging to the nobility of Hasselt. These girls and women were called *juffers*.

40

40 Miscellaneous

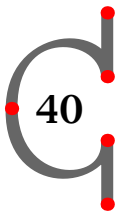
40.1 A titlepage

In the first example of this manual on page 5 we used the command:
missing: stp:x:startnamemakeup
This command can be used to define titlepages. Such a command is needed since title pages often have a different layout than that of the bodytext. With the command pair `\start ... \stopstandardmakeup` you can make up a page within the default page dimensions.
A simple titlepage may look like this:

```
\startstandardmakeup
\blank
\rightaligned{\tfd Hasselt in the 21st century}
\blank
\rightaligned{\tfb The future}
\vfill
\rightaligned{\tfa C. van Marle}
\rightaligned{Hasselt, 2013}
\stopstandardmakeup
```

In a doublesided document you have to go through some additional actions to typeset the back of the titlepage.

```
\startstandardmakeup[doublesided=no]
\blank
\rightaligned{\tfd Hasselt in the 21st century}
\blank
\rightaligned{\tfb The future}
\vfill
\rightaligned{\tfa C. van Marle}
\rightaligned{Hasselt, \currentdate[year]}
\stopstandardmakeup
\startstandardmakeup[page=no]
\vfill
\copyright \currentdate[year]
```




```
This book is dedicated to the people living in Hasselt. We
want to thank photographer J. Jonker for manipulating the
photos in this book in such a way that readers can get a
clear picture of Hasselt's future look.
\stopstandardmakeup
```

Your own make ups can be made and set up with:

\definemakeup [..][1] *[...][2]* *[..,..=..,..][3]*

and

\setupmakeup *[...,...][1]* [..,..=..,..][2]

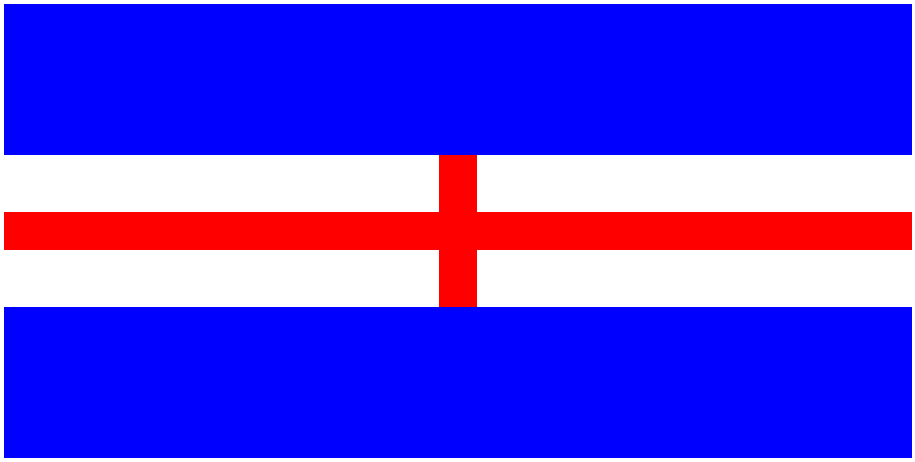
Please refer to the CONTEXT WIKI for more information on the `\start...\stopmakeup` command.

40.2 Overlays

The overlay mechanism gives you the opportunity to add a specific layout to a text component. When there is a background option in a CONTEXT command you can use overlays.
The flag of Hasselt could be defined with framed and a number of overlays:

```
\defineoverlay
    [verticalbar]
    [{\blackrule[height=2cm,width=.5cm,color=red]}]

\defineoverlay
    [horizontalbar]
    [{\blackrule[height=.5cm,width=12cm,color=red]}]

\framed
  [width=12cm,
   height=6cm,
   background={color,foreground,verticalbar,horizontalbar},
   offset=overlay,
   backgroundcolor=blue,
   frame=off]
  {\blackrule[width=12cm,height=2cm,color=white]}
```

This will become:



The pagenumber in this manual has a background with an overlay where the `\MPclipFive` command takes care of drawing the image with METAPOST.

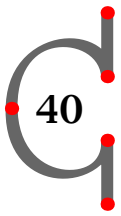
```
\defineoverlay
  [NumberBackground]
  [\MPclipFive{\overlaywidth}{\overlayheight}{30pt}{5pt}]

\setuppagenumbering
  [\location={footer,middle},
   \command=\NummerCommand]

\def\NummerCommand#1%
  {\framed
     [\background=NumberBackground,
```

```
 \frame=off,
 \offset=6pt]
{\lower.5\dp\strutbox\hbox spread 60pt{\hss#1\hss}}}
```

40.3 Setups

While defining the layout of a document you can define setups with `\start...\stopsetups`. Setups are placed in the setup area of input file and mostly used to combine a number of commands.

```
\startsetups colorize
    \blue
\stopsetups

\startsetups decolorize
    \black
\stopsetups

\setupitemize
    [before=\setups{colorize},
     after=\setups{decolorize}]

Some data on the church are:

\startitemize[packed,3*broad]
\sym{997}  mentioned for the first time
\sym{1380} destroyed by fire
\sym{1466} rebuild
\sym{1657} restored after shelling by enemy troops
\sym{1725} struck by lightning
\stopitemize
```



Which would result in:

Some data on the church are:

997 mentioned for the first time
1380 destroyed by fire
1466 rebuild
1657 restored after shelling by enemy troops
1725 struck by lightning

Another way of invoking the setups is by the `setups` option that comes with some CONTEXT commands:

```
\definestartstop[remark]

\setupstartstop[remark]
  [before=\startframed,
   after=\stopframed]

\startsetups important
  \inleftmargin
```

```
    [scope=local,
     hoffset=1em]{\bf\color[blue]{}}
\stopsetups

\setupframed
  [align=normal,
   setups=important,
   frame=on,
   framecolor=blue,
   offset=5pt]

\startremark
  The Stephanus Church was built in 997. After an enormous
  fire in 1380 it was rebuilt and that's why it has Gothic
  features. The rebuilding was finished in 1466.\endgraf
\stopremark
```

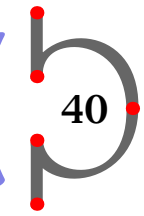
This becomes:

> The Stephanus Church was built in 997. After an enormous fire in 1380 it was rebuilt and that's why it has Gothic features. The rebuilding was finished in 1466.

40.4 Variables

There is a mechanism in CONTEXT that enables you to compact information in a list of variables that you can recall throughout the document.

\setvariables [..[1]..] [..,..[2]=..,..]



The example below shows how to use variables in defining a coverpage.

```
\setvariables
  [cover]
  [set=\setups{coverpage},
   student=no,
   teacher=yes,
   title=From Hasselt to America,
   subtitle=An Odyssey,
   authors=\setup{allauthors},
   edition=2012,
   isbn=0123456789]
```

The moment you need the title on your cover page (or somewhere else in your document) you can summon it by:

```
\getvariable{cover}{title}
```

40.5 Floating blocks

A block in CONTEXT is a text element, for example a table or a figure that you can process in a special way. You have already seen the use of \placefigure and \placetable. These are both examples of floating blocks. The floating mechanism is described in chapter 12 and 13.
You can define these kind of blocks yourself with:

```
\definefloat [...] [...] [...=...,...]
             OPT   1  OPT 2     3
```

The bracket pairs are used for the name in singular and plural form. For example:

```
\definefloat[intermezzo][intermezzi]
```

Now the following commands are available:

```
\placeintermezzo[][]{}{}
\startintermezzotext ... \stopintermezzotext
\placelistofintermezzi
\completelistofintermezzi
```

The newly defined floating block can be set up with:

```
\setupfloat [...,...] [...=...,...]
         OPT  1       2
```


You can set up the layout of floating blocks with:

```
\setupfloats [...,...] [...=...,...]
          OPT  1       2
```

You can set up the numbering and the labels with:

```
\setupcaption [...,...] [...=...,...]
           OPT  1       2
```

These commands are typed in the set up area of your input file and will have a global effect on all floating blocks.

```
\setupfloat[intermezzo][location=middle]
\setupcaption[location=bottom,headstyle=boldslanted]

\placeintermezzo{An intermezzo.}
\startframedtext
```

```
At the beginning of this century there was a tram line from
Zwolle to Blokzijl via Hasselt. Other means of transport became
more important and just before the second world war the tram line
was stopped. Nowadays such a tram line would have been very
profitable.
\stopframedtext
```

At the beginning of this century there was a tram line from Zwolle to Blokzijl via Hasselt. Other means of transport became more important and just before the second world war the tram line was stopped. Nowadays such a tram line would have been very profitable.

Intermezzo 40.1 An intermezzo.

The framed texts inherits its layout from the example page 54.
Tables or figures may take up a lot of space. The placing of these text elements can be postponed till the next page break. This is done with: `\start ... \stoppostponing`:

```
\startpostponing
\placefigure
  {A postponed figure.}
  {\externalfigure[ma-cb-16][width=\textwidth]}
\stoppostponing
```

The figure will be placed at the top of the next page and will cause minimal disruption of the running text.

40.6 Storing text for later use

You can store information temporarily for future use in your document with:

\startbuffer *[...]* **... \stopbuffer**
OPT

For example:

```
\startbuffer[visit]
If you want to see what Hasselt has in store you should come and
visit it some time. If you take this manual with you, you will
recognise some locations.
\stopbuffer

\getbuffer[visit]
```

With `\getbuffer[visit]` you recall the stored text. The logical name is optional. With `\typebuffer[visit]` you get back the typeset version of the content of the buffer.

Figure 40.1 A postponed figure.

Buffers are set up with:

```
\setupbuffer [...,...]  [..,..=..,..]
              OPT   1          2
```

You can also save a buffer to an external file with:

```
\savebuffer [..,..=..,..]
                  *
```

If you want to save the buffer `visit` in an external file called `myfile-sightseeing.tmp` you type:

```
\savebuffer[visit][sightseeing]
```

40.7 Lines

There are many comands to draw lines. For a single line you type:

```
\hairline
```

or:

```
\thinrule
```

For more lines you type:

```
\thinrules [..,..=..,..]
           OPT
```

Text in combination with lines is also possible:

Hasselt – Amsterdam

If you draw a straight line from Hasselt to Amsterdam you would have to cover a distance of almost 145 km.

If you draw two straight lines from Hasselt to Amsterdam you would have to cover a distance of almost 290 km.

Amsterdam

Hasselt

The code of this example is:

```
\starttextrule{Hasselt -- Amsterdam}
If you draw a straight line from Hasselt to Amsterdam you would have
to cover a distance of almost 145 \unit{Kilo Meter}.
\stoptextrule

If you draw two straight lines from Hasselt to Amsterdam you would
have to cover a distance of almost 290 \unit{Kilo Meter}.

Amsterdam \thinrules[n=3] Hasselt
```

You always have to be careful in drawing lines. Empty lines around `\thinrules` must not be forgotten and the vertical spacing is always a point of concern.
You can set up line spacing with:

```
\setupthinrules [..,..=..,..]
```

There are a few complementary commands that might be very useful.

```
\setupfillinrules [..,..=..,..]
```

These commands are introduced in the examples below:

```
\setupfillinrules[width=2cm]
\setupfillinlines[width=3cm]

\fillinrules[n=1]{\bf name}
\fillinrules[n=3]{\bf adress}

\fillinline{Can you please state the \underbar{number} of houses
            in Hasselt.} \par

Strike out \overstrikes{Hasselt in this text}\periods[18]
```

This will become:

name _____

adress _____

_____

_____

Can you please state the number of houses in Hasselt. _____

Strike out ~~Hasselt in this text~~.....

These commands are used in questionaires. Text that is struck out or underlined will not be hyphenated.

In section 40.2 you have already seen the use of the `\blackrule` command that can be set up with:

```
\setupblackrules [..,..=..,..]
```

```
\blank
\blackrule[width=\textwidth,height=1cm,color=blue]
```

This will result in a rather fat line:

40.8 Super- and subscript in text

Hasselt's economy has known its $^{\text{ups}}$ and $_{\text{downs}}$. Since the nineties of the last century its economy is $\begin{smallmatrix}\text{so}\\ \text{so}\end{smallmatrix}$.

This ugly text was made with \low{}, \high{} and \lohi{}{}. The text was placed between the curly braces.

40.9 Date

You can invoke the system date in your text with:

```
\currentdate [...,...]
             *   OPT
```

With \currentdate[day], \currentdate[month] and \currentdate[year] you can invoke day, month and year separately.

40.10 Rotating text

Sometimes you may want to rotate text or images. You can rotate text and other objects with:

```
\rotate [..,..=..,..] {...}
        1   OPT       2
```

The first bracket pair is optional. Within that bracket pair you specify the rotation: rotation=90. The curly braces contain the text or object you want to rotate.

```
Hasselt got its municipal rights in 1252. From that time on it had
the \rotate[rotation=90]{right} to use its own seal on official
documents. This seal showed Holy Stephanus known as one of the first
Christian martyrs, and was the \rotate[rotation=270]{patron} of
Hasselt. After the Reformation the seal was redesigned and Stephanus
lost his \quote{holiness} and was from that time on depicted without
his aureole.
```

This results in a very ugly paragraph:

Hasselt got its municipal rights in 1252. From that time on it had the right to use its own seal on official documents. This seal showed Holy Stephanus known as one of the first Christian martyrs, and was the patron of Hasselt. After the Reformation the seal was redesigned and Stephanus lost his 'holiness' and was from that time on depicted without his aureole.
You can rotate an image just as easily:

```
\placefigure
  [][fig:rotation]
  {The 180 \unit{Degrees} rotated fishing port (de Vispoort).}
  {\rotate[rotation=180]{\externalfigure[ma-cb-15][width=10cm]}}
```

You can see in figure 40.2 that it is not always clear what you get when you rotate.

Figure 40.2 The 180° rotated fishing port (de Vispoort).

We can set up rotating with:

```
\setuprotate [..,..=..,..]
```

In the example above you could also rotate image and caption by:

```
\placefigure
  [180][fig:rotation]
  {The 180 \unit{Degrees} rotated fishing port (de Vispoort).}
  {\externalfigure[ma-cb-15][width=10cm]}
```


40.11 Scaling text

For some obscure reasons you may want to scale text. You can scale text and other objects with:

```
\scale [...] [..,..=..,..] {...}
       OPT          OPT
```

```
After 1810 the Dedemsvaart brought some prosperity to Hasselt. All
ships went through the canals of Hasselt and the \scale[factor=10]{shops}
on both
sides of the canals \scale[factor=10]{prospered}.
```

Which will result in:
After 1810 the Dedemsvaart brought some prosperity to Hasselt. All ships went through the canals of Hasselt and the shops on both sides of the canals prospered.

40.12 Space

The command \space will produce a space. In CONTEXT the ~ (tilde) is a non-breakable space.

```
The Ridderstraat in Hasselt is about 160~m long and 5 to 6~m wide
with houses on both sides of the street.
```

Tildes can also be used to align numbers in a row. The command \fixedspaces will give the tilde the fixed width of a number.

```
\fixedspaces

\bTABLE[frame=off]
\bTR \bTD Ridderstraat  \eTD \bTD 160 m \eTD \eTR
\bTR \bTD Prinsengracht \eTD \bTD 240 m \eTD \eTR
\bTR \bTD Kalverstraat  \eTD \bTD ~60 m \eTD \eTR
\bTR \bTD Meestersteeg  \eTD \bTD ~45 m \eTD \eTR
\eTABLE
```

40.13 Carriage return

A new line can be enforced with:
missing: stp:x:crlf
As a CONTEXT user you should use this command only as a last resort.
When a number of lines should be followed by a *carriage return and line feed* you can use:
missing: stp:x:startlines

```
\startlines
.
.
.
\stoplines

On a wooden panel in the town hall of Hasselt you can read:

\startlines
Heimelijcken haet
eigen baet
jongen raet
Door diese drie wilt verstaen
is het Roomsche Rijck vergaen.
\stoplines

This little rhyme contains a warning for the magistrates of
Hasselt: don't allow personal benefits or feelings to
influence your wisdom in decision making.
```

This will become:
On a wooden panel in the town hall of Hasselt you can read:

Heimelijcken haet

eigen baet
jongen raet
Door diese drie wilt verstaen
is het Roomsche Rijck vergaen.

This little rhyme contains a warning for the magistrates of Hasselt: don't allow personal benefits or feelings to influence your wisdom in decision making.
In a few commands new lines are generated by \\. For example if you type `\inmargin{in the\\margin}` then the text will be divided over two lines.

40.14 Hyphenation

When writing multi-lingual texts you have to be aware of the fact that hyphenation may differ from one language to another.
To activate a language you type:

```
\mainlanguage [*...]
```

Between the brackets you fill in `af`, `ca`, `cs`, `cs`, `da`, `de`, `en`, `fi`, `fr`, `it`, `la`, `nl`, `nb`, `nn`, `pl`, `pt`, `es`, `sv` and `tr` for afrikaans, catalan, czech, slovak, danish, german, english, finnish, french, italian, latin, dutch, bokmal, nnynorsk, polish, portuguese, spanish, swedish and turkish respectively.
To change from one language to another you can use:

```
\language[nl] \language[en] \language[de] \language[fr] \language[sp] ...
```

or the shorthand versions:

```
\nl  \en  \de  \fr  \sp ...
```


An example:

```
If you want to know more about Hasselt, the best book to read is
probably \quote{\nl Uit de geschiedenis van Hasselt} by
F.~Peereboom.
```

If you want to know more about Hasselt, the best book to read is probably 'Uit de geschiedenis van Hasselt' by F. Peereboom.
If a word is wrongly hyphenated you can define the hyphenation points yourself. This is done in the set up area of your input file:

```
\hyphenation{his-to-ry}
```

Note that the language setting is also responsible for the way quotes are placed around quotes and quotations (see section 17).
In some languages (like Dutch) compound words are used that are connected with a hyphen. The separate words have to be hyphenated correctly. In order to do that you can use `||`.

```
If your looking for an English||speaking person in Hasselt you should
go to the Tourist Information Office. There you may expect to find
```

```
full|| and part||time employees who are fluent in German, English,
French and of course Dutch.
```

This will become:
If your looking for an English-speaking person in Hasselt you should go to the Tourist Information Office. There you may expect to find full- and part-time employees who are fluent in German, English, French and of course Dutch.
The double || takes care of the hyphen and the correct hyphenation of the separate words. Also note the suspended compounds.

40.15 Charts

To enable you to draw flow diagrams CONTEXT contains the core module chart. A simple organogram may look like this:

This diagram is defined with the commands below:

```
\setupFLOWcharts
  [width=9\bodyfontsize,
   height=2\bodyfontsize,
   dx=1\bodyfontsize,
   dy=1\bodyfontsize]

\setupFLOWlines
  [arrow=no]

\startFLOWchart[organogram]
  \startFLOWcell
    \shape    {action}
    \name     {01}
    \location {2,1}
    \text     {Zwartewaterland}
    \connect  [bt]{02}
    \connect  [bt]{03}
    \connect  [bt]{04}
  \stopFLOWcell
  \startFLOWcell
    \shape    {action}
    \name     {02}
    \location {1,2}
    \text     {Hasselt}
  \stopFLOWcell
  \startFLOWcell
```

```
    \shape    {action}
    \name     {03}
    \location {2,2}
    \text     {Zwartsluis}
  \stopFLOWcell
  \startFLOWcell
    \shape    {action}
    \name     {04}
    \location {3,2}
    \text     {Genemuiden}
  \stopFLOWcell
\stopFLOWchart
```

It is of good practice to define your setups and flow diagrams in separate definition files (environments).
The flowchart can then be invoked by:

```
\FLOWchart[organogram]
```

40.16 Comment in input file

All text between `\start...\stoptext` will be processed while running CONTEXT. Sometimes however you may have text fragments you don't want to be processed or you want to comment on your CONTEXT commands.
If you preceed your text with the percentage sign % it will not be processed.

```
% In very big documents you can use the command \input for
% different files.
%
% For example:
%
% \input hass01.tex  % chapter 1 on Hasselt
% \input hass02.tex  % chapter 2 on Hasselt
% \input hass03.tex  % chapter 3 on Hasselt
```

When you delete the % before `\input` the three files will be processed. The comment describing the contents of the files will not be processed.

40.17 Notes

If you want your comment in the input file visible as a 'note' in the PDF file you can use:
missing: stp:x:startcomment

```
\startcomment
    The image of the Vispoort should be in color.
\stopcomment
```

The command will produce a sticky note in the PDF.

The note is only visible when interactivity is set with `\setupinteraction` and the comment with `\setupcomment`.

40.18 Hiding text

Text can be hidden with:
missing: stp:x:starthiding
The text between `\start ... \stophiding` will not be processed.

40.19 Input of another `tex` file

In a number of situations you may want to insert other TEX files in your input file. For example, sometimes it is more efficient to specify CONTEXT sources in more than one file in order to be able to partially process your files.
Another file (with the name `another.tex`) can be inserted by:

```
\input another.tex
```

The extension is optional so this will work too:

```
\input another
```

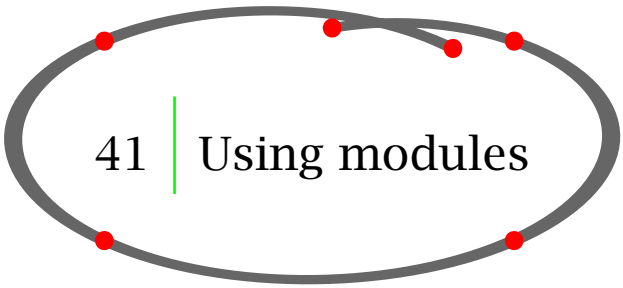
The command `\input` is a TEX command.
For a more systematic approach in maintaining your documents CONTEXT supports a project structure with commands like `\start...\stopenvironment` and `\start...\stopproduct`. Please refer to the magazine *Project structure* for more information.

40.20 XML (eXtended Markup Language)

Normally you code your document with CONTEXT commands so you can tell CONTEXT what to do with the coded text elements.
A more rigid way to code your content is XML (eXtended Markup Language) which enables you to have more control over your content (scripting, xslt, validation). A simple XML coded document could look like this:

```
<?xml version='1.0' standalone='yes?>

<document>
  <section>
    <title>Hasselt in winter</title>
    <content>
      <p>In winter scating is a very popular sport in Hasselt.
         All over Hasselt the frozen canals offer children a great
         play ground.</p>
      <p>...</p>
    </content>
  </section>
</document>
```

CONTEXT is able to deal with XML directly without underlying XML2TEX conversions. Please refer to the manual Dealing with XML for more information on how to process XML documents. CONTEXT also supports MATHML (presentational and content markup) and OPENMATH with which math expressions can be coded in XML documents.



41 Using modules

For reasons of efficiency CONTEXT comes with a number of modules that contain specific functionality. Loading a module is done in the set up area of your input file by means of:

```
\usemodule [...] [...,...] [..,..=..,..]
           OPT             OPT
```

When you load a module CONTEXT looks for a file with the following (prefix-)name:

- m-modulename (core module)
- p-modulename (private module)
- s-modulename (CONTEXT style file)
- x-modulename (XML module)
- t-modulename (third party module)
- modulename

A few example core modules are:

- m-fields (`m-fields.mkiv`): for PDF forms
- m-morse (`m-morse.mkvi`): for morse
- m-spreadsheet (`m-spreadsheet.mkiv`): for spreadsheets
- m-visual (`m-visual.mkiv`): for visual debugging
- m-zint (`m-zint.mkiv`): for generating bar codes
- s-pre-** (`s-pre-**`): for presentations

42 Presentations

You can use CONTEXT for making your own presentations. A CONTEXT presentation is an interactive PDF document with a screen layout. Often presentations are good examples of the cooperation between CONTEXT and METAPOST.
CONTEXT comes with a number ready-to-use presentations. A presentation is a module with the prefix `s-` and that you can load with the `\usemodule` command.
If you want to use an already existing presentation the best way to proceed is:

- goto `../your-contextdir/tex/texmf-context/tex/context/base` in your text editor
- open a presentation: for example `s-pre-05.tex`
- goto the end of the file and study the commands between the `\start...\stoptext` pair
- copy the commands into your own presentation file
- invoke the presentation with `\usemodule[s][pre-05]` in de setup area of your presentation file
- process the file to view the result
- edit the content of your presentation

A stepwise setup of a presentation is given at the CONTEXT WIKI.

43 Graphical extension / METAPOST

43

The graphical possibilities of TEX–related macro packages are rather limited. However, by using the graphical package METAPOST of John Hobby a complete range of graphical features has become available that may improve the look of your documents.
In CONTEXT there is a direct link to METAPOST so users can apply the features of METAPOST directly into their documents. The chapter headers and page numbers of this manual are extended by some graphical elements that are generated by METAPOST.
If you look carefully at these METAPOST extensions you will notice a lot of contextual adaptation (width and height dependend) and randomization. So you can do things in your document that are not possible in other typesetting applications.
A more practical example (for a mathematician at least) is drawn in figure 43.1:

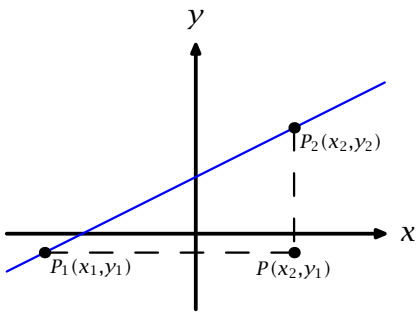
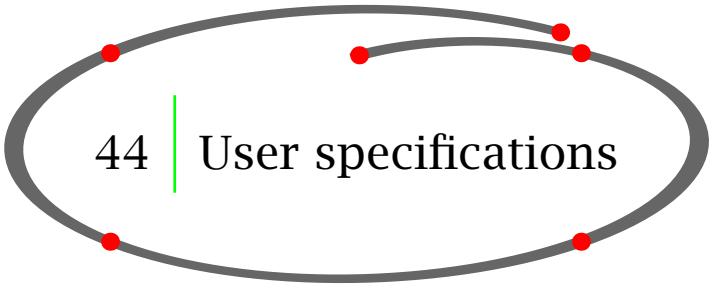


Figure 43.1
METAPOST example.

This example is taken from the mathematical text book *Algetrigulus* by Philip Brown. All graphics in his book are made by means of METAPOST. This one is defined by:

```
\startreusableMPgraphic{origin}
  path pb; pb:=(5.5cm,0cm)..(10.5cm,0cm);
  path qb; qb:=(8cm,-1cm)..(8cm,2.5cm);
  pickup pencircle scaled 0.5mm;
  drawarrow pb;
  drawarrow qb;
  draw thelabel.rt(btex $x$ etex,(10.6cm,0cm));
  draw thelabel.top(btex $y$ etex,(8cm,2.6cm));
  path l; l:=(5.5cm,-0.5cm)..(10.5cm,2cm);
  pickup pencircle scaled 0.3mm;
  draw l withcolor blue ;
  pair A; A:=(6cm,-0.25cm);
  pair B; B:=(9.3cm,1.4cm);
  pair C; C:=(9.3cm,-0.25cm);
  pickup pencircle scaled 0.15cm;
  drawdot A; drawdot B; drawdot C;
  draw thelabel.lrt(btex $\scriptstyle P_1(x_1,y_1)$ etex ,A);
  draw thelabel.lrt(btex $\scriptstyle P_2(x_2,y_2)$ etex ,B);
  draw thelabel.bot(btex $\scriptstyle P(x_2,y_1)$ etex ,C);
  path s; s:=A..(9.3cm,-0.25cm);
  draw s dashed (evenly scaled 1mm) withpen pencircle scaled 0.3mm;
  path t; t:=B..(9.3cm,-0.25cm);
  draw t dashed (evenly scaled 1mm) withpen pencircle scaled 0.3mm;
\stopreusableMPgraphic
```

The usage and features of METAPOST within CONTEXT are described in the extensive METAFUN manual.



44 User specifications

The setup area of your document is the area before the `\starttext` command. For example:

```
                                    first line of your file
\setuplayout[width=25cm]            set the width of your text
                                    empty line for readability
\starttext                          starts your text
Hello Hasselt.                      your text
\stoptext                           ends your text
```

Note that the first line of this file is empty. However, this first line is a preamble and can be used for specific user specifications. For example:

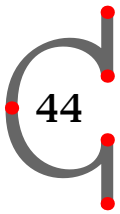
```
% engine=luatex                     use the luatex engine
                                    empty line for readability
\setuplayout[width=25cm]            set the width of your text
                                    empty line for readability
\starttext                          starts your text
Hello Hasselt.                      your text
\stoptext                           ends your text
```

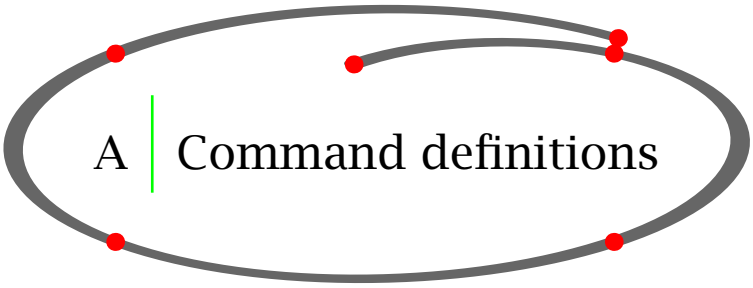
Note that CONTEXT sees the text after the `%` sign in this first line not as a comment. The preamble can have a meaning for both CONTEXT and SCITE:

```
% engine=pdftex interface=en modes=screen language=uk

\starttext
Hello Hasselt.
\stoptext
```

This will be interpreted as:

`engine=pdftex`	CONTEXT	: run as PDFTEX
`interface=en`	CONTEXT	: expect english CONTEXT commands (lexing)
	SCITE	: use english lexing
`modes=screen`	CONTEXT	: invoke mode `screen` that is set in the text
`language=uk`	SCITE	: use the english spell checker


44



A Command definitions

Here we summarize the commands we introduced in the previous chapters. This is just a selection of the whole repertoire of CONTEXT commands. Those who want to see them all can take a look at the more extensive manual or the *Quick Reference Manuals* that give a complete overview of all CONTEXT–commands.

Arguments that are typeset *slanted* are optional and can be omited. The number points to the page where the command is explained. Black arrows indicate that the command is only of use in interactive documents and gray arrows tell us that additional functionality is provided in interactive mode. Keep in mind that we only show the commands we described in this manual, there are many more.

\about [*.*.*.]
* REFERENCE

\at *{...}* *{...}* *[...]*
1 TEXT
2 TEXT
3 REFERENCE

\blank *[...,...]*
* inherits: \vspacing

\bTABLE *[..,..=..,..]* ... **\eTABLE**
* inherits: \setupTABLE

\button *[..,..=..,..]* {...} [...]
1 inherits: \setupbutton
2 TEXT
3 REFERENCE

\color [...] {...}
1 COLOR
2 CONTENT

\currentdate *[...,...]*
* year month day weekday y yy Y m mm M d dd D w W space \ month:mnem m:mnem d:ord day:ord dd:ord D:ord TEXT referral day:+ day:++ d:+ d:++ dd:+ dd:++ D:+ D:++ month:jalali m:jalali jalali:to jalali:from

\define *[...]* \... {...}
1 NUMBER
2 CSNAME
3 CONTENT

\definebodyfont *[...,...]* [...,...] *[...,...]* [..,..=..,..]
1 NAME default
2 NAME DIMENSION
3 rm ss tt hw cg
4 tf = FILE
bf = FILE
it = FILE
sl = FILE
bi = FILE
bs = FILE
sc = FILE
mr = FILE
mrlr = FILE
mrrl = FILE
mb = FILE
mblr = FILE
mbrl = FILE

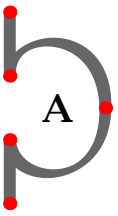
\definecolor [1] [..,..=2..,..]
1 NAME
2 r = NUMBER
g = NUMBER
b = NUMBER
c = NUMBER
m = NUMBER
y = NUMBER
k = NUMBER
h = NUMBER
s = NUMBER
v = NUMBER
x = NUMBER
a = NUMBER none normal multiply screen overlay softlight hardlight colordodge colorburn darken lighten difference exclusion hue saturation color luminosity
t = NUMBER

\definecombinedlist [1] [...,2...] [..,..=3..,..] OPT
1 NAME
2 LIST
3 inherits: \setuplist

\definedescription [1] [2] OPT [..,..=3..,..] OPT
1 NAME
2 NAME
3 inherits: \setupdescription

\defineenumeration [1] [2] OPT [..,..=3..,..] OPT
1 NAME
2 NAME
3 inherits: \setupenumeration

\definefloat [1] [2] OPT [..,..=3..,..] OPT
1 SINGULAR
2 SINGULAR PLURAL
3 inherits: \setupfloat
instances: chemical figure table intermezzo graphic



\definehead [...] *[...]* *[..,..=..,..]*
OPT OPT
1 NAME
2 SECTION
3 inherits: \setuphead

\definemakeup [...] *[...]* *[..,..=..,..]*
OPT OPT
1 NAME
2 NAME
3 inherits: \setupmakeup

\defineregister [...] *[...]* *[..,..=..,..]*
OPT OPT
1 NAME
2 NAME
3 inherits: \setupregister

\definesorting [...] [...] *[...]*
OPT
1 SINGULAR
2 PLURAL
3 none CSNAME

\definestartstop [...] *[...]* *[..,..=..,..]*
OPT OPT
1 NAME
2 NAME
3 inherits: \setupstartstop

A

\definesynonyms [...] [...] *[...]* *[...]*
OPT OPT
1 SINGULAR
2 PLURAL
3 CSNAME
4 CSNAME

\definetabulate [...] *[...]* *[|...|]*
OPT OPT
1 NAME
2 NAME
3 TEMPLATE

\definetextbackground [1] [2] [..,..=3..,..]
1 NAME
2 NAME OPT
3 inherits: \setuptextbackground OPT

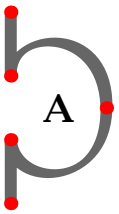
\externalfigure [1] [2] [..,..=3..,..]
1 FILE
2 NAME OPT
3 inherits: \setupexternalfigure OPT

\framed [..,..=1..,..] {2}
1 inherits: \setupframed OPT
2 CONTENT

\from [*]
* REFERENCE

\godown [*]
* DIMENSION

\goto {1} [2]
1 CONTENT
2 REFERENCE



\hairline

\in {1} {2} [3]
1 TEXT OPT
2 TEXT OPT
3 REFERENCE

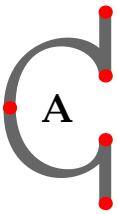
\mainlanguage [*...]
* LANGUAGE

\note [1...] [2...]
1 NAME OPT
2 REFERENCE

\page [*...,...]
* inherits: OPT \pagebreak

\pagereference [*...,...]
* REFERENCE

\placefloat [1...] [2...,...] [3...,...] {4...} {5...}
1 SINGULAR OPT OPT
2 split always left right inner outer backspace cutspace inleft inright inmargin leftmargin rightmargin leftedge rightedge innermargin outermargin inneredge outeredge text opposite reset height depth [-+]line halfline grid high low fit 90 180 270 nonumber none local here force margin [-+]hang hanging tall both middle offset top bottom auto page leftpage rightpage somewhere effective header footer
3 REFERENCE
4 TEXT
5 CONTENT



\placefootnotes [..,..*=..,..]
* inherits: \setupnote OPT

\placeformula [*...,...]
* + - REFERENCE OPT

\placelist [...,...] [..,..=..,..]
1 LIST
2 inherits: \setuplist

\placelocalfootnotes [..,..=..,..]
* inherits: \setupnote

\registerunit [...] [..,..=..,..]
1 prefix unit operator suffixe symbol packaged
2 KEY = VALUE

\rotate [..,..=..,..] {...}
1 inherits: \setuprotate
2 CONTENT

\savebuffer [..,..=..,..]
* list = NAME
file = FILE
prefix = yes no

\scale [...] [..,..=..,..] {...}
1 NAME
2 inherits: \setupscale
3 CONTENT

\setupalign [...,...]
* broad wide bottom height line high low lohi flushright flushleft middle yes no width normal reset inner outer flushinner flushouter left right center disable last end paragraph lefttoright righttoleft l2r r2l table lesshyphenation morehyphenation hanging nothanging hz fullhz nohz hyphenated nothyphenated tolerant verytolerant stretch extremestretch final 2*final 3*final 4*final

\setupbackgrounds [...,[1]...] [...,...][2] [..,..=[3]..,..]
1 top header text footer bottom
2 leftedge leftmargin text rightmargin rightedge
3 inherits: \setupframed

\setupblackrules [..,..=[*]..,..]
* width = max DIMENSION
height = max DIMENSION
depth = max DIMENSION
distance = DIMENSION
n = NUMBER
alternative = a b
style = STYLE COMMAND
color = COLOR
type = mp yes no
mp = NAME

\setupblank [...,[*]...]
* inherits: \vspacing

\setupbodyfont [...,[*]...]
* DIMENSION NAME global reset x xx small big script scriptscript rm ss tt hw cg roman serif regular sans sansserif support type teletype mono handwritten calligraphic

\setupbuffer [...,[1]...] [..,..=[2]..,..]
1 BUFFER
2 before = COMMAND
after = COMMAND

\setupcaption [...,[1]...] [..,..=[2]..,..]
1 NAME
2 inherits: \setupfloatcaption

\setupcaptions [...,[1]...] [..,..=[2]..,..]
1 NAME
2 inherits: \setupfloatcaption

\setupcolumns [..,..*=..,..]

```
*  n         = NUMBER
   distance  = DIMENSION
   option    = background
   offset    = DIMENSION
   command   = \...##1
   height    = DIMENSION
   direction = left right
   balance   = yes no
   align     = setupalign
   tolerance = setuptolerance
   blank     = inherits: \blank
   ntop      = NUMBER
   rule      = on off COMMAND
```

\setupcombinedlist [..1..] [..,..2=..,..]

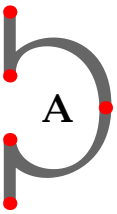
```
1  LIST
2  inherits: \setuplist
```

\setupenumerations [...,...1,...] [..,..2=..,..]

```
1  NAME                    OPT
2  inherits: \setupenumeration
```

\setupfillinrules [..,..*=..,..]

```
*  before          = COMMAND
   after           = COMMAND
   n               = NUMBER
   interlinespace  = small medium big NUMBER
   distance        = DIMENSION
   width           = fit broad DIMENSION
   separator       = COMMAND
   style           = STYLE COMMAND
   color           = COLOR
```



\setupfloat [...,...][1] [..,..=..,..][2]

1 SINGULAR OPT

2

indentnext	=	yes no auto
default	=	inherits: \placefloat
fallback	=	inherits: \placefloat
inner	=	COMMAND
criterium	=	DIMENSION
method	=	NUMBER
sidemethod	=	NUMBER
textmethod	=	NUMBER
sidealign	=	height depth line halfline grid normal
grid	=	CD:STRING
local	=	yes no
command	=	\...##1
availablewidth	=	DIMENSION
availableheight	=	DIMENSION
minwidth	=	DIMENSION
maxwidth	=	DIMENSION
location	=	left right middle flushleft flushright center max inner outer innermargin outermargin inneredge outeredge backspace cutspace leftmargin rightmargin leftedge rightedge
leftmargindistance	=	DIMENSION
rightmargindistance	=	DIMENSION
leftmargin	=	DIMENSION
rightmargin	=	DIMENSION
innermargin	=	DIMENSION
outermargin	=	DIMENSION
bottombefore	=	COMMAND
bottomafter	=	COMMAND
expansion	=	yes no xml
referenceprefix	=	+ - TEXT
xmlsetup	=	NAME
catcodes	=	NAME
freeregion	=	yes no
spacebefore	=	none inherits: \blank
spaceafter	=	none inherits: \blank
width	=	DIMENSION
height	=	DIMENSION
offset	=	DIMENSION none overlay
sidespacebefore	=	none inherits: \blank
sidespaceafter	=	none inherits: \blank
margin	=	DIMENSION
ntop	=	DIMENSION
nbottom	=	DIMENSION
step	=	small medium big line depth
nlines	=	NUMBER
cache	=	yes no

A

\setupfloats [...,...][1] [..,..=..,..][2]

1 SINGULAR OPT

2 inherits: \setupfloat

\setupfooter [...][1] [..,..=..,..][2]

1 text margin edge OPT

2 inherits: \setuplayoutelement

\setupfootertexts [...]^1 [...]^2 [...]^3 [...]^4 [...]^5
OPT OPT OPT OPT OPT

1 text margin edge
2 date pagenumber MARK TEXT COMMAND
3 date pagenumber MARK TEXT COMMAND
4 date pagenumber MARK TEXT COMMAND
5 date pagenumber MARK TEXT COMMAND

\setupframed [...,...]^1 [..,..=..,..]^2
OPT

1 NAME
2 corner = rectangular round NUMBER
framecorner = rectangular round NUMBER
backgroundcorner = rectangular round NUMBER
radius = DIMENSION
frameradius = DIMENSION
backgroundradius = DIMENSION
depth = DIMENSION
framedepth = DIMENSION
backgrounddepth = DIMENSION
framecolor = COLOR
topframe = on off NAME
bottomframe = on off NAME
leftframe = on off NAME
rightframe = on off NAME
region = yes no
rulethickness = DIMENSION
frameoffset = DIMENSION
frame = on off overlay none
background = foreground color NAME
backgroundoffset = frame DIMENSION
component = NAME
extras = COMMAND
foregroundstyle = STYLE COMMAND
foregroundcolor = COLOR
setups = NAME
offset = default overlay none DIMENSION
width = local fit max broad fixed DIMENSION
height = fit max broad DIMENSION
align = inherits: \setupalign
strut = yes no none local global
autostrut = yes no
location = height depth high low top middle bottom line lohi hanging keep formula mathematics normal
autowidth = yes no force
lines = NUMBER
top = COMMAND
bottom = COMMAND
blank = yes no
profile = NAME
empty = yes no
loffset = DIMENSION
roffset = DIMENSION
toffset = DIMENSION
boffset = DIMENSION
orientation = NUMBER

\setupframedtexts [...,...]^1 [..,..=..,..]^2
OPT

1 NAME
2 inherits: \setupframedtext

\setuphead [...,...][1] [..,..=..,..][2]

OPT

1	SECTION		
2	frontpartlabel	=	NAME
	bodypartlabel	=	NAME
	appendixlabel	=	NAME
	backpartlabel	=	NAME
	expansion	=	yes no xml
	catcodes	=	NAME
	sectionresetset	=	NAME
	sectionseparatorset	=	NAME
	sectionconversionset	=	NAME
	conversion	=	NAME
	sectionstarter	=	COMMAND PROCESSOR->COMMAND
	sectionstopper	=	COMMAND PROCESSOR->COMMAND
	sectionset	=	NAME
	sectionsegments	=	NUMBER NUMBER:NUMBER NUMBER:* NUMBER:all SECTION SECTION:SECTION SECTION:* SECTION:all
	referenceprefix	=	+ - TEXT
	style	=	STYLE COMMAND
	color	=	COLOR
	textstyle	=	STYLE COMMAND
	textcolor	=	COLOR
	numberstyle	=	STYLE COMMAND
	numbercolor	=	COLOR
	coupling	=	SECTION
	ownnumber	=	yes no
	beforesection	=	COMMAND
	aftersection	=	COMMAND
	insidesection	=	COMMAND
	incrementnumber	=	yes no list empty
	placehead	=	yes no hidden empty
	number	=	yes no
	page	=	inherits: \page
	marking	=	page reset
	header	=	start stop high none normal empty nomarking NAME
	text	=	start stop high none normal empty nomarking NAME
	footer	=	start stop high none normal empty nomarking NAME
	before	=	COMMAND
	after	=	COMMAND
	inbetween	=	COMMAND
	continue	=	yes no
	aligntitle	=	yes no float
	interlinespace	=	NAME
	interaction	=	list reference
	internalgrid	=	NAME
	grid	=	normal standard yes strict tolerant top bottom both broad fit first last high one low none line strut box min max middle NAME
	align	=	inherits: \setupalign
	tolerance	=	inherits: \setuptolerance
	strut	=	yes no
	hang	=	line broad fit none NUMBER
	margin	=	DIMENSION
	indentnext	=	yes no auto
	alternative	=	text paragraph normal margin inmargin top middle bottom reverse margintext NAME
	width	=	DIMENSION
	numberwidth	=	DIMENSION
	textwidth	=	DIMENSION
	distance	=	DIMENSION
	textdistance	=	DIMENSION
	commandbefore	=	COMMAND
	commandafter	=	COMMAND
	command	=	\...##1##2
	textcommand	=	\...##1
	deeptextcommand	=	\...##1
	numbercommand	=	\...##1
	deepnumbercommand	=	\...##1
	location	=	NAME

\setupheader [...][1] [..,..=..,..][2]
1 text margin edge OPT
2 inherits: \setuplayoutelement

\setupheadertexts [...][1] [...][2] [...][3] [...][4] [...][5]
1 text margin edge OPT OPT OPT OPT OPT
2 date pagenumber MARK TEXT COMMAND
3 date pagenumber MARK TEXT COMMAND
4 date pagenumber MARK TEXT COMMAND
5 date pagenumber MARK TEXT COMMAND

\setupheads [...,...][1] [..,..=..,..][2]
1 SECTION OPT
2 inherits: \setuphead

\setupindenting [...,...][*]
* [-+]small [-+]medium [-+]big none no not first next yes always never odd even normal reset toggle DIMENSION NAME OPT

\setupinteraction [...,...][1] [..,..=..,..][2]
1 NAME OPT
2 state = start stop
style = STYLE COMMAND
color = COLOR
contrastcolor = COLOR
title = TEXT
subtitle = COLOR
author = TEXT
date = TEXT
keyword = TEXT
focus = standard frame width minwidth height minheight fit tight
menu = on off
fieldlayer = auto NAME
calculate = REFERENCE
click = yes no
display = normal new
page = yes no page name auto
openaction = REFERENCE
closeaction = REFERENCE
openpageaction = REFERENCE
closepageaction = REFERENCE
symbolset = NAME
height = DIMENSION
depth = DIMENSION
focusoffset = DIMENSION

\setupinteractionmenu [...,...][1] [..,..=..,..][2]

1 NAME OPT

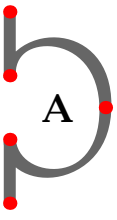
2
```
alternative    = vertical horizontal hidden
category       = NAME
leftoffset     = overlay frame none default DIMENSION
rightoffset    = overlay frame none default DIMENSION
topoffset      = overlay frame none default DIMENSION
bottomoffset   = overlay frame none default DIMENSION
maxwidth       = DIMENSION
maxheight      = DIMENSION
itemalign      = left middle right flushleft flushright low high lohi
state          = start empty local
left           = COMMAND
right          = COMMAND
distance       = overlay DIMENSION
before         = COMMAND
after          = COMMAND
inbetween      = COMMAND
position       = yes no
middle         = COMMAND
style          = STYLE COMMAND
color          = COLOR
samepage       = yes no empty none normal default
contrastcolor  = COLOR
inherits: \setupframed
```

\setuplanguage [...][1] [..,..=..,..][2]

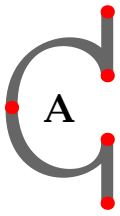
1 LANGUAGE default OPT

2
```
default             = LANGUAGE
state               = start stop
date                = inherits: \currentdate
patterns            = FILE
lefthyphenmin       = NUMBER
righthyphenmin      = NUMBER
lefthyphenchar      = NUMBER
righthyphenchar     = NUMBER
setups              = NAME
spacing             = broad packed
font                = auto
text                = TEXT
limittext           = TEXT
hyphen              = TEXT
compoundhyphen      = TEXT
leftcompoundhyphen  = TEXT
rightcompoundhyphen = TEXT
leftquote           = COMMAND
rightquote          = COMMAND
leftquotation       = COMMAND
rightquotation      = COMMAND
leftspeech          = COMMAND
rightspeech         = COMMAND
leftsentence        = COMMAND
middlespeech        = COMMAND
rightsentence       = COMMAND
midsentence         = COMMAND
leftsubsentence     = COMMAND
rightsubsentence    = COMMAND
factor              = yes no
```

```
\setuplayout [...] [..,..=..,..]
1  NAME                OPT
2  state               = start stop normal repeat
   margin              = DIMENSION
   edge                = DIMENSION
   margindistance      = DIMENSION
   edgedistance        = DIMENSION
   leftedgedistance    = DIMENSION
   rightedgedistance   = DIMENSION
   leftmargindistance  = DIMENSION
   rightmargindistance = DIMENSION
   topdistance         = DIMENSION
   headerdistance      = DIMENSION
   footerdistance      = DIMENSION
   bottomdistance      = DIMENSION
   preset              = NAME
   leftmargin          = DIMENSION
   rightmargin         = DIMENSION
   leftedge            = DIMENSION
   rightedge           = DIMENSION
   header              = DIMENSION
   footer              = DIMENSION
   top                 = DIMENSION
   bottom              = DIMENSION
   backspace           = DIMENSION
   topspace            = DIMENSION
   setups              = NAME
   cutspace            = DIMENSION
   width               = DIMENSION middle fit
   bottomspace         = DIMENSION
   lines               = NUMBER
   height              = DIMENSION middle fit
   horoffset           = DIMENSION
   veroffset           = DIMENSION
   columns             = NUMBER
   columndistance      = DIMENSION
   method              = default normal NAME
   location            = left middle right top bottom singlesided doublesided
   textwidth           = DIMENSION
   textheight          = DIMENSION
   nx                  = NUMBER
   ny                  = NUMBER
   dx                  = DIMENSION
   dy                  = DIMENSION
   scale               = NUMBER
   sx                  = NUMBER
   sy                  = NUMBER
   marking             = on off page empty color one two four
   grid                = yes no off
   textdistance        = DIMENSION
   alternative         = default normal makeup NAME
   clipoffset          = DIMENSION
   cropoffset          = DIMENSION
   trimoffset          = DIMENSION
   bleedoffset         = DIMENSION
   artoffset           = DIMENSION
```



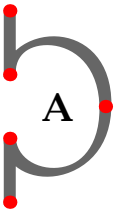
```
\setuplist [...,...]  [..,..=..,..]
1  LIST                OPT
2  state                    = start stop
   location                 = none here
   type                     = simple command userdata
   criterium                = local intro reference SECTIONBLOCK:reference all SECTIONBLOCK:all text SECTIONBLOCK:text
                              current SECTIONBLOCK:current here previous SECTIONBLOCK:previous component SECTION
                              SECTIONBLOCK:SECTION
   list                     = NAME
   width                    = fit broad auto DIMENSION
   height                   = fit broad DIMENSION
   depth                    = fit broad DIMENSION
   symbol                   = one two three none default
   label                    = yes no none NAME
   starter                  = COMMAND
   stopper                  = COMMAND
   command                  = \...##1##2##3
   numbercommand            = \...##1
   textcommand              = \...##1
   pagecommand              = \...##1
   pagenumber               = yes no always
   headnumber               = yes no always
   before                   = COMMAND
   after                    = COMMAND
   inbetween                = COMMAND
   margin                   = none DIMENSION
   distance                 = none DIMENSION
   aligntitle               = yes no
   numberalign              = left right middle flushleft flushright inner outer
   align                    = inherits: \setupalign
   hang                     = yes no
   left                     = COMMAND
   right                    = COMMAND
   interaction              = yes no all number text title page sectionnumber pagenumber
   limittext                = yes no TEXT
   style                    = STYLE COMMAND
   color                    = COLOR
   numberstyle              = STYLE COMMAND
   numbercolor              = COLOR
   textstyle                = STYLE COMMAND
   textcolor                = COLOR
   pagestyle                = STYLE COMMAND
   pagecolor                = COLOR
   reference                = NUMBER
   extras                   = NAME
   order                    = command all title
   alternative              = a b c d e f g left right top bottom command none interactive paragraph horizontal
                              vertical NAME
   maxwidth                 = DIMENSION
   pageprefix               = yes no
   pageprefixseparatorset   = NAME
   pageprefixconversionset  = NAME
   pageprefixset            = NAME
   pageprefixsegments       = NUMBER NUMBER:NUMBER NUMBER:* NUMBER:all SECTION SECTION:SECTION SECTION:* SECTION:all
   pageprefixconnector      = COMMAND PROCESSOR->COMMAND
   pageconversionset        = NAME
   pagestarter              = COMMAND PROCESSOR->COMMAND
   pagestopper              = COMMAND PROCESSOR->COMMAND
   inherits: \setupcounterinherits: \setupframed
```



```
\setupmakeup [...,...]  [..,..=..,..]
1  NAME                  OPT
2  page          =  inherits: \page
   command       =  COMMAND
   width         =  DIMENSION
   height        =  DIMENSION
   align         =  inherits: \setupalign
   setups        =  NAME
   top           =  COMMAND
   bottom        =  COMMAND
   before        =  COMMAND
   after         =  COMMAND
   location      =  top
   reference     =  REFERENCE
   pagestate     =  start stop
   headerstate   =  start stop high empty none normal
   footerstate   =  start stop high empty none normal
   topstate      =  start stop high empty none normal
   bottomstate   =  start stop high empty none normal
   textstate     =  start stop high empty none normal
   doublesided   =  yes no empty
   style         =  inherits: \value-style
   color         =  COLOR
```

```
\setuppagenumbering [..,..=..,..]
*  alternative   =  singlesided doublesided
   page          =  inherits: \page
   strut         =  yes no
   command       =  \...##1
   left          =  COMMAND
   right         =  COMMAND
   state         =  start stop
   width         =  DIMENSION
   location      =  header footer left middle right inleft inright margin inmargin atmargin marginedge
   style         =  STYLE COMMAND
   color         =  COLOR
```

```
\setupparagraphs [...]  [...,...]  [..,..=..,..]
1  NAME                  OPT        OPT
2  each NUMBER
3  n             =  NUMBER
   before        =  COMMAND
   after         =  COMMAND
   width         =  DIMENSION
   distance      =  DIMENSION
   height        =  DIMENSION fit
   top           =  COMMAND
   bottom        =  COMMAND
   align         =  inherits: \setupalign
   inner         =  COMMAND
   command       =  COMMAND
   rule          =  on off
   rulethickness =  DIMENSION
   rulecolor     =  COLOR
   style         =  STYLE COMMAND
   color         =  COLOR
```



\setupregister [..,..=..,..] [..,..=..,..]

1 NAME NAME:NUMBER OPT

2
- referencemethod = forward
- expansion = yes no xml
- ownnumber = yes no
- xmlsetup = NAME
- alternative = a b A B
- method = default before after first last ch mm zm pm mc zc pc uc
- compress = yes no all
- criterium = local text current previous all SECTION
- pageprefixseparatorset = COMMAND
- pageprefixconversionset = NAME
- pageprefixstarter = COMMAND PROCESSOR->COMMAND
- pageprefixstopper = COMMAND PROCESSOR->COMMAND
- pageprefixset = NAME
- pageprefixsegments = NUMBER NUMBER:NUMBER NUMBER:* NUMBER:all SECTION SECTION:SECTION SECTION:* SECTION:all
- pageprefixconnector = COMMAND
- pageprefix = yes no
- pageseparatorset = NAME
- pageconversionset = NAME
- pagestarter = COMMAND PROCESSOR->COMMAND
- pagestopper = COMMAND PROCESSOR->COMMAND
- pagesegments = NUMBER NUMBER:NUMBER NUMBER:* NUMBER:all
- maxwidth = DIMENSION
- indicator = yes no
- before = COMMAND
- after = COMMAND
- command = \...##1
- textcommand = \...##1
- deeptextcommand = \...##1
- pagecommand = \...##1
- distance = DIMENSION
- interaction = text pagenumber
- pagenumber = yes no
- symbol = a n none 1 2 COMMAND
- language = default DIN5007-1 DIN5007-2 Duden de-DE de-CH de-AT ru-iso9 ocs-scn LANGUAGE
- style = STYLE COMMAND
- color = COLOR
- textstyle = STYLE COMMAND
- textcolor = COLOR
- pagestyle = STYLE COMMAND
- pagecolor = COLOR
- n = NUMBER
- balance = yes no
- align = inherits: \setupalign
- numberorder = numbers

A

\setuprotate [..,..=..,..]

*
- location = fit broad depth high middle default normal
- rotation = left right inner outer NUMBER

inherits: \setupframed

\setupsectionblock [...,...] [..,..=..,..]

1 NAME OPT

2
- page = inherits: \page
- before = COMMAND
- after = COMMAND
- number = yes no

\setuptabulate [...][1] [...][2] [..,..=..,..][3]
OPT OPT
1 NAME
2 NAME
3 inherits: \setuptabulation

\setuptextbackground [...,...][1] [..,..=..,..][2]
OPT
1 NAME
2 state = start stop
location = text paragraph none
alternative = NUMBER
mp = NAME
method = NAME
background = color
backgroundcolor = COLOR
corner = rectangular round
level = NUMBER
backgroundoffset = DIMENSION
before = COMMAND
after = COMMAND
align = inherits: \setupalign
dash = NUMBER
radius = DIMENSION
frame = on off
framecolor = COLOR
rulethickness = DIMENSION
voffset = DIMENSION
frameoffset = DIMENSION
leftoffset = yes no standard DIMENSION
rightoffset = yes no standard DIMENSION
topoffset = small medium big line DIMENSION
bottomoffset = small medium big line DIMENSION
style = STYLE COMMAND
color = COLOR

\setupthinrules [..,..=..,..]*
* height = max DIMENSION
depth = max DIMENSION
background = color
frame = on off
rulethickness = DIMENSION
alternative = a b c none
backgroundcolor = COLOR
color = COLOR
interlinespace = small medium big NUMBER
before = COMMAND
after = COMMAND
inbetween = COMMAND
n = NUMBER

\setuptype [...,...]¹ [..,..=..,..]²
OPT

```
1  NAME
2  option   = mp lua xml parsed-xml nested tex context none NAME
   command  = CSNAME
   left     = COMMAND
   right    = COMMAND
   tab      = yes no NUMBER
   compact  = absolute last all
   escape   = yes no TEXT PROCESSOR->TEXT
   style    = STYLE COMMAND
   color    = COLOR
   lines    = yes no normal hyphenated
   space    = on off normal fixed stretch
```

\setuptyping [...,...]¹ [..,..=..,..]²
OPT

```
1  NAME
2  oddmargin     = DIMENSION
   evenmargin    = DIMENSION
   margin        = yes no standard DIMENSION
   option        = mp lua xml parsed-xml nested tex context none NAME
   style         = STYLE COMMAND
   color         = COLOR
   align         = inherits: \setupalign
   lines         = yes no normal hyphenated
   space         = on off normal fixed stretch
   keeptogether  = yes no
   before        = COMMAND
   after         = COMMAND
   strip         = yes no NUMBER
   range         = NUMBER NAME
   tab           = yes no NUMBER
   escape        = yes no TEXT PROCESSOR->TEXT
   indentnext    = yes no auto
   continue      = yes no
   start         = NUMBER
   stop          = NUMBER
   step          = NUMBER
   numbering     = file line no
   blank         = inherits: \blank
```

\setupunit [...,...]¹ [..,..=..,..]²
OPT

```
1  NAME
2  method       = 1 2 3 4 5 6
   language     = LANGUAGE
   alternative  = text mathematics
   order        = reverse normal
   separator    = small medium big normal none NAME
   space        = small medium big normal none NAME
   style        = STYLE COMMAND
   color        = COLOR
```

\setupuserpagenumber [..,..*=..,..]
* viewerprefix = TEXT
state = start stop none keep empty
inherits: \setupcounter

\setupwhitespace [...*,...] OPT
* fix fixed flexible line halfline quarterline none small medium big default DIMENSION

\setvariables [1...] [..,..2=..,..]
1 NAME
2 set = COMMAND
reset = COMMAND
KEY = VALUE

\startalignment [...*,...] ... \stopalignment
* inherits: \setupalign

\startbuffer [...*] OPT ... \stopbuffer
* NAME

\startcolumns [..,..*=..,..] OPT ... \stopcolumns
* inherits: \setupcolumns

\startcombination [1...] OPT [..,..2=..,..] OPT ... \stopcombination
1 NAME
2 inherits: \setupcombination

\startformula [...*,...] OPT ... \stopformula
* packed tight middle frame inherits: \setupbodyfont

A

\startinteractionmenu [*...] ... \stopinteractionmenu
* NAME

\startlinecorrection [*...,...] ... \stoplinecorrection
* blank inherits: \blank OPT

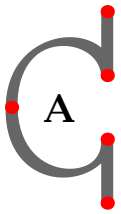
\startlocalfootnotes ... \stoplocalfootnotes

\startpacked [*...] ... \stoppacked
* blank OPT

\starttable [|1...|] [..,..2=..,..] ... \stoptable
1 TEMPLATE
2 inherits: \setuptables OPT

\starttabulate [|1..|] [..,..2=..,..] ... \stoptabulate
1 TEMPLATE OPT
2 inherits: \setuptabulate OPT

\starttextbackground [1...] [..,..2=..,..] ... \stoptextbackground
1 NAME
2 inherits: \setuptextbackground OPT



\startunpacked ... \stopunpacked

\startxtable [..,..*=..,..] ... \stopxtable
* inherits: \setupxtable OPT

\switchtobodyfont [...,...*]
* inherits: \setupbodyfont

\textreference [...,...1] {...2}
1 REFERENCE
2 TEXT

\thinrule

\thinrules [..,..*=..,..]
* inherits: \setupthinrules OPT

\type [..,..1=..,..] {...2}
1 inherits: \setuptype OPT
2 CONTENT

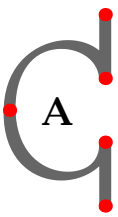
\useexternaldocument [...1] [...2] [...3]
OPT
1 NAME
2 FILE
3 TEXT

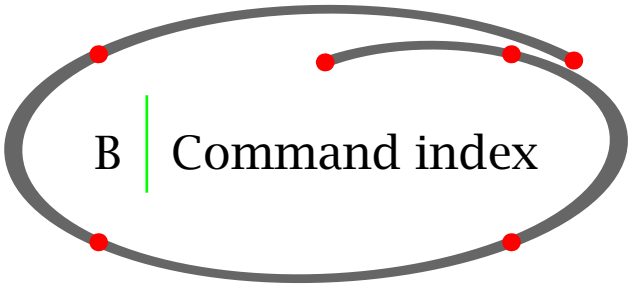
\usemodule [...1] [...,...2] [..,..,..=..,..3]
OPT OPT
1 m p s x t
2 FILE
3 KEY = VALUE

\useURL [...] [...] *[...] [...]*
1 NAME OPT OPT
2 URL
3 FILE
4 TEXT

\writebetweenlist [...] *[..,..=..,..]* {...}
1 LIST OPT
2 inherits: \setuplist
3 COMMAND

\writetolist [...] *[..,..=..,..]* {...} {...}
1 LIST OPT
2 inherits: \setuplist
3 NUMBER
4 TEXT





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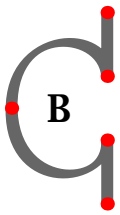
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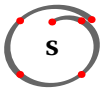

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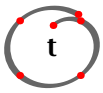

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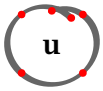

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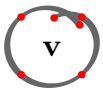

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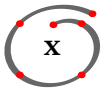

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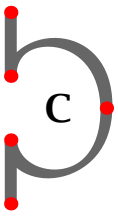
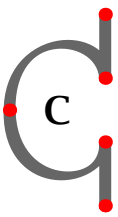
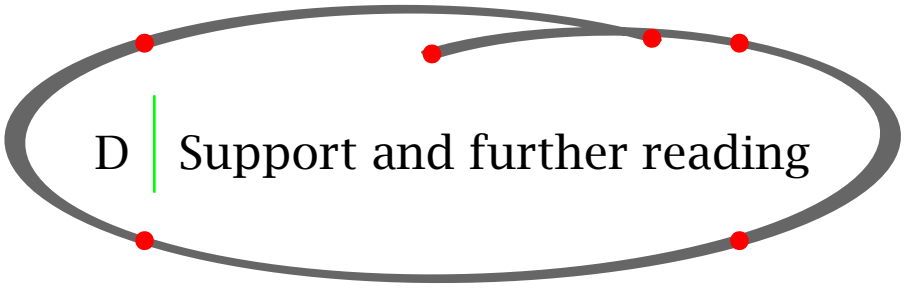



C



D Support and further reading

D.1

For your Questions and Answers you can subscribe to the CONTEXT mailing list.

Visit the Pragma ADE website for extensive information about CONTEXT.

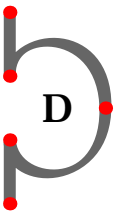
Goto the ConTeXt Garden to find all kinds of practical information on how to use CONTEXT.

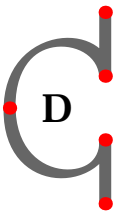
D.2 Manuals

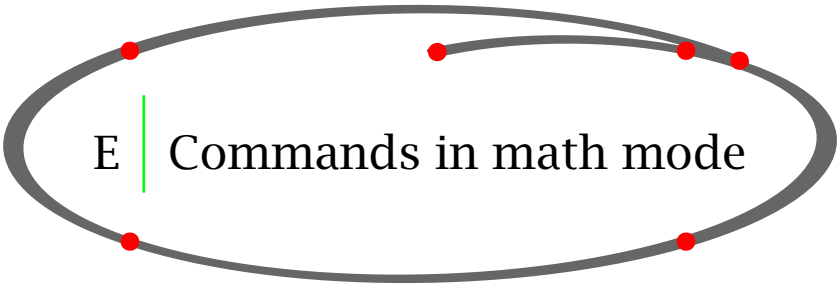
Chemical Formulas in CONTEXTColor SeparationColumnsCONTEXT, the manualDealing with XMLExtreme TablesFiguresFonts in CONTEXTluatools, mtxrun, contextMETAFUN manualNatural TablesPPCHTEX ManualQuick Reference (dutch)Quick Reference (english)SCITE in CONTEXTUnitsWidgets

D.3 Magazines

CONTEXT Magazine 1103Project structure




D



E Commands in math mode

E.1 Greek characters

	α	\alpha		ι	\iota		ϱ	\varrho
	β	\beta		κ	\kappa	Σ	σ	\sigma
Γ	γ	\gamma	Λ	λ	\lambda		ς	\varsigma
Δ	δ	\delta		μ	\mu		τ	\tau
	ϵ	\epsilon		ν	\nu		υ	\upsilon
	ε	\varepsilon	Ξ	ξ	\xi	Φ	ϕ	\phi
	ζ	\zeta		o	o		φ	\varphi
	η	\eta	Π	π	\pi		χ	\chi
Θ	θ	\theta		ϖ	\varpi	Ψ	ψ	\psi
	ϑ	\vartheta		ρ	\rho	Ω	ω	\omega

E.2 Special symbols

$\aleph$	\aleph	$'$	\prime	$\forall$	\forall
$\hbar$	\hbar	$\emptyset$	\emptyset	$\exists$	\exists
$\imath$	\imath	∇	\nabla	$\neg$	\neg
$\jmath$	\jmath	$\surd$	\surd	$\flat$	\flat
ℓ	\ell	$\top$	\top	$\natural$	\natural
$\wp$	\wp	$\bot$	\bot	$\sharp$	\sharp
$\Re$	\Re	$\Vert$	\Vert	$\clubsuit$	\clubsuit
$\Im$	\Im	$\angle$	\angle	?	\diamondsuit
∂	\partial	$\triangle$	\triangle	?	\heartsuit
∞	\infty	\	\backslash	$\spadesuit$	\spadesuit

E.3 Operators in addition to +

$\pm$	\pm	$\cap$	\cap	$\vee$	\vee
$\mp$	\mp	$\cup$	\cup	$\wedge$	\wedge
$\setminus$	\setminus	$\uplus$	\uplus	$\oplus$	\oplus
$\cdot$	\cdot	$\sqcap$	\sqcap	$\ominus$	\ominus
$\times$	\times	$\sqcup$	\sqcup	$\otimes$	\otimes
$*$	\ast	$\triangleleft$	\triangleleft	$\oslash$	\oslash
$\star$	\star	$\triangleright$	\triangleright	$\odot$	\odot
$\diamond$	\diamond	$\wr$	\wr	$\dagger$	\dagger

∘	\circ	◯	\bigcirc	‡	\ddagger
•	\bullet	△	\bigtriangleup	⨿	\amalg
÷	\div	▽	\bigtriangledown		

E.4 Operators

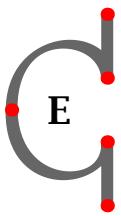
∑	\sum	∏	\prod	∐	\coprod
∫	\int	∮	\oint	⋂	\bigcap
⋃	\bigcup	⨆	\bigsqcup	⋁	\bigvee
⋀	\bigwedge	⨀	\bigodot	⨂	\bigotimes
⨁	\bigoplus	⨄	\biguplus		

E.5 Relation in addition to >

≤	\leq	≥	\geq	≡	\equiv
≺	\prec	≻	\succ	∼	\sim
⪯	\preceq	⪰	\succeq	≃	\simeq
≪	\ll	≫	\gg	≍	\asymp
⊂	\subset	⊃	\supset	≈	\approx
⊆	\subseteq	⊇	\supseteq	≅	\cong
⊑	\sqsubseteq	⊒	\sqsupseteq	⋈	\bowtie
∈	\in	∋	\ni	∝	\propto
⊢	\vdash	⊣	\dashv	⊨	\models
⌣	\smile	∣	\mid	≐	\doteq
⌢	\frown	∥	\parallel	⊥	\perp

E.6 Negated relations

/<	\not<	/>	\not>	/=	\not=
/≤	\not\leq	/≥	\not\geq	/≡	\not\equiv
/≺	\not\prec	/≻	\not\succ	/∼	\not\sim
/⪯	\not\preceq	/⪰	\not\succeq	/≃	\not\simeq
/⊂	\not\subset	/⊃	\not\supset	/≈	\not\approx
/⊆	\not\subseteq	/⊇	\not\supseteq	/≅	\not\cong
/⊑	\not\sqsubseteq	/⊒	\not\sqsupseteq	/≍	\not\asymp



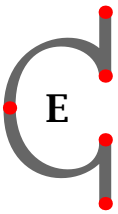
E.7 Some arrows

←	\leftarrow	⟵	\longleftarrow	↑	\uparrow
⇐	\Leftarrow	⟸	\Longleftarrow	⇑	\Uparrow
→	\rightarrow	⟶	\Rightarrow	↓	\downarrow
⇒	\Rightarrow	⟹	\Longrightarrow	⇓	\Downarrow
↔	\leftrightarrow	⟷	\longleftrightarrow	↕	\updownarrow
⇔	\Leftrightarrow	⟺	\Longleftrightarrow	⇕	\Updownarrow

↦	\mapsto	⟼	\longmapsto	↗	\nearrow
↘	\searrow	↙	\swarrow	↖	\nwarrow
↩	\hookleftarrow	↪	\hookrightarrow		

E.8 Alternative commands

≠	\ne	{	{	∧	\land	→	\to		\vert
≤	\le	}	}	∨	\lor	←	\gets	‖	\Vert
≥	\ge	∋	\owns	¬	\lnot				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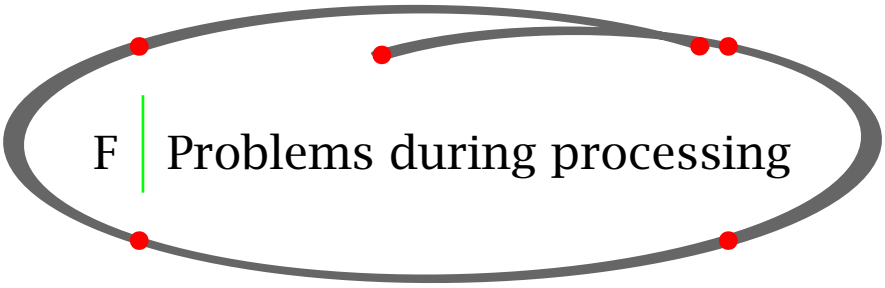


F Problems during processing

If processing is not succesful —for example because you typed `\stptext` instead of `\stoptext`— CONTEXT produces a `?` on your screen and tells you it has just processed an error. It will give you some basic information on the type of error and the line number where the error becomes effective.

At the instant of `?` you can type:

`H`	for help information on your error
`I`	for inserting the correct CONTEXT command
`Q`	for quiting and entering batch mode
`X`	for exiting the running mode
`ENTER`	for ignoring the error

Most of the time you will type `ENTER` and processing will continue. Then you can edit the input file and fix the error.

Some errors will produce a `*` on your screen and processing will stop. This error is due to a fatal error in your input file. You can't ignore this error and the only option you have is to type `\stop` or CTRL Z. The program will be halted and you can fix the error in your text editor.

A well known error is:

```
! I can't write on file 'myfile.pdf'.
Please type another filename for output:
```

This error is due to the fact that the file `myfile.pdf` is stil open in ACROBAT READER.

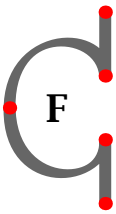
The best way to proceed is:

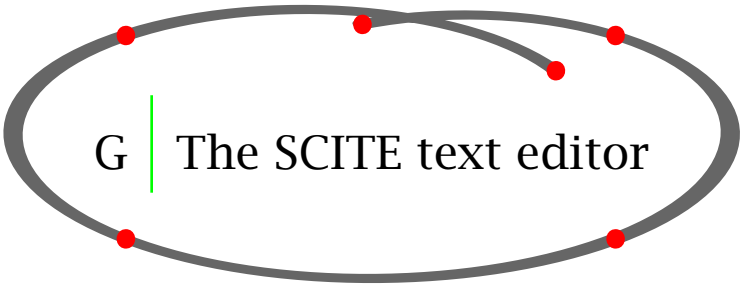
- close the file in ACROBAT READER
- type `ENTER` at the console

Sometimes the error messages are very obscure. Finding the location of the error in an extensive document can then be a tedious job. You could try to isolate the error:

- open the file in your text editor
- save a copy of your file (to be on the safe side)
- isolate the error
  1. place a `\stoptext` command higher up in your text
  2. process the file
  3. repeat step 1 and 2 until the file processes correctly

- study the content that produces the error
- fix the error
- place the `\stoptext` command after the corrected error
- process your file
- etc.





The developers of CONTEXT have always been able to proces their TEX files from a text editor. In that way CONTEXT became an effective authoring tool.

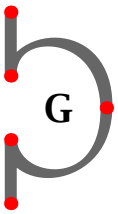
At this moment the text editors SCITE and TEXWORKS are more or less part of the CONTEXT distribution.

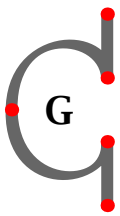
Please refer to the CONTEXT WIKI and learn how to install SCITE.

SCITE supports the:

- processing TEX of files
- colored display of commands (lexing)
- syntax checking of TEX, XML and LUA files
- spell checking of your text

The CONTEXT specific support of SCITE is described in the manual SCITE in CONTEXT.

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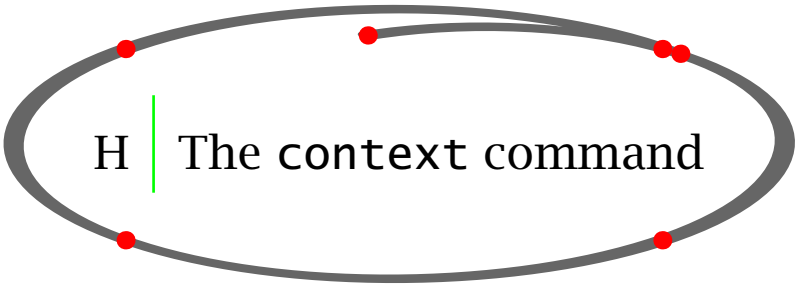


H The context command

You can process a TEX file or run CONTEXT with the command `context` that you can type at your console:

```
context myfile
```

CONTEXT will make multiple runs to get the layout, references, lists and pagenumbering straight. You can see those runs echoed on your screen and listed in the `myfile.log` file.

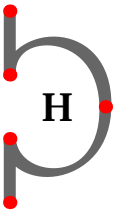
You can add parameters to give the command `context` additional tasks while processing the file. If you want start up ACROBAT READER automatically you can type:

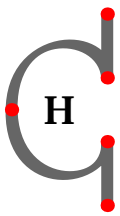
```
context --autopdf myfile
```

A full overview of the parameters is given when you type:

```
context --help
```

Please refer to the manual luatools, mtxrun, context for more information on running CONTEXT.

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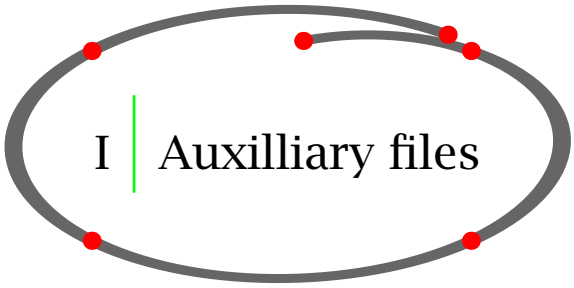
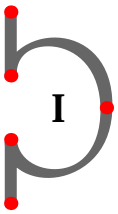
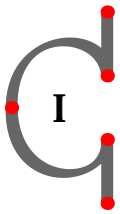


CONTEXT will produce a number of auxilliary files during processing. If your input file is called `myfile.tex` the following files may appear on your working directory.

CONTEXT MkII	CONTEXT MkIV	Meaning
`myfile.tex`	`myfile.tex`	your text file
`myfile.log`	`myfile.log`	log information
`myfile.tuo`	`myfile.tuc`	output information
`myfile.tui`		input information
`myfile.tmp`		temporary information
`mpgraph.mp`		METAPOST information
`myfile.pdf`	`myfile.pdf`	result file

The `myfile.tuc` file contains information about registers, lists and references which will be used when necessary. The `myfile.log` can be viewed in case there are problems during processing.

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Main author: Ton Otten
PRAGMA ADE

Design and style: Hans Hagen

Illustrations: Johan Jonker

PRAGMA ADE
Ridderstraat 27
8061GH Hasselt NL
www.pragma-ade.com

October 5, 2017

This manual describes some features of CONTEXT, a document production system, based on TEX.

CONTEXT offers the user a flexible and high quality typesetting environment. No in-depth knowledge of TEX is needed. The parameter driven character of CONTEXT enables users to define their own layout rather easy.

CONTEXT is developed and tested in a production environment and is used for typesetting simple books as well as complex documents, paper and/or screen based. This introduction manual describes the functionality needed for everyday publications, like manuals and educational materials.

This manual is also available as an interactive document, be it in a bit different layout. The macro package CONTEXT, some more advanced examples and additional information can be found at www.pragma-ade.com.

PRAGMA ADE
Ridderstraat 27
8061 GH Hasselt NL
www.pragma-ade.com